

# The role of entrepreneurship in U.S. and European job growth

*Entrepreneurial activity, which is higher in the United States than in Europe, is important to job growth, but not as important as job expansions in existing firms*

Robert W. Bednarzik

**E**ntrepreneurship, or the creation of a new business or enterprise, is an integral and significant activity in a growing job market. Just as new establishments are created, some existing ones expand, contract, or dissolve operations altogether. Countries that have the capacity and wherewithal to accommodate high rates of business formation and dissolution will be best positioned to compete in world markets.

To examine and monitor this process, government agencies in the United States and Eurostat from the European Union have collected data on the births and deaths of establishments.<sup>1</sup> Until recently, U.S. establishment-based longitudinal data were available only on the manufacturing sector. However, new longitudinal data on the births and deaths of establishments in both the United States and Europe are available. For the United States, the new data series, referred to as the Longitudinal Establishment and Enterprise Microdata (LEEM), provides information on the services sector as well as the manufacturing sector. The Census Bureau collects the data for the U.S. Small Business Administration.<sup>2</sup> European Union data are collected by its “statistical arm,” Eurostat, which developed a special data bank from existing statistical administrative data on small- and medium-size enterprises (SMEs) in 1994 and 1995. In addition, the Global Enterprise Monitor project collected comparable data, using a very small sample of 10 industrialized countries to measure the level of entrepreneurship and to study the relationship between business creation

and economic growth internationally. The results of the survey show a wide lead in the number of new businesses created in the United States.<sup>3</sup> Although the Establishment and Enterprise Microdata and the Eurostat data on small- and medium-sized enterprises are not comparable, they each shed light on the nature and magnitude of a very important component of job creation—entrepreneurship. This article uses the Establishment and Enterprise Microdata and the international databases to determine the role of entrepreneurship in job growth for the United States and Europe.

The crux of the article examines the births, deaths, expansions, and contractions of establishments by size and industry to determine the net effects on job growth in the 1990s. The focus is on service sector industries, which led employment growth in the United States. Beginning with a description of the data, this article notes that some incompatibilities suggest that it is better to analyze U.S. data separately from European Union data. The article also provides a sectoral overview of the U.S. and European Union job markets to set in perspective the role of entrepreneurship in job creation. The results from the Global Entrepreneurship Monitor project conclude the article.

### Tracking and counting

Since 1991, the U.S. Small Business Administration has contracted with the Census Bureau to produce comprehensive and timely data of U.S.

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businesses by establishment size. This led to the development of the Establishment and Enterprise Microdata file that consists of data on all U.S. private-sector, nonfarm establishments with employees. Data from this series do not include self-employed individuals, but they do track employment levels (size), payroll, and firm affiliation for more than 11 million establishments that existed at some time during the 1989–96 period. It is the first nationwide, high-quality longitudinal database that covers the vast majority of employer businesses from all sectors of the economy.<sup>4</sup> The basic unit of this file is an establishment—defined as a single physical location at which business is conducted or services or industrial operations are performed. An establishment is not necessarily identical to a company or firm, which could consist of one or more establishments. When two or more activities are carried out at a single location with a single owner, the entire establishment is classified on the basis of its major activity. More than two-thirds of multi-unit firms have less than four establishments, but other firms can consist of thousands of establishments.

For several years, Eurostat has been developing the European statistical system on small- and medium-size enterprises to improve the data on enterprises—births, deaths and employment changes. A limited amount of data is now available for 10 of the 15 European Union countries, specifically: Denmark, Germany, Spain, France, Italy, the Netherlands, Portugal, Finland, Sweden, and the United Kingdom. However, because the national concepts on measuring enterprise births and deaths are not fully harmonized, country comparisons of absolute figures should be avoided. Moreover, comparison with U.S. data on establishments is even more problematic, because European Union data include the self-employed (also termed sole proprietorships), but U.S. data do not. Only U.S. establishments that paid wages to at least one employee at some time during the year are counted; however, the number of establishments with no paid employees is not an insignificant number. In 1992, for example, the number of U.S. establishments with no paid employees was about 14.7 million. The basic unit of Eurostat data is referred to as the “enterprise,” which is the smallest group of legal units producing goods or services and constituting an autonomous economic entity. Because the Eurostat concept includes sole proprietorships, it is not synonymous with the U.S. concept of an establishment. Therefore, the term “establishment” is used in describing only U.S. companies.

### Employment comparisons

In the early 1970s, U.S. and European Union employment rates (employment as a share of the civilian population) were nearly the same. Subsequently, employment growth between the United States and Europe Union has developed a diverging

trend. A closer view of this gap reveals that changes in employment rates over time reflect population changes. For example, between 1975 and 1998, U.S. employment grew, on average, just under 2 percent a year, compared with only an average of 1/2 percent in the European Union. Higher U.S. population growth provides part of the explanation, but it does not explain the dramatic change in the percentage of the working-age population now employed in the United States, versus the European Union. In 1975, the number employed as a share of the working-age population was 63 percent in the United States and 64 percent in the European Union. By 1997, the U.S. rate reached 74 percent and the European Union rate slipped to 61 percent. This differential is wholly explained by higher employment in the U.S. service sector.

*Service sector.* A key difference between the United States and European Union is the relative number of persons working and the size of the service sector.<sup>5</sup> (See table 1.) The source of the difference is in the service sector, because shares of the working-age population in agriculture and industry<sup>6</sup> are roughly the same in the United States and the European Union. Over the 1980s and 1990s, shares in both agriculture and industry reflected a slight decline, but the percentage of the working-age population in the service sector increased more in the United States, reaching 54 percent, than in the European Union, reaching 40 percent. The distribution ranking among the principal services industries—trade, hotels and restaurants, transport, finance, business and real estate, and communal services<sup>7</sup>—was similar in the United States and European Union, but a higher percentage of people worked in all of those industries in the United States. (See table 2.)

*Gender and skill level.* There are a few other U.S.-European Union differences in employment activity pertaining to the services industry that are noteworthy, particularly the share of employment by gender and skill level. Women accounted

**Table 1.** Employment rates by broad industry sector, 1997

[In percent]		
Item	United States	European Union
Total population, 15 to 64 years old .....	100.0	100.0
Total employed .....	74.0	60.5
Agriculture .....	2.0	3.0
Industry .....	17.7	17.8
Services .....	54.3	39.7
Not employed .....	26.0	39.5

SOURCE: *Employment Performance in the Member States: Employment Rates Report 1998* (European Union Directorate-General for Employment, Industrial Relations and Social Affairs, Luxembourg, 1999).

**Table 2.** Total employment and female employment rate for the United States and European Union, 1997

Sector	Employment rate		Female employment rate	
	United States	European Union	United States	European Union
Total .....	74.0	60.5	46.2	41.8
Agriculture, fisheries, and forestry .....	2.0	3.0	21.8	33.9
Industry .....	11.7	17.8	—	—
Mining, oil, and natural gas .....	.5	.3	14.4	10.4
Manufacturing .....	11.8	12.3	32.1	28.4
Electricity, gas and water .....	.7	.5	21.9	17.8
Construction .....	4.7	4.7	9.4	8.4
Services .....	54.3	39.5	—	—
Trade .....	12.1	9.1	41.9	45.4
Hotels and restaurants .....	5.4	2.5	53.7	52.5
Transport and communications ..	4.1	3.6	29.9	28.6
Finance and insurance .....	3.3	2.1	62.2	46.1
Business services and real estate ....	7.8	4.6	45.9	44.2
Communal services <sup>1</sup> .....	21.4	17.8	<sup>2</sup> 54.2	<sup>2</sup> 51.7

<sup>1</sup> Communal services includes public administration, education, health and social work, sanitary services, membership organizations, recreational activities, personal and other services, and private households.

