High-Impact Firms: Gazelles Revisited

by

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Washington, DC 20037

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This study revisits and expands upon some of the conclusions on rapidly growing firms made by the small business research pioneer, David Birch, in the 1980s. Birch found that rapidly growing firms, which he termed "gazelles," are responsible for most employment growth. While Birch's definition of gazelles was based on their revenue growth, this study examines firms with significant revenue growth and expanding employment. These are termed "high-impact firms" to distinguish them from gazelles. The research offers summary statistics helping to define the scope and characteristics of high-impact firms. The report sheds light on several previously unanswered questions, including: What are high-impact firms before they become high-impact firms? What happens after their high-impact phase?

Overall Findings

High-impact firms are relatively old, rare and contribute to the majority of overall economic growth. On average, they are 25 years old, they represent between 2 and 3 percent of all firms, and they account for almost all of the private sector employment and revenue growth in the economy.

Highlights

• From 2002 to 2006 there were 376,605 high-impact firms in the United States. This number increased from 299,973 between 1998–2002 and was greater than the 352,114 firms in the 1994–1998 period of analysis.

• During the 1994–2006 period, firms with fewer than 20 employees represented 93.8 percent of the high-impact firms and 33.5 percent of job growth among high-impact firms, while firms with 20 to 499 employees represented 5.9 percent and 24.1 percent, respectively.

• For the three firm-size categories analyzed, the average size of high-impact firms in the 1-19 size category was 3 employees at the beginning of the period of analysis, increasing almost out of the size category to 16; for the 20-499 firm-size class it was 65 increasing to 209; and for the over-500 size class, it was 3,648 increasing to 8,041.

• The average high-impact firm is around 25 years old, but they are younger than low-impact firms.

• High-impact firms exist in all industries. While some industries have a higher percentage of these firms, they are not limited to high-technology industries.

• High-impact firms exist in almost all regions, states, metropolitan statistical areas (MSAs) and counties.

• Low-impact firms do not grow on average.

• Nearly all job loss in the economy in each of the three time periods analyzed is attributable to low-impact firms with more than 500 employees.

• Less than 3 percent of high-impact firms were born in the previous four-year period, however as firm size increases that number doubles to over 6 percent.

• In the four years after a high-impact firm undergoes its high-growth phase, only about 3 percent die. Most remain in business and exhibit at least some growth.

• The data suggest that local economic development officials would benefit from recognizing the value of cultivating high-growth firms versus trying to increase entrepreneurship overall or trying to attract relocating companies when utilizing their resources.

Scope and Methodology

A new data set, the American Corporate Statistical Library (ACSL), has been developed by the Corporate Research Board and was used for this project. The ACSL stitches together data from public and private sector sources over a 12-year period, allowing users to analyze discrete business patterns. Its principal data sources are Dun & Bradstreet's DMI file, the Bureau of Labor Statistics' Industry Occupation Mix, and the Census Bureau's PUMS file. The report uses cross-sectional files of the full DUNS DMI file for each year over the last 10 years. (This dataset is updated every six months.) The ACSL links Dun & Bradstreet's cross-sections into a longitudinal file that tracks every establishment from its birth through any physical moves it makes, capturing changes in ownership along the way, and recording the establishment's death if it occurs.

For the purposes of this study, a high-impact firm is an enterprise with sales that doubled over the most recent four-year period and an employment growth quantifier of two or more over the same period. (The employment growth quantifier equals the product of a firm's absolute change and percent change in employment.) Firms over three four-year periods from 1994 to 2006 are analyzed, and three firm-size categories are defined to determine exactly where these firms make their greatest impact on the economy.

While the data offer excellent coverage of firms that are at least five years old, tables in the report show that the coverage of firms under five years old is limited. This does not affect the report's analysis of high-impact firms, which are found to be on average 25 years old. However, it does limit the report's ability to evaluate the economic impact of small firms (many of which are under five years old) and compare small and large firm sectors for low-impact firms.

This report was peer-reviewed consistent with the Office of Advocacy's data quality guidelines. More information on this process can be obtained by contacting the director of economic research at *advocacy@sba.gov* or (202) 205-6533.

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EXECUTIVE SUMMARY

The purpose of this study is to revisit some of the conclusions of the early work on rapidly growing firms. Some of the most controversial findings of David Birch's original studies were that both small firms and very young firms were responsible for the vast majority of job replacements. In fact, we find support for Birch's gazelle findings with respect to firm size but not firm age.

We examine both the employment and sales effects to classify enterprises as high-impact firms. For the purposes of this study we define high-impact firms as enterprises whose sales have at least doubled over a four-year period and which have an employment growth quantifier of two or more over the period.[1] We analyze these firms over three four-year periods from 1994 to 2006, and we compare three firm-size categories to determine exactly where these firms make their greatest impact on the economy. The primary study period is 1998-2002. In addition, by examining the four years before and after this period, we are able to investigate the birth of high-impact firms (how they are characterized before entering their growth period) and their follow-on period (what happens to them after their high-growth stage).

Here are some of the basic conclusions about high-impact firms.

Essential characteristics:

- From 2002 to 2006 there were 376,605 high-impact firms in the United States. This number increased from a level of 299,973 between 1998 and 2002 and was greater than the 352,114 firms found during the 1994-1998 period of analysis.

- The average high-impact firm is *not* a new startup.

- The average age of a high-impact firm is around 25 years old. These firms exist for a long time before they make a significant impact on the economy.

[1] The employment growth quantifier equals the product of a firm's absolute change and percent change in employment.

- High-impact firms come in all sizes. Over the 1998-2002 time period, the average size of high-impact firms in the 1-19 employee firm-size class was 3 employees increasing to 16, for the 20-499 firm-size class it was 65 increasing to 209, and for the 500-or-more class it was 3,648 increasing to 8,041.

Impact on jobs and revenues:

- High-impact firms account for almost *all* employment and revenue growth in the economy.

- Job creation by high-impact firms over the 12-year period was 58 percent in small firms. Small firms (fewer than 500 employees) created about half the jobs and large firms (500-plus employees) created the other half during the first two periods (1994-1998 and 1998-2002) but not in the third one (2002-2006).

- Low-impact firms do *not* grow on average.

- Nearly all the job losses in the economy over any of the three four-year periods studied are attributable to low-impact firms with more than 500 employees.

Where high-impact firms are found.

- High-impact firms exist in *all* industries. While some industries are characterized by a higher percentage of such firms, high-impact firms are by no means all in high-technology industries.

- High-impact firms exist in almost *all* regions, states, MSAs, and counties. The share of high-impact firms in most jurisdictions varies from 2 percent to 3 percent of all firms.

Early characteristics of high-impact firms:

- Fewer than 3 percent of the smallest high-impact firms came into being in the previous four-year period. As firm size increases, however, that rate doubles to over 6 percent.