<sup>2</sup> Unweighted average of 10 detailed services industries.

NOTE: Employment rate is the percentage of the working-age (16 to 64 years old) population employed. Dash indicates data not available. Industry categories are classified according to the European Community (NACE Revision 1) 2-digit sector.

SOURCE: *Employment in Europe, 1999* (European Commission, Directorate-General for Employment, Industrial Relations and Social Affairs, 1999).

for a larger share of the working-age population in the United States (46 percent), versus the share of women in the European Union (42 percent) in 1997. In the service sector, this difference was very narrow, except for that in the finance and insurance industry for which women accounted for a much larger share in the United States. (See table 2.)

Workers also can be distinguished by high, medium, or low skill levels in major industries. In agriculture and industry, there was no difference in the distribution of workers by skill level in the United States and the European Union. In services, however, there was a significant difference. A much higher share of U.S. workers in the service sector were low skilled, compared with their European Union counterparts. (See table 3.) The percentages of medium- and high-skilled workers in services were slightly higher in the United States.

This analysis revealed that compared with the proportion of the European Union population, a greater proportion of the U.S. population is working, especially in the service sector. A

closer view showed that the higher proportion is diffuse throughout service industries. A greater proportion of U.S. women work, but the differences in service-sector industries are negligible. A much larger share of U.S. low-skilled workers are working, compared with the share in Europe, and a large percentage of low-skilled workers are in the service sector.

### Closer view of U.S. job growth

Near the close of the 20<sup>th</sup> century, the number of jobs in the services industry, representing about 30 percent of all jobs, was twice the number in manufacturing.<sup>8</sup> In the current economic expansion, the longest in the last half of the 20<sup>th</sup> century, job growth in services was twice as high as its share of total employment. In other words, services accounted for more than half of the nearly 18-million job increase between 1991 and 1999.

To determine precisely where most of the job gains are originating and examine the role of new business creation, we can observe the top 10 three-digit SIC industries in the United States that have both a high level change and high percent change in the number of jobs over the 1991–99 period.<sup>9</sup> (See chart 1.) Seven of those industries are in services, led by personnel supply services (SIC 736) and computer services (SIC 737)—both of which more than doubled in number of jobs. Four of the top 10 industries pay more than the average wage—computer services (SIC 737), management and public

**Table 3.** Employment rates by skill category, 1997

Industry and skill category	United States	European Union
Total employment (In thousands) .....	175,108	246,263
Total employed (in percent) .....	74.0	60.0
High skilled .....	24.0	21.0
Medium skilled .....	28.0	25.0
Low skilled .....	22.0	14.0
Agriculture and industry		
Total .....	20.0	20.0
High skilled .....	4.0	4.0
Medium skilled .....	14.0	14.0
Low skilled .....	2.0	2.0
Services		
Total .....	55.0	40.0
High skilled .....	20.0	17.0
Medium skilled .....	15.0	11.0
Low skilled .....	20.0	12.0

NOTE: High skilled = high skilled nonmanual; medium skilled = medium skilled nonmanual and skilled manual; and low skilled = low skilled manual and nonmanual.

SOURCE: *Employment in Europe, 1999* (European Union Directorate-General for Employment, Industrial Relations and Social Affairs, 1999).

relations (sic 874), mortgage bankers and brokers (sic 616), and security brokers and dealers (sic 621). Chart 1 also illustrates the change in the number of establishments between 1991 and 1996, which can be interpreted as a rough measure of entrepreneurship in the top 10 job growth industries. All of industries listed in the chart exhibited more than a 9-percent increase in new establishments, the average for all industries, indicating the importance of new establishments to job growth in these industries. Computer services, home health care services, mortgage bankers and brokers, and management and public relations services industries recorded a significantly large percent change of net new establishments.

The examination of all U.S. industries at the three-digit SIC level revealed that the lion’s share of U.S. job growth in the current expansion occurred in services industries, with the birth of new establishments playing an important role. Also, services comprised a mix of low- and high-paying industries.

### Importance of new companies

Early studies on the role of the births and deaths of firms/establishments concentrated on the U.S. manufacturing sector, because it was the only sector for which such data were available. The main findings from these studies include<sup>10</sup> :

- Large establishments and firms account for most newly created jobs
- Survival rates for jobs increase sharply with firm size
- Smaller establishments and firms have much higher gross job creation rates but not higher net creation rates
- The probability that a firm will fail decreases with age
- Age of establishment is more important for employment growth than size, and young establishments grow faster than old establishments

- Employment growth rates decline as firm size increases for establishments owned by a single-establishment firm, but increase in tandem with firm size for establishments owned by multi-establishment firms

Studies by the Small Business Administration in 1998 focused on the contribution of new, small firms by economic sector (agriculture, manufacturing, and services) to overall job creation.<sup>11</sup> Key findings of these studies, which focus on the services sector between 1990 and 1995, and build on—and confirm the results of—manufacturing-based studies include:

- Very small firms (those with fewer than 20 employees) created about half of the net new jobs; most of which were in the service sector
- Gross job flow rates—a measure of instability which is the sum of jobs created and dissolved, relative to average employment over a specific period—declined as the establishment aged
- The relationship between job flow rates and establishment age is stronger for single-unit establishments than it is for multi-unit firms
- Gross and net job creation declines as establishment size rises
- An increasing share of jobs created in services are in large firms, but this is not necessarily due to the higher growth rates in larger firms; smaller businesses growing into a larger establishment and acquisition of small firms by large firms are factors also

An international comparative study of job gains and losses covering basically the 1983–91 period showed that job gains from new establishments and job losses from establishment

**Table 4.** Distribution of U.S. establishments by number of employees, selected years, 1946–97

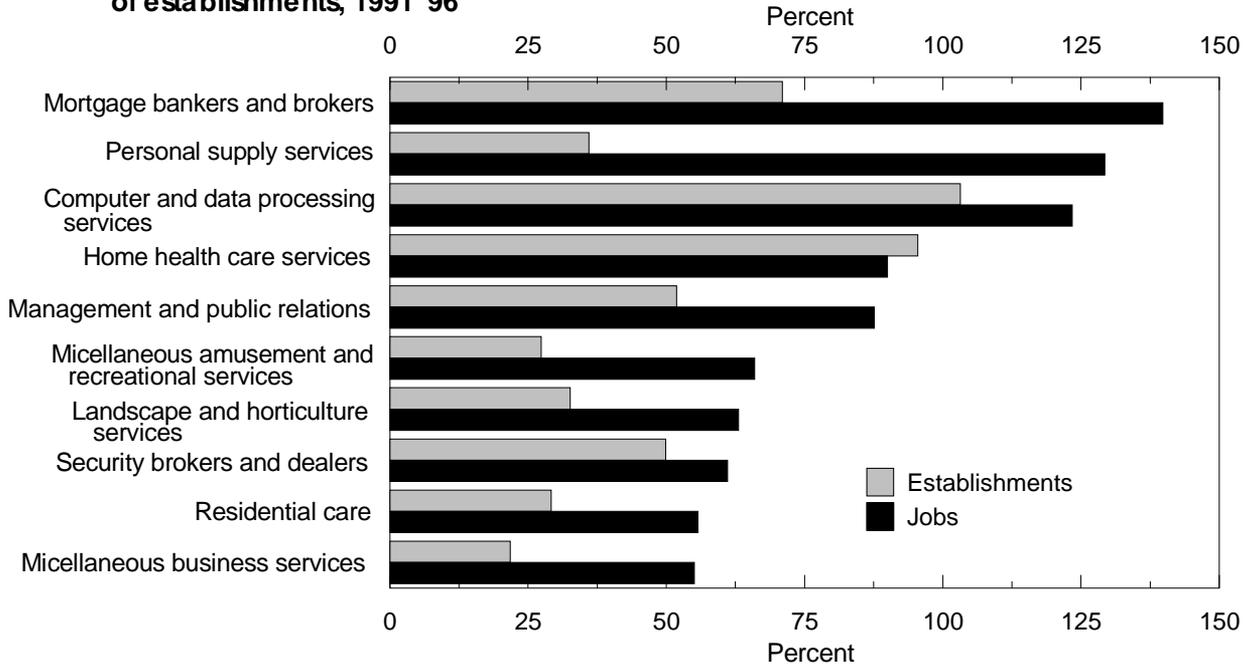
Year	Total	1–19 employees	20–49 employees	50–99 employees	100–499 employees	500 employees or more
1946 .....	100.0	90.5	5.7	2.0	1.5	0.3
1956 .....	100.0	90.8	5.6	1.9	1.4	.3
1966 .....	100.0	89.3	6.6	2.2	1.6	.3
1974 .....	100.0	87.9	7.5	2.5	1.8	.3
1983 .....	100.0	88.3	7.3	2.5	1.7	.2
1993 .....	100.0	87.1	8.0	2.7	1.9	.2
1996 .....	100.0	86.7	8.2	2.8	2.1	.2
1997 .....	100.0	86.5	8.3	2.8	2.1	.2

NOTE: In 1974, the Census Bureau began to tabulate data as an establishment rather than as a reporting unit. In 1983, the Census Bureau began to tabulate data on firms’ actions anytime during the year rather than

in business at the end of the year.

SOURCE: County Business Patterns, Census Bureau, selected years.

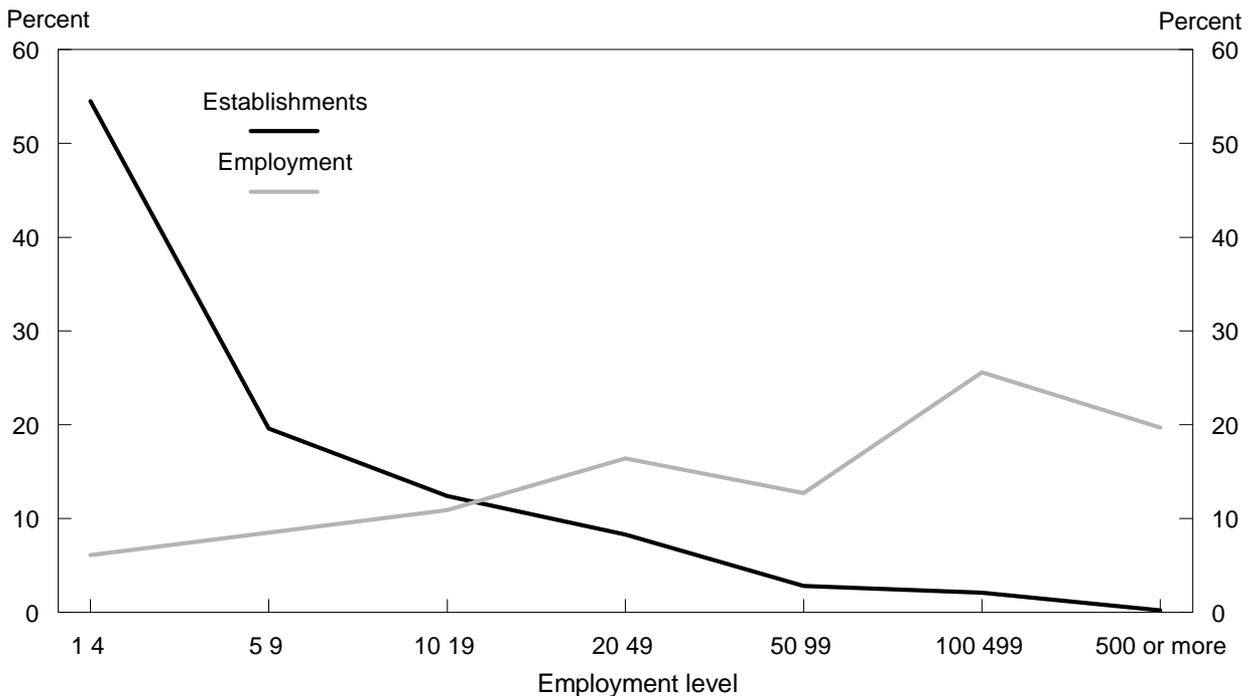
**Chart 1. Top-10 job growth industries in the United States, 1991-99 and the change in number of establishments, 1991-96**



NOTE: These are three-digit Standard Industrial Classification (SIC) industries, according to the *Standard Industrial Classification Manual, 1987* (Washington, Office of Management and Budget).

SOURCE: Bureau of Labor Statistics and Small Business Administration tabulations.

**Chart 2. Distribution of U.S. establishments and employment by employment level, 1997**



SOURCE: County Business Patterns, Census Bureau, 1997.

**Table 5.** Distribution of U.S. establishments by number of employees, selected years, 1974-97

Year	Total	1-4 employees	5-9 employees	10-19 employees
1974 .....	100.0	58.6	18.0	11.3
1982 .....	100.0	53.7	20.5	12.5
1983 .....	100.0	57.4	19.4	11.5
1993 .....	100.0	54.6	20.1	12.4
1996 .....	100.0	54.9	19.5	12.3
1997 .....	100.0	54.5	19.6	12.4

NOTE: In 1974 the Census Bureau began to tabulate data as an establishment rather than as a reporting unit.  
 In 1983, the Census Bureau began to tabulate data on firms' actions anytime during the year rather than in business at the end of the year.  
 SOURCE: County Business Patterns, Census Bureau, selected years.

closures were relatively higher in the United States than in Europe.<sup>12</sup>

### Small business and employment growth

The level of entrepreneurship is often equated with small business.<sup>13</sup> Although trending downward slightly over the past 50 years, small business made up more than 85 percent of all establishments (employing less than 20 workers) in 1997. (See table 4.) Moreover, very small establishments (those employing less than five workers) still accounted for more than half of all establishments in 1997. (See table 5.) This conjures up a misleading picture of their importance to employment. Chart 2 illustrates a much more equitable distribution of employment, versus establishment size than the more skewed distribution data, based solely on the number of establishments by employment size. In fact, employment levels tend to rise slightly as establishment size increases—an important point to bear in mind when examining the role of new establishments in job creation. That is, even though there are many more small establishments, their share of total employment is not as significant as that of large establishments.

### Job creation from new establishments

How many of the new jobs in the United States are attributed to new business creation? To help answer this, we can examine the role of new establishments in job creation by size of establishment and by detailed industry. Not only is job creation by size and industry important in determining the impact of entrepreneurship, but also the sustainability of newly created establishments.

The dynamic nature of the U.S. job market is revealed by examining changes in the number of establishments and in the

number of persons employed due to establishment change. Establishment and employment changes are caused by:

- Establishment births
  - New firms and their establishments (original establishments)
  - New establishments in existing firms (secondary establishments)
- Establishment deaths
  - Deaths of original establishments
  - Deaths of secondary establishments
- Employment expansion in existing establishments
- Employment contractions in existing establishments

The following tabulation shows the total number of establishment and job changes from 1995 to 1996 (the most recent period for which data are available):

<i>Establishment change</i>	<i>Number of establishments</i>	<i>Number of jobs</i>
Births .....	697,460	5,908,300
Deaths .....	606,430	4,995,220
Expansion .....	1,714,600	10,284,770
Contraction .....	1,571,830	9,330,600

The number of jobs created from establishment births exceeded the number of jobs abolished due to deaths by about 915,000 and the number of jobs from establishment expansions exceeded the number from contractions by about 954,000, resulting in about a 1.9-million job increase between 1995 and 1996. This clearly reflects the dynamic nature of the job market, which is masked when examining only the net change for one time period to the next.