- As many as 25 percent of the high-impact firms in the 500-plus firm-size class were also high-impact in the previous four-year period. In other words, some enterprises double their sales and revenue more than once and expand employment over eight years or more. This trend accelerates in the 500-plus firm-size class. These so-called "super-high-impact" companies account for a small percentage of firms, but they are still in the thousands.

Later-stage characteristics of high-impact firms:

- In the four years after a high-impact firm is classified as such, only about 3 percent die; most continue and exhibit at least some growth.

- Super high-impact firms are more numerous among large firms (500-plus employees). The percentage of large high-impact firms that remain in the high-growth category for more than one period is almost double the rate for smaller firms.

While our measures are not strictly comparable, the findings offer support for Birch's observation that gazelles (high-impact firms) account for almost all the job creation in the economy. On average, high-impact firms are smaller and younger than other firms. However, they are not new firms and they are found in all firm-size classes, not just the 1-19 employee firm-size class. Moreover, the trend accelerates as firms become larger, lending support to Davis and Haltiwanger's (1996a and 1996b) contention that large firms grow faster than small firms. What is unclear is whether better data or a different macroeconomic environment drives these results. While the original period Birch studied (1969-1976) was dominated by large firms, we view the 1994-2006 timespan as more entrepreneurial (as manufacturing employment has declined in the intervening years).

1. INTRODUCTION

New business formation burst into the news in the early 1980s in large part because of the research conducted by one individual—David Birch. Birch, who was affiliated with M.I.T.'s Center for the Study of Neighborhood and Regional Change, developed an innovative and potentially powerful database that enabled him to pinpoint the birth, death, and growth of establishments and to do so for establishments of different sizes and longevity (Birch, 1981).[2] He developed his database using Dun and Bradstreet's (D&B) data on firms and establishments in the U.S. economy. The D&B database is mainly used by businesses to obtain credit and financial information on companies and to identify potential customers. Birch used the data from 1969 to 1976 to study the dynamics of business and employment in the United States.

Birch made two seminal contributions which have often been overlooked in the subsequent controversy over his methods and conclusions (Davis, Haltiwanger and Schuh, 1996b). First, he pieced together a rich dataset that allowed researchers for the first time to study business dynamics for the full spectrum of business and industry in the United States. Until then, economists had been content studying highly aggregated government data that masked the birth, death, and growth of businesses.

Today, there are better datasets available for studying firm dynamics, for example, the Linked Census of Manufacturing (Dunne, Roberts, and Samuelson, 1989) and the Longitudinal Research Database (Davis, Haltiwanger, and Schuh, 1996a). The Business Information Tracking System (BITS) database jointly developed by the Census Bureau and the U.S. Small Business Administration tracks all private sector firms from 1990 to 2006 (Armington, 1998; Acs and Armington, 1998; Acs, Armington, and Robb). The Bureau of the Census Longitudinal Business Database (LBD) has been developed at the Center for Economic Studies and provides longitudinal business data with information on employment payroll, industry, and geography from 1975 to 2001 for establishments and firms with at least one employee (Jarmin and Miranda, 2002).

[2] For a review of the literature on the economic benefits of entrepreneurship see van Praag and Versloot, 2008)

Second, Birch initiated the systematic study of small businesses. Few economists had studied small business in the U.S. economy before Birch, even though these businesses constituted a large fraction of employment (Brock and Evans, 1989). Birch deserves a great deal of credit for stimulating research and debate on small firms.

One aspect of his work that is especially interesting focuses on the classification of different types (ages and sizes) of establishments. This focus yielded the findings on job creation for which he is most well known. Birch finds that "Of all the net new jobs created in our sample of 5.6 million businesses between 1969 and 1976, two-thirds were created by firms with 20 or fewer employees (Birch 1981, 7)." Between 1976 and 1982 firms with fewer than 100 employees created 82 percent of the jobs. He goes on to say, "Another distinguishing characteristic of job replacers is their youth. About 80 percent of the replacement jobs are created by establishments four years old or younger." Finally, "Whatever they are doing, however, large firms are no longer the major providers of new jobs for Americans" (Birch, 1981, p. 8).[3]

In 1994 Birch suggested that perhaps it is not large or small firms that are important for job growth but gazelles. One conclusion was that the distinction between small and large firms as job creators is of less importance—most jobs are created by gazelles, which are firms that are neither large nor small. "These gazelles move between small and large quickly—at various times in either direction—and to classify them by their size is to miss their unique characteristics: great innovation and rapid job growth (Birch and Medoff, 1994: 163). A conclusion of the Birch and Medoff study was that a small number (4 percent) of ongoing firms create a disproportionately large share of all new jobs in the United Statess (70 percent). In a second study, Birch, Haggerty and Parsons (1995) concluded that gazelles account for all new jobs in the whole economy. In fact, in a survey of almost 20 studies, Henrekson (2008, p.1) concluded that, "net employment growth rather is generated by a few rapidly growing firms—so-called gazelles—that are not necessarily small and young. Gazelles are found to be outstanding job creators. They

[3] The Birch study did not distinguish between new jobs in a new plant (new jobs in an existing firm's new location), and new jobs in a plant set up by a newly started firm. By introducing this distinction, the U.S. Small Business Administration (1983) found that 53 percent instead of 82 percent of new jobs were created by firms with fewer than 100 employees in the period 1976-1982.

create all or a large share of net new jobs. On average, gazelles are younger and smaller than other firms, but it is young age more than small size that is associated with rapid growth." What is less clear from all of these studies is what the role of firm age is. And secondly, what is the role of entry that is closely related to age?

Today we know that the age of a firm is a much more important issue in business dynamics than is size, and of course most new firms are small. However, what about rapidly growing firms that may have started not so small? While the theoretical literature suggests that noise selection plays an important role in industry dynamics, it does not provide much insight into what role different types of firms play. Noise selection implies that it is difficult to distinguish winners from losers. We just do not know ahead of time. In other words, what is the impact on employment today of new firms, rapidly growing firms, and the establishments of large firms?

One of the purposes of this study is to revisit the Birch question of "Who creates jobs: mice, gazelles, or elephants?" Birch's most interesting insight was that rapidly growing firms, which he termed "gazelles," were responsible for most of the employment growth in regional economies (Birch and Medoff, 1994). In contrast, mice are small firms that add little to employment (Shane, in press), and elephants are large firms that shed jobs (Dertouzos, Lester, and Solow, 1989). Very little is known about these rapidly growing firms, which we refer to in this study as high-impact firms. We describe these firms as "high impact" because they have a disproportionately large impact on employment growth, revenue growth, and, we contend, productivity.