**Table 6.** Changes in U.S. employment by establishment births and deaths, 1989-96

[in percent]

Years	Net employment change	Employment change due to—		
		Establishment births	Establishment deaths	Continuing establishments
1989-90 .....	2.0	5.8	-5.3	1.5
1990-91 .....	-1.2	6.1	-5.3	-2.1
1991-92 .....	.6	7.1	-5.8	-.8
1992-93 .....	2.1	5.9	-5.2	1.4
1993-94 .....	2.1	5.6	-5.2	1.7
1994-95 .....	3.7	6.0	-4.7	2.4
1995-96 .....	1.9	5.9	-5.0	1.0

SOURCE: *Small Business Growth by Major Industry, 1988-1995* (Washington, Office of Advocacy, U.S. Small Business Administration, 1998), table A-7, and on the Internet at: [http://www.sba.gov/ADVO/stats/dyn\\_us96.pdf](http://www.sba.gov/ADVO/stats/dyn_us96.pdf).

*Establishment births and deaths and the business cycle.* From 1989 to 1996 (a period covering the most recent business cycle peak in 1990 and trough in 1991) the behavior of existing establishments with regards to employment is clearly cyclical, as job cutbacks outnumbered job gains only during the 1990–92 recessionary period. In contrast, the birth of new establishments appears unrelated to the business cycle. Employment growth from new establishments remained between a 5.6-percent and 7.1-percent range from year to year. (See table 6.)

Establishment deaths, which were always a bit fewer than births, illustrated cyclical tendencies. This is in agreement with a study analyzing the U.S. and Canadian manufacturing industries, which found that job destruction was much more cyclical and volatile than job creation.<sup>14</sup> This is related to the fact that job dissolution is more concentrated because manufacturing plants are more likely to shutdown in recessionary periods; that is, they are more vulnerable to adverse shocks during this period.<sup>15</sup>

Although employment gains and losses in existing establishments dominated the overall employment year-to-year change, establishment births provided a steady stream of new jobs each year. It would be useful to know whether these new establishments were congregated in small firms or were more widely distributed.

*Opening new establishments, versus expanding existing ones.* Between 1995 and 1996, slightly more than a third of the jobs created were from the birth of new establishments. New companies, as an incubator for new jobs, did not change

much in size, except for their lower share of new jobs in large establishments (500 or more employees). A partial explanation is a distinction between a new original company and an offshoot of an existing firm (like opening a new McDonald's). There were 5.9 million jobs created by the birth of establishments over the 1995–96 period—3.3 million from births of original establishments and 2.7 million from births of existing establishments. The share of jobs created in small and large companies differed dramatically between new establishments and offshoots of existing companies. (See table 7.) Nearly all of the jobs created by establishment births from offshoots were in large companies. In contrast, most of the jobs created by establishment births of original establishments were in small companies. That is, very few establishments start big. In the aggregate, moreover, far fewer jobs were created from births in large establishments (100 or more workers) than in smaller establishments.

Establishment deaths by size also differ dramatically by whether the establishment was initially created as an entirely new entity or as an offshoot from an existing company. Small new entities and large offshoots both have high death rates. This occurs for the latter because large companies open and close new establishments quickly, based upon short-term profits. Moreover, the difference in the death rate between small, new establishments and large offshoots probably is more a function of the age of the establishment than its size. Younger establishments have a higher risk of dissolution.

*Establishment births and deaths vary by major industry and*

**Table 7.** U.S. employment change due to births and deaths, by firm size, 1995–96

[In percent]

Change due to establishment—	Total	1–4 employees	5–9 employees	10–9 employees	20–99 employees	100–499 employees	500 employees or more
<b>Births (from new firms):</b>							
Percent of all jobs created .....	20.0	38.7	37.5	34.4	29.6	19.1	3.1
Percent distribution of jobs created by births of new firms .....	100.0	24.8	16.1	15.0	25.3	11.9	6.1
<b>Births (from existing firms):</b>							
Percent of all jobs created .....	16.4	.1	.2	.6	2.6	14.1	35.5
Percent of all jobs created by births of new firms .....	100.0	.1	.1	.3	2.7	10.8	85.9
<b>Deaths (from firms not created by births from existing firms):</b>							
Percent of all jobs lost .....	21.6	60.2	38.8	35.1	30.6	20.2	4.8
Percent distribution of jobs lost by deaths .....	100.0	21.4	14.5	14.3	26.7	13.6	9.4
<b>Deaths (from firms created originally by births from existing firms):</b>							
Percent of all jobs lost .....	13.2	.3	.6	1.4	3.9	22.1	25.5
Percent distribution of jobs lost by deaths .....	100.0	.2	.4	.9	5.6	12.1	80.8

SOURCE: On the Internet at: [http://www.sba.gov/ADVO/stats/int\\_data.html](http://www.sba.gov/ADVO/stats/int_data.html).

size. Given the magnitude of the number of jobs created by the births of establishments, it is useful to examine the contrasts by industry. From 1990 to 1995, total employment rose as new jobs were created from establishment births and expansion, with the share from expansions being slightly higher.<sup>16</sup> The dominance of expansions verifies the results of previous studies that were for the most part based only on the manufacturing sector. Chart 3 and table 8 present data on net job creation by major industry divisions for the first half of the 1990s. The highest net job creation rate was in services, accounting for one-fifth of the job increase. What distinguishes the services industry from all other industries is its low death rate and high expansion rate among existing establishments. Viewed another way, a larger number of new service establishments survived and expanded over the 1990–95 period. In contrast, the manufacturing industry lost employment over the same period because establishment deaths exceeded births and employment contractions exceeded expansions among existing establishments. With the exception of manufacturing, all major industries recorded large birth rates of new establishments.

The magnitude and pervasiveness of job reallocation within and across industry sectors supports a study by Steven J. Davis, John Haltiwanger, and Scott Schuh, which concludes that idiosyncratic factors dominate the determination of which establishments create and destroy jobs, and which establishments grow.<sup>17</sup> This results from the considerable uncertainty that surrounds the development, adoption, distribution, marketing, and regulation of new products and production techniques. Many factors also influence whether an establishment succeeds or fails; prominent among them are the owner’s initial capital investment, management ability, location, and

age.<sup>18</sup> About 1 of 7 establishments go out of business annually. However, the survival rate more than doubles for firms that grow, and the earlier in the life of the business that growth occurs, the higher the chance of survival. Moreover, even a small amount of growth boosts the survival rate to where 2 of 3 growing firms survive.<sup>19</sup>

Small establishments (1 to 19 workers) are much more prevalent in services than in manufacturing. For example, there were about twice as many small establishments in services than there are in manufacturing in 1990, accounting for 24 percent of all services industry jobs, compared with 7 percent of manufacturing jobs. Moreover, the share of jobs created by establishment births in small firms (1 to 19 employees) was much higher in the services industry than in manufacturing. The following tabulation illustrates the percent distribution of jobs created from establishment births by establishment size and major industry from 1990 to 1995:

<i>Establishment size</i>	<i>Total</i>	<i>Manufacturing</i>	<i>Services</i>
Total employees .....	100.0	100.0	100.0
1–19 employees .....	26.6	16.8	25.8
20–499 employees .....	33.6	36.3	36.2
500 or more employees .....	39.9	46.8	38.0

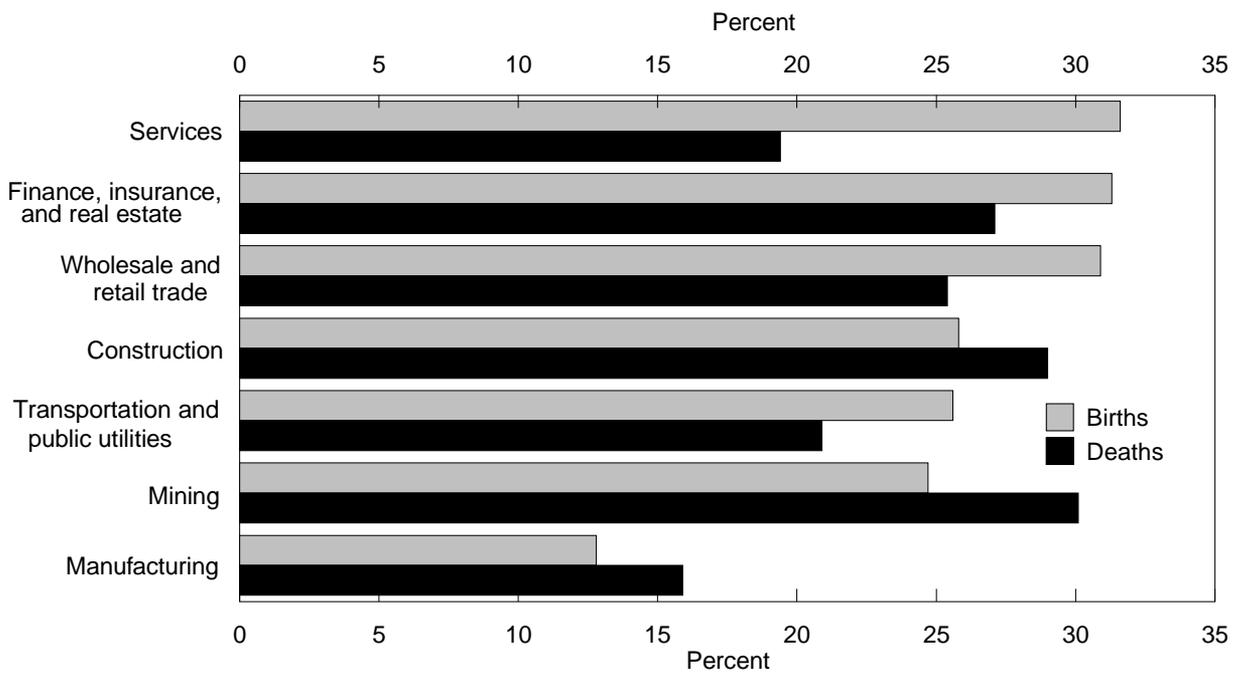
Net and gross job creation declined as establishment size increased for total employment in both the manufacturing and services industries from 1990 to 1995.<sup>20</sup> (See table 9.) This is in agreement with a study of job flow in services,<sup>21</sup> but not in agreement with other studies of such in manufacturing,<sup>22</sup> in

**Table 8.** Rates of Job changes from establishment births, deaths, expansions, and contractions by major U.S. private sector industry, 1990–95

Industry	Net job creation	Job change from establishment				Employment share
		Births	Deaths	Expansions	Contractions	
Total .....	7.3	26.9	-21.8	22.9	-14.9	100.0
Agriculture .....	14.6	33.2	-24.8	22.9	-16.7	.6
Mining .....	-10.2	24.7	-30.1	14.5	-19.3	.8
Construction .....	-3.7	25.8	-29.0	19.2	-19.7	5.6
Manufacturing .....	-3.6	12.8	-15.9	14.7	-15.2	20.5
Transportation and public utility .....	5.2	25.6	-20.9	17.8	-17.3	6.0
Wholesale and retail trade .....	6.2	30.9	-25.4	14.6	-14.0	28.0
Finance, insurance, and real estate .....	.2	31.3	-27.1	14.7	-18.6	7.5
Services .....	20.1	31.6	-19.4	21.2	-13.2	30.9

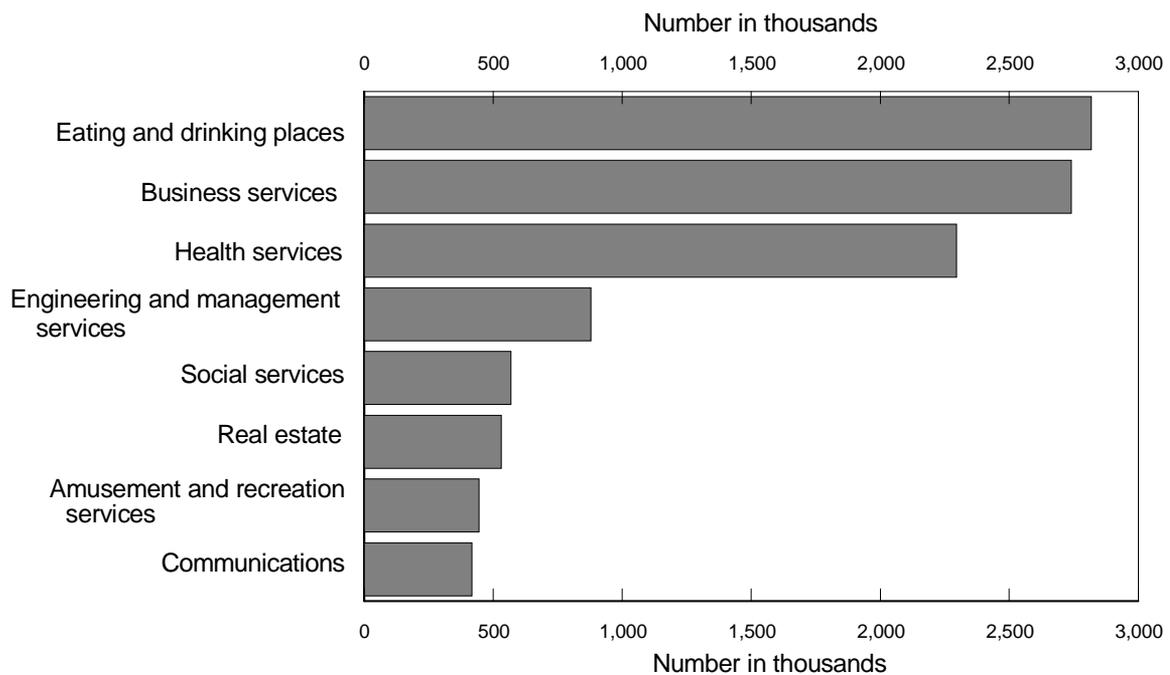
SOURCE: On the Internet at: [http://www.sba.gov/ADVO/stats/int\\_data.html](http://www.sba.gov/ADVO/stats/int_data.html).

**Chart 3. Rates of job changes from establishment births and deaths by major U.S. private-sector industry, 1990-95**



SOURCE: On the Internet at: [http://www.sba.gov/ADVO/stat/int\\_data.html](http://www.sba.gov/ADVO/stat/int_data.html).

**Chart 4. Number of U.S. jobs created from establishment births by entrepreneurial industries, 1990-95**



NOTE: These are two-digit Standard Industrial Classification (SIC) industries, according to the *Standard Industrial Classification Manual, 1987* (Washington, Office of Management and Budget).