As the theory suggests, and our statistical analysis bears out, high-impact firms play an especially important role in the process of job creation over time compared with either the plants of large existing firms or very small startups that tend not to grow. High-impact firms appear to be different from other firms. However, very little is known about where they come from. In other words, what are they before they become high-impact firms? Are they startups or are they non-growing enterprises that exist for years before they enter their growth phase?

This study recreates some of Birch's investigations of gazelles using new and better data. We use two datasets. First, we use the Business Information Tracking System (BITS) data to examine the roles of different types of entrants over time. We find that different entrants have different trajectories with respect to job creation. Second, we use the Corporate Research Board's American Corporate Statistical Library (ACSL) to better understand these high-potential firms' role in the economy. The ACSL is a longitudinal file linking microdata on virtually all U.S. business establishments and enterprises over time. The ACSL enables us to identify and track high-impact firms from January 1, 1994, to January 1, 2006 (Parsons and Tracy, 2005). The ACSL data are updated every year.

Our study attempts to shed light on an important question: "What are the characteristics of high-impact firms and how have they changed?" One argument in the literature on evolution suggests that startups are important and that these entrants over time will become high-impact firms. But how long does that take? This question has never been addressed. This study should help inform regional policy to promote economic development. Most economic development money is spent attracting new plants, and most small firm and entrepreneurship policy is focused on new firm startups or helping disadvantaged firms. Very little economic development money is spent on expanding or retaining existing firms, or what the literature today calls "economic gardening" (U.S. Small Business Administration, 2006, Ch. 6).

Part of the reason for a lack of support for economic gardening is that very little is known about second-stage companies (as the Edward Lowe Foundation calls them), or companies on their way to rapid growth.[4] It is hoped that this study will lead to the development of policies tailored to helping regions retain and expand high-potential firms, since these are the firms that appear to create jobs in the long run. We will examine four sets of questions. First, how do high-impact firms compare with all other firms? Second, where are they located, in terms of industry and geography? Third, what stage of development precedes the emergence of high-impact firms? And finally, what are the characteristics of high-impact firms in the years after their high-growth phase?

[4]The Edward Lowe Foundation has defined the second stage of business development as firms with 10-99 employees. We do not use this definition in this study.

Section 2 of this paper presents the theoretical framework of the relationship between industry dynamics and employment growth, and it presents empirical results over time. It also suggests why high-impact firms may be important to the understanding of job generation. Section 3 discusses the methodology, period of analysis, and hypothesis to be tested in this paper. The fourth section presents the results of the study. Section 5 considers whether an opposite group of negative-impact firms exists, which offset the contribution of high-impact firms. The final section presents the conclusions.

2. THE RELATIONSHIP BETWEEN NEW BUSINESS FORMATION AND EMPLOYMENT GROWTH

2.1 THEORY

How do high-impact firms interact with the economy? This can happen in many ways but there are at least three ways identified in the economic literature: through innovation, productivity growth, or employment change. High-impact firms may either create innovations or use them (Microsoft as opposed to Wal-Mart). Productivity impact is also important, but it is much harder to measure. The third kind of interaction—employment change—is significant and it is easier to measure. Therefore, the literature on firm dynamics (entry and exit) and employment growth is helpful because it relates these two activities. While the literature on firm dynamics does not explicitly discuss the importance of high-impact firms, the implicit relationship implies that these firms are involved in activities that have a "material" impact on the economy.

As the recent literature reviews by Sutton (1997), Caves (1998), and Davis and Haltiwanger (1999) make clear, research on gross employment flows has a long tradition. However, it is only in the last two decades that economists and powerful computers have examined numerous census bureaus in different countries and organized the primary economic census data so that the births, deaths, survival, and growth of individual business units can be traced.

This research has borne fruit in the form of a great outpouring of stylized facts, where little more than impressions existed before. The interpretation of these facts is less clear. According to Caves (1998) while the importance of research on employment flows is

manifest to the economy, its development has not been theory driven. In fact, figuring out which theoretical models the stylized facts shed light on "is itself an exercise in hunting and gathering" (p. 1,947). This literature can be interpreted through the lens of dynamic models and theories of industrial evolution and therefore should be of importance for evolutionary economics. Models of industry evolution can help us better understand the underlying patterns of gross job flows.[5] Much of the empirical analysis in recent studies of firm-level and plant-level employment dynamics is explicitly couched in terms of this type of theory (Evans, 1987 and Dunne, Roberts, and Samuelson, 1989). Davis and Haltiwanger (1992) looked at gross job flows for the period 1978-1983 and found that learning and initial conditions provide a plausible explanation for the strong and pervasive relationship between job reallocation rates and plant age. These results lead to the conclusion that passive learning stories are quite useful for interpreting variations in job reallocation intensity across different types of plants and manufacturing industries.[6] Passive learning strategies assume that the firm learns, but it does not initiate any action to increase its learning capabilities, for example, engaging in R&D or some similar activity.

These models all suggest that the enduring differences in the size distribution of firms and firm growth rates result less from the effects of the fixity of capital than from the effects of "noisy" selection and incomplete information. If this is the case, then the persistence of jobs in the service sector should not be substantially different from that of the more capital-intensive manufacturing sector (Lucas, 1978 and Lucas and Prescott, 1971). Jovanovic (1982) stresses the selection effects associated with passive learning about initial conditions. A firm's underlying efficiency level cannot be directly observed but is learned over time through the process of production. A firm that accumulates favorable information about its efficiency expands and survives, whereas a firm that

[5]See for example, Katsoulacos (1994), Dopfer (1995), Jovanovic (1982), Erikson and Pakes (1995), Hopenhayn (1992), and Lambson (1991).

[6]Davis and Haltiwanger (1992) examined job reallocation behavior and the passive learning story within the manufacturing sector. While learning about initial conditions provided a plausible explanation for the sharp and pervasive relationship between job reallocation rates and plant age, on the more fundamental matter of explaining the overall magnitude of job reallocation, the passive learning story is far less successful. Learning about initial conditions accounts for a small portion (11 to 13 percent) of total job reallocation.

accumulates sufficiently unfavorable information exits. Firms differ in size not because of the fixity of capital, but because some learn that they are more efficient than others. In this model firms and potential entrants know the entire equilibrium price sequence, and based on it, they make entry, production, and exit decisions. A one-time entry cost is borne at the time of entry. Thereafter, only production costs are incurred, where efficient firms grow and survive and the inefficient decline and close.

Ericson and Pakes (1995) developed a theory of firm and industry dynamics in which investment outcome involves idiosyncratic uncertainty. The stochastic outcomes of an individual firm's investment coupled with competitor investment outcomes determine the probability distribution over future profitability streams. A plant's (establishment) investment outcome may improve its position relative to competitors, thus leading to expansion, or it may involve a relative deterioration, thus leading to contraction and possibly exit. Investment in the Ericson-Pakes model thus entails elements of active learning and selection. Active learning, as opposed to passive learning, implies that the firm has a strategy for increasing its learning capabilities. This model builds in an explanation for perpetual entry and exit. Hence, the active learning theory embeds technical change into a rich model of firm-level heterogeneity and selection.