**Table 9.** Rates of job creation and destruction by firm size and selected U.S. industry, 1990-95

Firm size and industry	Gross job creation	Net job creation	Gross job destruction
Total .....	7.3	44.0	-36.7
1-4 employees .....	36.8	83.6	-46.8
5-9 employees .....	13.8	55.9	-42.0
10-19 employees ...	8.2	48.7	-40.5
20-99 employees ...	5.3	44.3	-39.0
100-499 employees .....	7.0	44.0	-37.0
500 employees or more .....	3.7	36.6	-32.9
Manufacturing total .....	-3.6	27.5	-31.1
1-4 employees .....	48.8	98.2	-49.4
5-9 employees .....	21.8	63.3	-41.1
10-19 employees ..	12.6	49.2	-36.9
20-99 employees ..	3.8	37.3	-33.4
100-499 employees .....	-6	30.5	-31.0
500 employees or more .....	-8.9	20.4	-29.2
Services total .....	20.1	52.7	-32.6
1-4 employees .....	41.8	82.3	-40.5
5-9 employees .....	18.5	54.2	-35.6
10-19 employees ..	15.8	51.9	-36.1
20-99 employees ..	17.7	53.3	-35.6
100-499 employees .....	19.4	53.8	-34.3
500 employees or more .....	18.8	46.2	-27.3

SOURCE: On the Internet at: [http://www.sba.gov/ADVO/stats/int\\_data.html](http://www.sba.gov/ADVO/stats/int_data.html).

which smaller establishments had higher gross job creation rates, not higher net job creation rates. A recent study in the State of Maryland found no apparent pattern with respect to business size and net job creation.<sup>23</sup> Perhaps the reason for the discrepancy is that the earlier studies analyzed manufacturing over a longer period of time and during periods when manufacturing employment was growing. Differences could also arise from using initial employment or average employment for the period as the base point, or from examining a different geographical area. Gross job destruction also declined as establishment size rose for total employment and in both the manufacturing and services industries.

In the services industry, net job creation, gross job creation, and gross job destruction did not vary much by establishment size, except for very small establishments (employing 1 to 4 workers), which had much higher rates. This indicates the significance of entrepreneurship in services industries as well as the precariousness of sustaining new establishments.

*Top entrepreneurial industries.* Previous sections of this article have demonstrated that the service sector was very important to U.S. job growth in the 1990s and that entrepreneurship through the birth of new, small establishments played an integral part. To analyze the role of entrepreneurship in this growth, an examination of job

growth at the two-digit sic industry level was undertaken in a manner that relates job creation and entrepreneurial activity. Entrepreneurial industries were selected on the basis of three criteria:

1. Number of jobs created by establishment births is greater than average
2. Ratio of births to deaths of establishments is greater than the rate for all industries
3. Ratio of the jobs created by establishment births to jobs lost by establishment deaths is greater than or equal to the ratio for all industries

Application of these criteria to all two-digit SIC industries yielded the eight entrepreneurial industries listed in chart 4. Overall, these eight entrepreneurial industries created almost half (43 percent) of all the jobs created by establishment births over the 1990-95 period. Most of those jobs (5 of 8) are in the services industry. For example, business services (SIC 73), health services (SIC 80), and eating and drinking places (SIC 58) each generated more than 2 million jobs by creating new establishments during that period. Engineering and management services followed with 880,000 jobs in new establishments. To help identify where entrepreneurial activity is likely to be the highest, the following tabulation presents the eight entrepreneurial industries and their constituent three-digit sic industries that recorded a sizable number of new jobs from establishment births over the 1990-95 period:

SIC	Industry	Number of jobs created from establishment births
58	Eating and drinking places .....	2,818,000
73	Business services .....	2,741,000
726	Personnel supply services .....	1,299,000
737	Computer services .....	428,000
738	Miscellaneous business services .....	440,000
80	Health services .....	2,295,000
801	Offices or clinics of doctors .....	406,000
806	Hospitals .....	750,000
87	Engineering and management services .....	879,000
874	Management and public relations services .....	338,000
83	Social services .....	569,000
65	Real estate .....	531,000
79	Amusement and recreation services .....	445,000
48	Communications .....	418,000
481	Telephone communications .....	289,000

While microdata were not readily available, it is still possible to track the behavior of individual establishments over time to determine their expansion and survival rates based on aggregate data. For example, we know for a given period the number of establishments born and the number that were dissolved. Some of the establishments that went out of business could have been started outside of the time period under analysis. However, we do know that recently started establishments are more likely to fail or dissolve than older ones. So, our ratios of births and deaths of establishments and of jobs are very crude estimates of survival rates. Although we do not know what happened to individual establishments and jobs in the social services industry (SIC 83), for example, we know that twice as many establishments and jobs were created through births than died over the 1990–95 period; that is, they survived. If the birth-death establishment ratio (criteria number 2) is higher than the employment ratio (criteria number 3), it means that smaller rather than larger establishments are likely to survive in that industry. This is the case in engineering and management services (SIC 84) and communications industries (SIC 48). An examination of establishment births and deaths by firm size in these industries reveals that the surviving establishments are typically mid-size (those with 100–499 employees). In business services (SIC 73), large firms (500 or more employees) appear to flourish.

### New business developments in Europe

Unfortunately, data similar to the United States—which track businesses and measure their employment levels—are not available for European countries. Recently, however, Eurostat has provided figures on a number of enterprises and their employment levels in consecutive years 1994–95. This is part of a larger Eurostat project, in cooperation with national statistical agencies, to build a European statistical system on small- and medium-size enterprises. This statistical system constitutes the most complete and compatible source of information on European enterprises, especially on business start-ups, which is available for 10 countries.

Enterprise creations and closures for the 10 countries are quite diffuse. (See table 10.) Enterprise creations (11.3 percent) exceeded closures (9.9 percent) for the countries with data reporting for 1994–95. During this time, a total of 1,668,000 enterprises were created and 1,375,000 were closed in the nine countries reporting both creation and disclosure figures. The vast majority of these new enterprises was very small (less than four employees), and most of these enterprises consisted of one-person operations in the trade, hotel and restaurants, and the services industries. However, enterprise closures exceeded creations in the trade and hotel and

**Table 10.** Enterprise creations and closures in selected European Union countries, 1994–95

Country	Year	Creation		Closure	
		Number (in thousands)	Rate	Number (in thousands)	Rate
Denmark .....	1994	16	6.6	–	–
Germany .....	1995	528	–	407	–
Spain .....	1995	365	15.3	284	11.9
France .....	1995	285	12.1	254	10.8
Italy .....	1996	287	8.1	270	7.7
Netherlands ..	1994	25	6.4	15	3.9
Portugal .....	1994	96	14.7	85	13.1
Finland .....	1995	31	14.6	23	10.8
Sweden .....	1995	51	12.4	37	9.0
United Kingdom ....	1995	161	11.2	170	11.8