Lambson (1991) stresses differences in initial conditions, or uncertainties about future conditions, that lead firms to commit to different factor intensities and production techniques. These differences in turn lead to heterogeneity in firm-level responses to common cost and demand shocks. According to Hopenhayn (1992), even firms that produce identical products with identical technologies can face idiosyncratic cost disturbances. For example, energy costs and tax burdens are often heavily influenced by local conditions. Exogenous idiosyncratic cost disturbances lead to contraction at some firms and, simultaneously, expansion at other firms. The above theories account for several factors that would plausibly account for simultaneous job creation and destruction within narrowly defined sectors of the economy.

While interesting as a way to think about job flows, these models do not serve to predict how the patterns of job creation would differ across diverse sectors of the economy, such

as services and manufacturing. However, it would follow from these dynamic models that if learning and noisy selection are more important than the fixity of capital, job growth and persistence should be similar for sectors with substantially different capital intensity, other things being constant. If fixity of capital is more important than learning and selection, capital-intensive sectors should have higher persistence rates than less capital-intensive sectors because of sunk costs. Of course, one could easily imagine a noisy selection process with different entry fees and different means and variances of the efficiency parameters across sectors. This could generate very different employment flow patterns.

There are several limitations to the interpretation of the gross jobs flow literature through the lens of industrial evolution. First, if learning and initial conditions are important, then the focus should be on new firms rather than on existing plants (establishments). However, research datasets contain important differences in their treatment of new and/or small firms. Some datasets sample only small units, and others cut them off at some arbitrary point. Second, labor economists have focused much of their work on gross employment flows and not on size issues per se. Finally, because of data limitations, labor economists and industrial organization economists alike have typically focused on the manufacturing sector of the economy to the exclusion of the much larger and more dynamic service sector (Davis, Haltiwanger and Schuh, 1996a and 1996b; Audretsch, 1995; Klepper, 2002).[7]

New and larger datasets have become available in recent years, and we are now starting to see a much richer examination of the economy (Acs and Armington, 2006; Haltiwanger, 2006). Armington and Acs (2002 and 2004) looked at several aspects of employment flows in two industry sectors of very different capital intensity to evaluate the competing theories of sunk capital versus learning and noisy selection for explaining the determinants of change and the evolution of industry. In this literature, noisy selection and entry are supposed to play a more important role than the fixity of capital in explaining the size distribution of firms and firm growth. They find substantial support

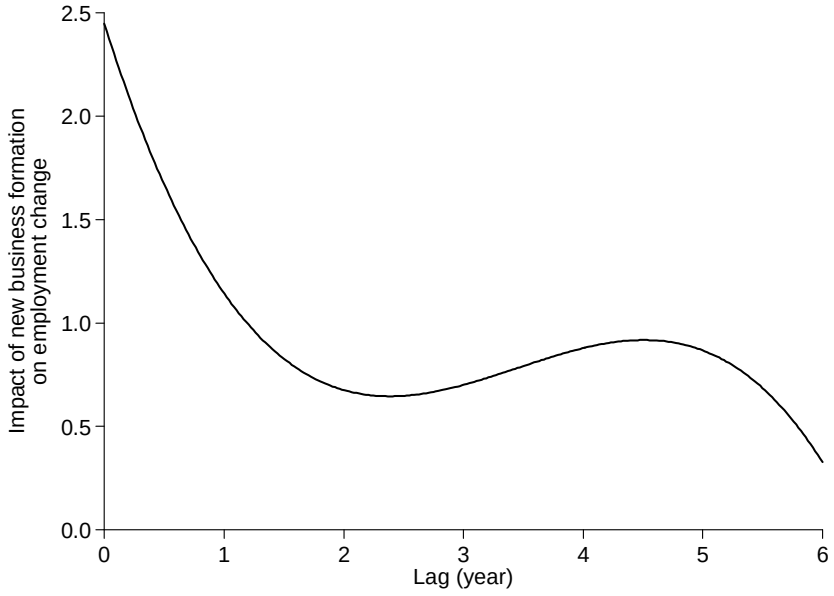
[7] For a recent exception see Klomp and Thurik (1999).

for the theories of noisy selection and active and passive learning from the works of Jovanovic, Pakes and Erickson and Hopenhayn, in contrast to the traditional role asserted for sunk capital as a determinant of employment flows and business survival.

2.2 THE IMPACT OF STARTUPS OVER TIME

What is the impact of new firms over time? While many studies have looked at the number of startups as a measure of industry dynamics, there have been far fewer studies on the long-run behavior or evolution of these firms. Using data from the U.S. Small Business Administration, Acs, and Mueller (2008) found that new business formation is a significant factor in total U.S. employment growth in the year the formations occur (Figure 1).[8] Although the effect decreases in the years after the businesses are formed, the effect does not become negative. Therefore, we do not detect a negative employment effect of new business formation. In year t-3 the employment effect increases again and it takes between four and five years until the effect is maximized again. Figure 1 shows clearly that the overall employment effect is positive, leading us to the conclusion that new business formation leads to employment growth in the short and medium term.

Figure 1: Distribution of Employment Effects—All Startups

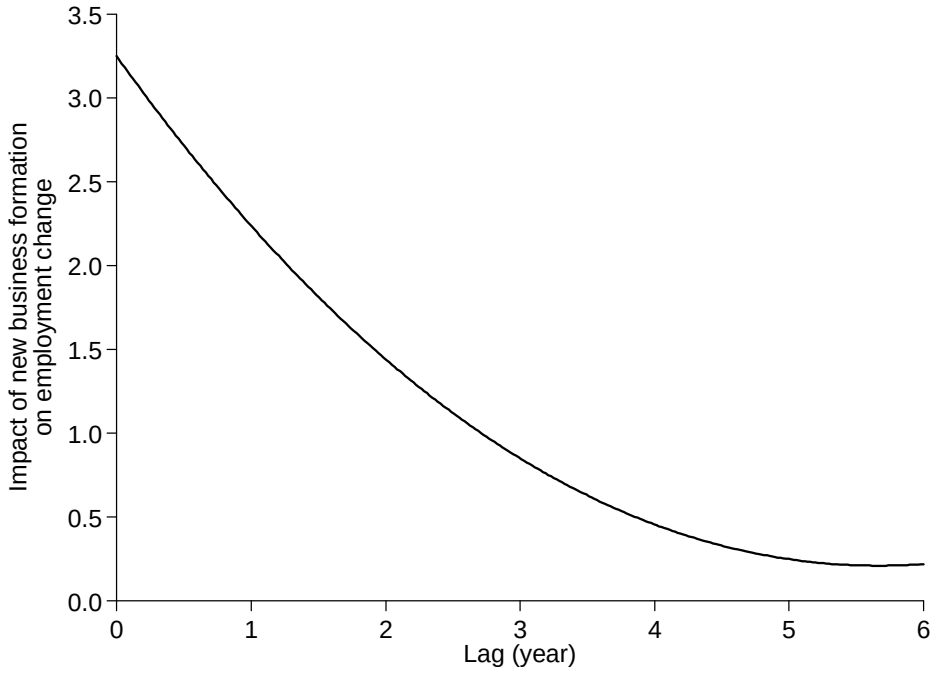


[8] Also see Fritsch and Mueller (2004); Mueller, van Stel and Storey (2006); Acs and Mueller (2007).