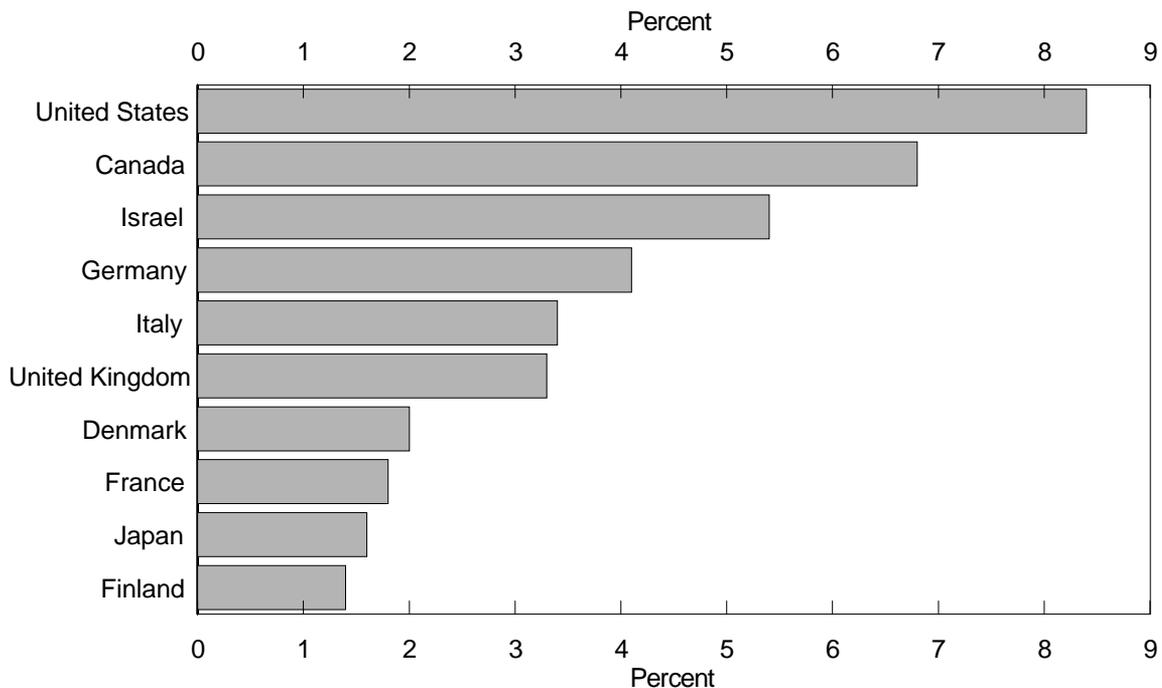
SOURCE: *Enterprises in Europe, 1999* (Luxembourg, European Commission, Enterprise Policy, 1999).

restaurant industries for all countries reviewed, whereas more enterprises were created than those that were closed in services industries, especially business services and communication services.

Eurostat enterprise data also track the size of businesses to see if the size of enterprises increased or decreased from the previous period. Of the small- and medium-sized enterprises—defined as those having 1 to 249 employees—a considerable number consisted of one-person businesses in the 1994–95 period that did not exist in the previous year. Moreover, very few small- and medium-size enterprises were the result of large firms that had shrunk. Between about 20 percent to 30 percent of the existing one-person businesses were not present the previous year, reflecting the high creation rates of sole proprietorships.

Within the framework of the Eurostat enterprise births and deaths project, detailed employment data are now available for France, the Netherlands, Austria, Portugal, Finland, Sweden, and the United Kingdom. Analysis of these data by enterprise births and deaths and enterprise expansions and contractions reveal wide variation across countries. Overall, however, it appears that the net effect of enterprise creation and closure on employment is relatively small in relation to the total number of jobs concerned. The performance of existing enterprises appears to be critical for employment growth, and entrepreneurs setting up new, successful businesses provide the base for further growth. Employment growth in the service sector was slightly more favorable than that in other sectors in the

**Chart 5. Percent of adults participating in entrepreneurial activity in selected countries, winter, 1999**



NOTE: Entrepreneurial activity is defined as any attempt to start a new business or expand an existing one.

SOURCE: Global Entrepreneurship Monitor, 1999.

early 1990s; very small enterprises contributed the most to this expansion, relative to their employment share.

### Entrepreneurial activity

A recently completed study of entrepreneurship—the Global Entrepreneurship Monitor study—examined the relationship between entrepreneurial activity and economic growth internationally. It made a notable effort to ensure comparability among the data for 10 countries (the United States, Canada, Israel, Germany, Italy, the United Kingdom, Denmark, France, Japan, and Finland).<sup>24</sup> The study defines entrepreneurship as “any attempt at new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business.” Data were collected from multiple sources, but the main source was survey of a representative sample of 1,000 adults in each country. Respondents were asked whether they were currently starting a firm on their own or for their employer as part of their job. Those who answered yes to either or both were considered “nascent entrepreneurs.”

Entrepreneurial activity varied widely by country, ranging from 1 of 12 adults in the United States to 1 in 71 adults in Finland. (See chart 5.) Based on this information, entrepreneurial activity in the 10 countries was classified into the following categories: high (United States, Canada, and Israel); medium (Germany, Italy, United Kingdom, and Denmark); and low (France, Japan, and Finland). The survey results indicate that a higher rate of entrepreneurial activity appears to be positively related to economic growth, emphasizing its importance in a country’s quest to compete successfully in the global economy.<sup>25</sup>

According to the Global Entrepreneurship Monitor project, there are six factors that are most important in fostering entrepreneurial activities:

- Entrepreneurial opportunity
- Entrepreneurial capacity
- Infrastructure
- Demography (age structure, female entrepreneurs, and population growth)
- Education
- Culture

In countries with high entrepreneurial rankings, such activity was an integral and accepted feature of everyday life, and the number of female entrepreneurs was high, as is the case in the United States. Higher entrepreneurial activity also is related to the capacity of a country's society to accommodate higher levels of income disparity. For example, the difference in family income between the lowest and the highest in the United States is wider than in most other developed countries.

Another important cultural or structural feature of high-ranking entrepreneurial activity is the shift of capital control. For example, in the United States, available capital has moved from banks to public markets, making the process of starting a business more forward-looking and democratic. In addition, entrepreneurs are no longer limited to receiving capital from a few institutions. Wall Street companies now routinely issue high-yield securities for high-risk ventures—termed “below investment grade.” A very telling statistic is the different levels of investment in the United States and Europe: in 1998, only 17 percent of Europe's fixed-income issues were below investment grade (those considered high risk), compared with 60 percent of the issues in the United States.<sup>26</sup>

*Who are these entrepreneurs?* The Global Entrepreneurship Monitor study found that the largest share of entrepreneurs were men, ages 25 to 54, although there was also a notable percentage of young men and women (18 to 24 years) in-

involved in start-ups.<sup>27</sup> A U.S. study of young entrepreneurs found that more than 1 of 4 young men and 1 of 5 young women became self-employed in the 1980s. Female entrepreneurs overwhelmingly engaged in services industries and around a third of them had engaged in such activity for at least 3 years.<sup>28</sup>

Moreover, the Global Entrepreneurship Monitor study concluded that most countries would have to increase the participation of women in the entrepreneurial process if they wanted to achieve higher start-up rates.

IN SUMMARY, entrepreneurship, or the birth of new establishments, is important to job growth in the United States, but not as important as job expansion in existing firms, confirming previous studies that narrowly focused on the manufacturing sector. However, small establishments (1 to 19 workers) play a much larger role in job growth in the services industry than they do in manufacturing industries in the United States. Moreover, new establishments in the services industry were more likely to survive than those did in manufacturing. U.S. and European Union establishment birth data are not really comparable, but a special survey of adults found that entrepreneurship was much higher in the United States than in Europe. Also, Europe was characterized by a significantly smaller percentage of the working-age population employed, especially in low-skilled service sector jobs. □

## Notes

<sup>1</sup> The European Union consists of the following countries: Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, Netherlands, Austria, Portugal, Finland, Sweden, and the United Kingdom.

<sup>2</sup> Dun and Bradstreet Corporation also tabulates the opening and closing of U.S. establishments and tracks their employment level over time. However, research suggests that these data overstate the actual number of openings and closures.

<sup>3</sup> See Paul Reynolds, Michael Hay, and S. Michael Camp, *Global Entrepreneurship Monitor, 1999*, Executive Report (Ewing Marion Kauffman Foundation, Center for Entrepreneurial Leadership, 1999).