It can be expected that the displacement effect of new businesses, which causes incumbents to reduce employment or exit the market, is more pronounced for new multi-unit establishments and larger new firms. First, new plants or branches of existing firms are most likely to be supported by their parent company, which gives them better starting conditions. Second, larger new firms have better survival chances and are more likely to stimulate better performance from incumbent firms, resulting in employment growth in their own firm and existing firms.

To gain further insight into the relationship between new business formation and employment growth, a distinction is made between the results for establishments of firms with fewer than 20 employees, between 20 and 499 employees, and more than 500 employees.

Figure 2: Distribution of Employment Effects—Startups With Fewer Than 20 Employees

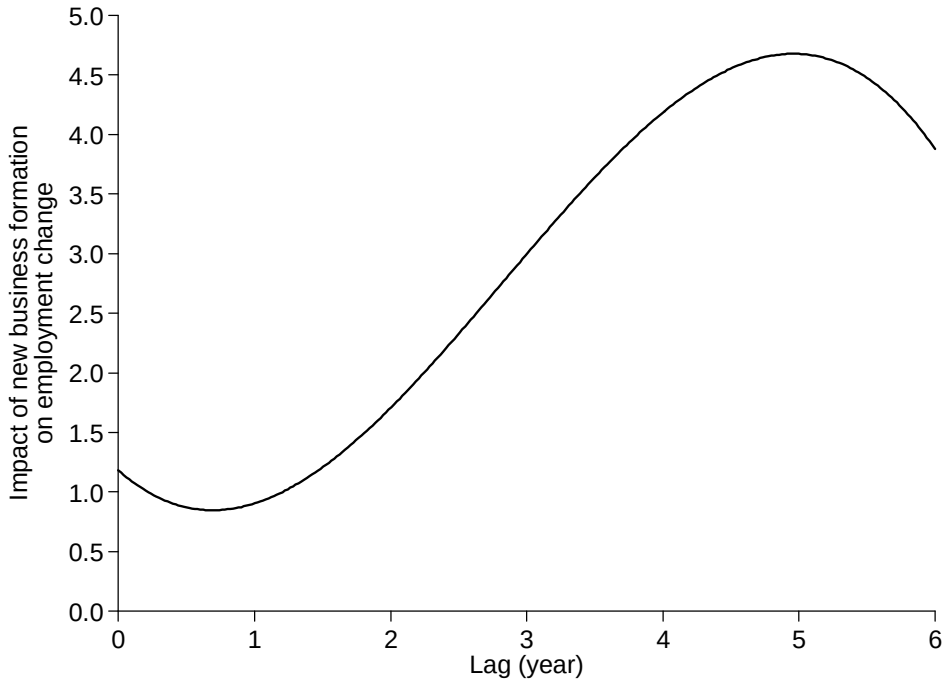


The results for each group of new establishments indicate that the three employment effects of new businesses depend on the size of the firm. By employment effects we mean with what impact and with what time lag the firm entry affects employment. Market entry of small new establishments (firms with fewer than 20 employees, almost exclusively

single-unit establishments) results in a strong positive initial effect that decreases over time and is negligible after six years (Figure 2). We do not find a further induced effect in the long term.

New establishments of firms with 20 to 499 employees or new firms of this size are shown in Figure 3. The positive effect increases after one year and reaches a maximum after five years before it decreases again. These so-called gazelles are able to increase their level of productivity sooner after entry due to their size and preconditions. Furthermore, they challenge existing firms and increase the competitiveness of surviving existing firms.

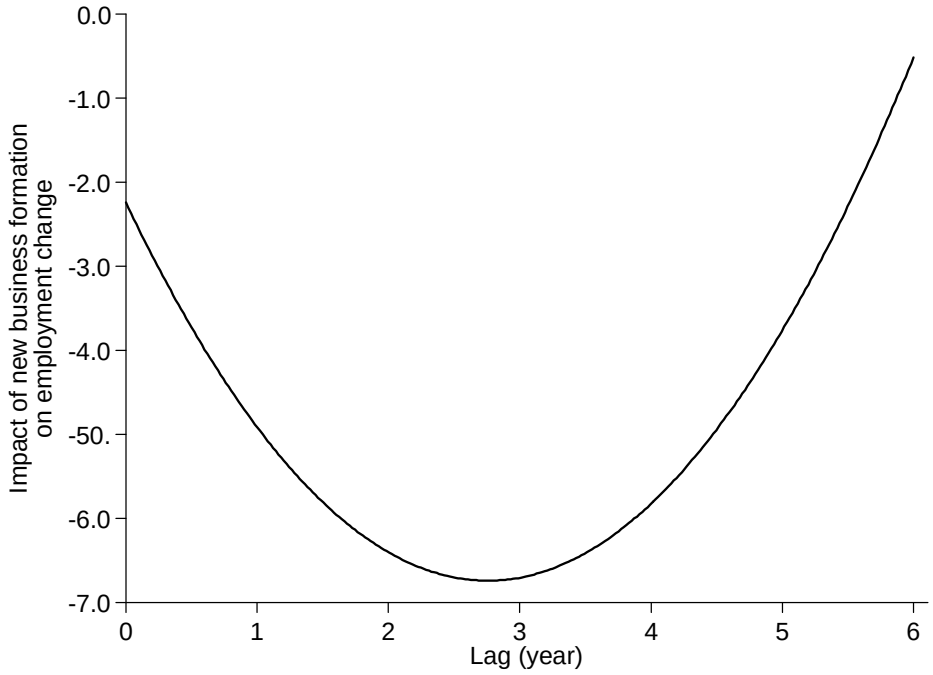
Figure 3: Distribution of Employment Effects—Startups With 20-499 Employees



The distinction between the new establishments according to the size of the firm reveals that a negative employment effect may exist. The entry of firms or new establishments with at least 500 employees leads to a strong negative employment effect, which turns positive after six years. For this group of entrants, the long-term employment effect may be negative but it probably takes more than six years to become visible. One way of

characterizing this phenomenon is to picture these entrants as new locations of large multi-unit corporations that enter the market with a high productivity level. Their entry may not just challenge incumbent firms but even lead to market exits and employment losses in incumbent firms. Such entrants are termed "elephants" since they demolish employment in the first years after entry. Nevertheless, it can be expected that their entry is important since they force inefficient establishments to leave the market and lead to an indirect positive effect in the long run.

Figure 4: Distribution of Employment Effects—Startups With At Least 500 Employees



2.3 COMPARISON OF BITS STARTUPS WITH D&B STARTUPS

To determine the similarities and differences between the BITS and D&B data, we examined the startup rate for the two databases. Appendix A provides startup data by metropolitan statistical area (MSA) using a similar methodology to the BITS data referenced above. The D&B data were configured to be comparable with the BITS data. Employer firms were used in the analysis and the firm sizes were set according to the SBA format: 0-19, 20-499, and 500 or more employees. We also used the same MSA definitions to compare the BITS and D&B data. While some of the MSA rankings are

different because of the two datasets' differing methodologies, the results for the three firm-size categories are similar. Most startups are in the 1-19 firm-size class, similar to the BITS data, and about 1 percent of startups are in the 20-499 firm-size category. The birth rate in the D&B data is higher than in the BITS data even after the self-employed are removed from the D&B data, but the results are systematic**.** In other words, the MSA rankings do not change because of the different datasets used. We now turn to an analysis of the high-impact firms.

3. METHODOLOGY

A recent, comprehensive study of U.S. government data collection conducted by the National Research Council (National Research Council, 2007) confirmed the shortage of data for the study of entrepreneurship and concluded that existing U.S. business data are inadequate for the study of productivity, innovation, and firm creation. One of the report's central recommendations is "to increase the statistical system's capacity to measure activities of nascent and young businesses—especially those positioned in fast-growing and innovative sectors of the economy—that are central to understanding business dynamics" (p. 4). While this report underscores the problem and offers specific recommendations to improve U.S. data collection, attempts to measure entrepreneurial activity remain fraught with statistical difficulties. Nonetheless, we present here what we consider the best data available for the study of business dynamics.

We have developed a new richer dataset referred to as the American Corporate Statistical Library (ACSL). The ACSL stitches together data from public and private sector sources over a 12-year period, allowing users to analyze discrete business patterns and broad economic trends in insightful ways. Its principal data sources are Dun & Bradstreet's DUNS Market Identifier file, the Bureau of Labor Statistics' Industry Occupation Mix, and the Census Bureau's Public Use Microdata Sample file. See Appendix H for a more complete description.

3.1 METHODOLOGY

Traditional definitions of high-growth firms are based solely on revenue growth. The concept was developed to appeal to marketing executives at large enterprises seeking to

sell their products and services to companies with substantial revenue. A limitation of this concept is that it does not take into account employment growth—an important policy consideration for government. In fact, a nontrivial number of traditional high-growth firms, often referred to as gazelles, do not contribute to employment growth.

In this report we offer a variation of the gazelle concept that encompasses both revenue and employment considerations—what we call a "high-impact firm." A gazelle firm is defined, "as an enterprise whose sales have at least doubled for the most recent four year period." We define a high-impact firm as an enterprise whose sales have at least doubled over the most recent four-year period and which has an employment growth quantifier of two or greater over the same period. The employment growth quantifier (EGQ) is the product of the absolute and percent change in employment over a four-year period of time, expressed as a decimal. The EGQ is used to mitigate the unfavorable impact of measuring employment change solely in either percent or absolute terms, since the former favors small companies and the latter large businesses.[9] We also divide the high-impact firms into three size classifications to compare with the ones used by the U.S. Census Bureau/Small Business Administration. These are 1-19 employees, 20-499 employees, and 500-plus employees.

3.2 Period of Analysis

Our principal period of analysis is 1998-2002. A four-year period was required, given that by definition a high-impact firm had to at least double its revenues over a four-year period. We selected this four-year period because data on the preceding and following four-year periods were available, enabling us to analyze the nature of high-impact firms

[9] The number of new jobs necessary for firms of different sizes to achieve an EGQ of two or more are as follows:

Initial Firm Size	*Minimum Job Increase Necessary To Achieve EGQ of 2 or More*
1-4 jobs:	2
5-7 jobs:	3
8-12 jobs:	4
13-17 jobs:	5
18-24 jobs:	6
25-31 jobs:	7
32-40 jobs:	8
41-49 jobs:	9
.	.
20,000 jobs:	200

before their growth took off (1994-1998) and the disposition of these firms after this four-year high-growth period (2002-2006).

With the addition of the pre- and post-high-impact phases, the entire time period studied is 1994-2006, with a primary focus on 1998-2002. The entire period was a much more entrepreneurial period than the earlier period that Birch studied. By 1994 the U.S. economy had begun to rebound from the 1989-1992 recession. Even California, which had been particularly hard hit by the recession due to military base realignments, had begun to recover by 1994. The macroeconomic period studied corresponds to a period that covers the longest peacetime expansion in U.S. history, followed by the burst of the dot.com bubble, a short recession, then a period of slower growth after 2002. The economy grew close to 4 percent a year between 1995 and 2000. The economy slowed to around 1 percent between 2000 and 2002. By 2003 the economy began to grow again (though not at the levels of the mid- to late 1990s) at a rate of about 3 percent a year.

The primary study period, 1998-2002, covers a four-year period of rapid growth and the dot.com collapse. While the firm birth rate was close to 11 percent in 1996, it had started to slow by the end of the 1990s, and by the end of 2002 it had slowed slightly to about 10 percent. This is evident in other indicators like initial public offerings; these declined from 476 in 1999 to 66 in 2002. The time period includes the transition from the rapidly growing 1990s to a period of slower growth during the 2000s. This slowdown is also evident in macroeconomic trends such as the federal budget's shift from surplus to deficit, the increase in the unemployment rate, and the stock market decline.

3.3 Research Questions

Twelve research questions are analyzed in the following sections:

1. How have high-impact firms been defined? How do differences in definitions compare and contrast over time?

2. What share of new jobs do high-impact firms generate? Has this changed over time?

3. What share of revenue do high-impact firms generate? Has this changed over time?

4. What is the typical age range of a high-impact firm—young, mature, or older? Has this changed over time?

5. How big are high-impact firms (in employment terms) at the beginning of the period? Does size change over time?

6. In what industries are high-impact firms generally found? Does this change over time?

7. How efficient or inefficient are high-impact firms? How has this changed over time?

8. Where are high-impact firms located—in metropolitan, rural, or suburban areas? How far are they from central business districts? Has this changed over time?