<sup>4</sup> For an excellent description and documentation of the Longitudinal Establishment and Enterprise Microdata database, see Zoltan Acs and Catherine Armington, *Longitudinal Establishment and Enterprise microdata LEEM Documentation* (Center for Economic Studies, U.S. Census Bureau, 1998).

<sup>5</sup> For the analysis of the sectoral composition of employment, U.S. data for this section have been transformed to match those compiled in the European Union, which are classified according to the Statistical Classification of Economic Activities in the European Community (NACE Revision 1).

<sup>6</sup> Industry includes mining, construction, and manufacturing, the typical international comparative definition.

<sup>7</sup> Under the NACE Revision 1 industry classification scheme, communal services include: public administration, education, health and social work, sanitary services, membership organizations, recreational activities, personal and other services, and private households.

<sup>8</sup> It should be noted, however, that through new technologies and other productivity-enhancing techniques, manufacturing's share of total output has slipped only slightly from around 30 percent since 1972, while the services industry's share has crept up from 14 percent to 18 percent. That is, manufacturing's role in the overall economy has remained important even though its job count has dwindled significantly.

<sup>9</sup> The Standard Industrial Classification System (SIC) is a U.S. classification system used to identify all establishment-based industries or government establishments. For more information, see *Standard Industrial Classification Manual, 1987* (Washington, Office of Management and Budget).

<sup>10</sup> John Haltiwanger, and C. J. Krizan, “Small Business and Job Creation in the United States,” in Zoltan J. Acs, ed., *Are Small Firms Important?* (Norwell, Massachusetts, Kluwer Academic Publishers, 1999); Steven J. Davis, John Haltiwanger, and Scott Schuh, “Small Business and Job Creation: Dissecting the Myth and Reassessing the Facts,” *Labor Markets, Employment Policy, and Job Creation*, 5, 1994; Steven J. Davis, John Haltiwanger, and Scott Schuh, *Job Creation and Destruction* (Massachusetts, MIT Press, 1997); Timothy Dunne, Mark Roberts, and Larry Samuelson, “Plant Turnover and Gross Employment Flows in the U.S. Manufacturing Sector,” *Journal of Labor Economics*, July 1989; Timothy Dunne, Mark Roberts, and Larry Samuelson, “The Growth and Failure of U.S. Manufacturing Plants,” *Quarterly Journal of Economics*, vol. 104, 1989; and D. Evans, “The Relationship between Firm Growth, Size and Age: Estimates for 100 Manufacturing Industries,” *Journal of Industrial Economics*, vol. 15, 1987.

<sup>11</sup> *Small Business Growth by Major Industry, 1988–1995* (Washing-

ton, Small Business Administration, Office of Advocacy, 1998); and *Mergers and Acquisitions in the United States, 1990–1994* (Small Business Administration, Office of Advocacy, Washington, 1998).

<sup>12</sup> “Job Gains and Job Losses in Firms,” *Employment Outlook* (Paris, Organisation for Economic Co-operation and Development (OECD), 1994).

<sup>13</sup> Reynolds, Hay, and Camp, *Global Entrepreneurship Monitor, 1999*.

<sup>14</sup> John Baldwin, Timothy Dunne, and John Haltiwanger, “A comparison of job creation and job destruction in Canada and the United States,” *Review of Economics and Statistics*, vol. 80, 1998.

<sup>15</sup> Robert E. Hall, “The Concentration of Job Destruction,” NBER Working Paper no. W7025 (New York, National Bureau of Economic Research, 1999).

<sup>16</sup> Some of the growth of employment in large firms (100 or more employees) over time results from expanding small firms moving to a larger size category. Of the total number of jobs in 1990 that survived to 1994 (76 million), 96 percent remained in small establishments (less than 100 employees), while 4 percent of the jobs were in establishments that were acquired by large firms or in establishments that expanded into the large-firm size category. See Small Business Administration and Executive Office of the President, “New Data for Analysis for Small Business Job Creation,” *The State of Small Business: 1999* (Washington, 1999), chapter 2.

<sup>17</sup> Davis, Haltiwanger, and Schuh, *Job Creation and Destruction, 1997*.

<sup>18</sup> Bruce Phillips, “The Influence of Industry and Location on Small Firm Failure Rates,” *Frontiers of Entrepreneurship Research 1993, Proceedings of the Thirteenth Annual Babson College Entrepreneurship Research Conference* (Babson Park, MA, 1993).

<sup>19</sup> Bruce Phillips and Bruce A. Kirchoff, “Formation, Growth and Survival; Small Firm Dynamics in the U.S. Economy,” *Small Business Economics*, vol. 1, 1989, pp. 65–74.

<sup>20</sup> Preliminary data for 1994–98 showed the same inverse relationship between firm size and net job creation. When comparing the late 1990s with the early 1990s, however, net job creation was much higher in the 1994–98 period in very small firms (1–4 employees) and it was negative among very large firms (500 or more employees), mainly as a result of firm deaths. Unpublished data from Bruce Phillips, Small Business Administration, June 1999.

<sup>21</sup> Acs, and Armington, *Job Flow Dynamics in the Service Sector* (Washington, Center for Economic Studies, Census Bureau, 1999).

<sup>22</sup> Davis, Haltiwanger, and Schuh, “Small Business and Job Creation;” Steven J. Davis, and John Haltiwanger, “Gross Job Creation, Gross Job Destruction, and Employment Reallocation,” *Quarterly Journal of Economics*, vol. 107, 1992; Dunne, Roberts, and Samuelson, “Plant Turnover and Gross Employment Flows;” Dunne, Roberts and Samuelson, “The Growth and Failure of U.S. Manufacturing Plants;” and Evans, “The Relationship between Firm Growth, Size and Age.”

<sup>23</sup> David Stevens and Julia Lang, “Small Business Employment Dynamics Revisited,” *The Dubious Benefits of Small Business for Job Growth and Wages* (Washington, Economic Policy Institute, 1998). Bruce Phillips argued that Stevens and Lang used an inappropriate database for analyzing the relationship between job creation and business size; they used quarterly unemployment insurance reports where establishments are not clearly distinguished. See Bruce Phillips, Comments on the Economic Policy Institute’s *The Dubious Benefits of Small Business for Job Growth and Wages*, Unpublished, 1998.

<sup>24</sup> See Reynolds, Hay, and Camp, *Global Entrepreneurship Monitor, 1999*.

<sup>25</sup> A correlation of 0.61, which was marginally significant ( $p = 0.08$ ), was reported between start-up rates and economic growth in the Global Entrepreneurship Monitor study.

<sup>26</sup> Michael Milken, “Prosperity and Social Capital,” *The Wall Street Journal*, June 23, 1999. For a number of countries, the Milken Institute has developed a “capital access index,” which measures the ease of raising capital. The United States ranks first at 100.0, followed by Switzerland (97.3) and Hong Kong (94.4). The European Union ranges from 94.0 for the United Kingdom to 46.3 for Greece. The average for the European Union (less Luxembourg for which no figure was available) was 75.0. See Glenn Yago, Lalita Ramesh, Dan Brumbaugh, and James Barth, *Capital Access Index* (Santa Monica, CA, Milken Institute, May 1999).

<sup>27</sup> See Reynolds, Hay, and Camp, *Global Entrepreneurship Monitor, 1999*.

<sup>28</sup> Bradley R. Schiller, and Philip Crewson, *Entrepreneurial Origins: A Longitudinal Inquiry* (Washington, Small Business Administration, Office of Advocacy, 1994.)