9. What were high-impact firms before their growth surge—startups, slow growers, decliners, or volatile or stagnant firms? How has this changed over time?

10. What happens to high-impact firms after their intensive growth period? What percentages continue their growth surge; continue to grow but more slowly; or stagnate, decline, or go out of business? How has this changed over time?

11. Is there an opposite group of "decliners" that net out the contribution of high-impact firms?

12. Which metropolitan statistical areas rank highest in share of high-impact firms?

We now turn to a detailed analysis of high-impact firms.

4. RESULTS

This section presents the results for the questions posed about high-impact firms. The answers are presented in each of the next four sections where we compare high-impact firms to all other firms in terms of age, size, and efficiency; determine where they are located (by industry and geographically); and identify what they were before and after being classified as high-growth firms.

Table 1 provides summary statistics on the two different definitions of high-impact firms. Gazelles, corresponding to Birch's definition, double their sales over a set time period, while high-impact firms double their sales and have an employment growth quantifier of two or greater (see above). The top panel of Table 1 shows employment and revenue growth for gazelles; the bottom half shows this for high-impact firms.

The total numbers of firms that qualify as gazelles and as high-impact firms are not very different, and the two datasets do not exhibit any clear pattern. For example, in 1998-2002, 345,330 firms fit the gazelle definition, and 299,973 firms met the high-impact firm criteria. (Some portion of these firms overlapped). In 1994-1998, there were more gazelles (354,049) and fewer high-impact firms (252,114). These firms created 11.4 million and 11.7 million jobs, respectively, during the 1998-2002 period. While firms in the 1-19 employee firm-size category were most numerous, most of the jobs were created by the 500-plus firm-size class. In fact, the 500-plus firm-size class created almost as many jobs as both of the smaller firm-size classes combined during the first two periods, although not in 2002-2006. (Note that the above job figures relate only to high-impact firms. Including the low-impact firms gives an economy-wide edge in net job creation to firms with fewer than 500 employees, since large firms lost far more jobs than small firms did.)

Table 1. Gazelles and High-Impact Firms, by Select Variables				
Number of Employees	Period	Number of Gazelles	Job Change	Revenue Change ($1,000s)
1-19	1994-1998	309,160	3,018,440	$577,533,025
	1998-2002	301,275	3,573,918	$716,504,242
	2002-2006	283,308	2,883,475	$589,072,471
20-499	1994-1998	43,342	3,014,683	$762,963,829
	1998-2002	42,390	3,291,048	$957,923,241
	2002-2006	39,617	2,130,682	$1,014,653,361
500-plus	1994-1998	1,547	5,063,517	$1,195,977,664
	1998-2002	1,665	4,515,417	$1,841,396,607
	2002-2006	1,485	2,514,558	$1,663,635,336
Total	1994-1998	354,049	11,096,640	$2,536,474,518
	1998-2002	345,330	11,380,383	$3,515,824,090
	2002-2006	324,410	7,528,715	$3,267,361,168
Number of Employees	Period	Number of High-Impact Firms	Job Change	Revenue Change ($1,000s)
1-19	1994-1998	327,397	3,170,729	$346,038,292
	1998-2002	278,190	3,577,111	$423,042,570
	2002-2006	359,289	4,041,099	$425,041,975
20-499	1994-1998	23,464	2,788,969	$503,059,203
	1998-2002	20,601	2,966,647	$570,102,604
	2002-2006	16,523	2,001,835	$549,674,434
500-plus	1994-1998	1,253	5,501,049	$1,110,073,562
	1998-2002	1,182	5,192,558	$1,657,759,197
	2002-2006	793	2,966,826	$1,060,128,527
Total	1994-1998	352,114	11,460,747	$1,959,171,057
	1998-2002	299,973	11,736,316	$2,650,904,371
	2002-2006	376,605	9,009,760	$2,034,844,936

Source: Corporate Research Board, American Corporate Statistical Library (2007).

The most striking differences between gazelles and high-impact firms are in the 500-plus firm-size class. There are fewer high-impact firms by almost two to one during the 2002-2006 time period. However, the employment effect is greater for the smaller number of high-impact firms, 2,514,558 vs. 2,966,826. The number of high-impact firms was smaller than the number of gazelles in the first two periods, but was greater in the third (Table 1). It is interesting that the number of high-impact firms exceeded the number of gazelles, given the more restrictive definition.

Table 2. Ratio of High-Impact Firms to Low-Impact Firms, 1994-2006			
	1994-1998	1998-2002	2002-2006
High-Impact Firms	352,114	299,973	376,605
All Other Firms	5,579,177	5,697,759	5,787,631
High-Impact Firm Ratio (percent)	6.3	5.2	6.5

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Table 2 presents summary statistics on the ratio of high-impact firms to all other firms for the period 1994-2006. Between 1994 and 1998 there were 352,114 high-impact firms, for a U.S. high-impact firm share of 6.3 percent. The high-impact share was 5.2 percent between 1998 and 2002 and 6.5 percent between 1994 and 1998. The high-impact firm share varies as much as it does because the absolute number of high-impact firms changes over time, reflecting changes in the total number of firms in the economy. The denominator used in Table 2 represents all employer firms in the BITS file. Of course, using a different denominator yields a different rate. The BITS dataset has the advantage in that both the numerator and the denominator contain employer firms.

4.1 How Do High-Impact Firms Compare with All Other Firms?

4.1.1 Age

How old are high-impact firms? Firm age is an important issue in industrial organization and has received considerable attention in the literature. Many studies have found that new firms grow faster than older firms (Evans, 1987). Table 3a shows the age distribution of all high-impact firms in the three firm-size classes and allows us to compare them to low-impact firms (Table 3b). The average age of high-impact firms is surprisingly high.

For the 1-19 firm-size class the average age is about 17 years. This increases to about 25 years for the 20-499 size class and to 34 years for the 500-plus size class. This is surprising given previous findings in the literature. What about startups? Table 3a shows that the 0-4 year-old age class (where startups would be classified) accounted for only 2.8 percent of high-impact firms between 1998 and 2002. In fact almost 95 percent of high-impact firms are over five years old. No more than 5.5 percent of high-impact firms are startups (0-4 years old).

Table 3a. Distribution of High-Impact Firms by Age Range and Firm Size, Selected Periods (Percent, except where noted)

	1994-1998			1998-2002			2002-2006		
	Firm Size (No. of Employees)			Firm Size (No. of Employees)			Firm Size (No. of Employees)		
	1-19	20-499	500-plus	1-19	20-499	500-plus	1-19	20-499	500-plus
Age of Firm									
0-4	2.83	0.67	0.56	4.13	0.9	1.35	5.55	0.89	0.38
5-7	16.72	7.94	4.89	22.42	9.89	9.73	23.26	10.19	6.2
8-10	16.81	11.49	7.94	15.46	11.56	7.7	17.3	13.04	10.63
11-14	17.85	16.82	14.6	15.08	13.92	9.98	14.34	13.82	10.76
15-19	15.22	16.19	13.95	13.75	16.09	15.57	11.95	14.41	13.04
20-24	10.51	11.49	9.22	9.61	11.68	11.68	8.59	12.44	9.75
25-29	6.75	9.13	9.3	6.24	8.43	6.77	6.09	8.62	7.72
30-39	6.62	9.96	11.39	6.54	10.72	10.58	6.74	10.97	10.89
40-49	3.32	6.12	6.82	2.98	5.75	5.33	2.67	5.47	6.96
50-69	2.42	6.31	10.67	2.4	6.3	8.63	2.27	5.46	9.49
70-99	0.95	3.9	10.67	0.94	3.4	7.02	0.86	3.2	7.85
100-plus	0	0	0	0.45	1.36	5.67	0.39	1.48	6.33
Average Firm Age (Years)	17.4	24.3	32	17	25.2	33.5	16.4	24.7	35.7

Source: Corporate Research Board, American Corporate Statistical Library.

Table 3b. Distribution of Low-Impact Firms by Age Range and Firm Size, Selected Periods (Percent, except where noted)

	1994-1998			1998-2002			2002-2006		
	Firm Size (No. of Employees)			Firm Size (No. of Employees)			Firm Size (No. of Employees)		
	1-19	20-499	500-plus	1-19	20-499	500-plus	1-19	20-499	500-plus
Age of Firm									
0-4	1.62	0.49	0.54	2.52	0.52	0.56	2.32	0.41	0.33
5-7	9.9	4.29	3.67	14.27	5.18	4.16	11.3	4.97	3.56
8-10	12.08	6.61	5.81	11.71	6.83	4.47	14.31	7.85	5.74
11-14	16.14	11.21	10.2	13.86	9.86	6.18	14.48	10.42	6.58
15-19	16.14	12.96	9.57	14.96	13.57	9.57	14.29	12.32	7.74
20-24	12.79	11.91	6.08	11.76	11.55	7.1	11.63	12.07	9.39
25-29	8.93	10.46	6.95	8.54	9.93	5.47	9.09	9.99	6.24
30-39	9.77	13.85	11.19	9.74	14.39	12.01	10.76	15	11.28
40-49	5.64	9.45	8.75	5.1	8.78	8.69	4.74	8.44	8.94
50-69	4.62	10.37	11.56	4.39	9.91	12.36	4.24	9.63	12.34
70-99	2.35	8.39	25.69	1.77	6.12	13.93	1.56	5.63	12.66
100-plus	0	0	0	1.38	3.37	15.49	1.26	3.26	15.2
Average Firm Age (Years)	22.1	32	44.3	22.4	33.4	52.8	22.4	32.9	52.1

Source: Corporate Research Board, American Corporate Statistical Library.

In 1994-1998, 16.8 percent of the high-impact firms in the 20-499 firm-size class are 11-14 years old and 13.9 percent of the 500-plus firm-size class is in the 15-19 year age

range. As shown in Table 3b, low-impact firms are on average older than high-impact firms, but not by much. For the 1-19 firm-size class the difference is about five years (17 vs. 21), for the 20-499 firm-size class it is about seven years, and for the 500-plus size class it is about 12 years. In other words, as firms become larger the age spread between the high- and low-impact firms increases. Therefore, high-impact firms are on average younger than low-impact firms. Of course it should be kept in mind that D&B has difficulty adding new firms; this should not alter the current analysis, however, as high-impact firms are basically by definition at least three years old and most likely around 20 years old.

4.1.2 Employment Size of Firm

How much did high-impact firms grow during the study period? Tables 4a through 4f compare high- and low-impact firms' distribution in terms of employment-size class and average firm size. As shown in Table 4b, for the 1-19 firm-size class the average employment size in 1998 was 3.4 growing to 16.3 in 2002. As shown in Table 4e, the average employment size of low-impact firms was 3.9 and 4.1 for the same time period. The average firm size of low-impact firms was virtually unchanged over the four-year period. The results were similar for the four-year periods before and after the primary study period.

The distribution of employment size between high- and low-impact firms is also interesting. While almost 70 percent of the low-impact firms stayed in the 1-4 employee firm-size class between 1994 and 1998, only 30 percent of the high-impact firms remained in that category. This result is robust throughout the whole time period.

The results are even more startling for the 20-499 firm-size class. For the 1994-1998 period (Table 4a) the average employment size increased from 67 to 186; similar results were seen in the other two time periods, with average employment size increasing from 66 to 210 (Table 4b) and from 62 to 183 (Table 4c) respectively. For the low-impact firms, employment size increased slightly over the 1994-1998 period (61 to 63) and the 1998-2002 period (59 to 63), and it decreased slightly over the 2002-2006 period (58 to 57). However, what is important to note is that employment in the low-impact firms

never declined over the period. This is consistent with our results above on the behavior of startups and employment growth. For both firm-size classes, 1-19 and 20-499, employment remained positive over time.

Table 4a. Percent of High-Impact Firms by Employment Size of Firm, 1994-1998

Average Number of Employees	1-19		20-499		500-plus	
	Start of Period	End of Period	Start of Period	End of Period	Start of Period	End of Period
0-4	82.66	30.97	–	–	–	–
5-9	11.12	27.13	–	–	–	–
10-24	6.22	30.34	19.82	–	–	–
25-49	–	8.78	40.42	20.78	–	–
50-99	–	2.13	21.57	35.74	–	–
100-249	–	0.50	13.67	27.60	–	–
250-499	–	0.09	4.51	9.72	–	–
500-999	–	0.03	–	4.31	44.05	12.85
1000-2499	–	0.02	–	1.50	31.36	36.55
2500-4999	–	–	–	0.25	13.17	22.59
5000-9999	–	–	–	0.05	5.99	12.93
10000-24999	–	–	–	0.04	3.67	9.26
25000-49999	–	–	–	–	1.20	3.27
50000-plus	–	–	–	–	0.56	2.55
Average Size	3.30	13.00	66.80	185.70	2,915.50	7,305.80

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Table 4b. Percent of High-Impact Firms by Employment Size of Firm, 1998-2002

Average Number of Employees	1-19		20-499		500-plus	
	Start of Period	End of Period	Start of Period	End of Period	Start of Period	End of Period
0-4	81.01	20.78	–	–	–	–
5-9	12.18	32.35	–	–	–	–
10-24	6.81	32.46	21.48	–	–	–
25-49	–	10.07	39.70	19.56	–	–
50-99	–	3.09	21.07	35.51	–	–
100-249	–	0.99	13.31	28.00	–	–
250-499	–	0.15	4.44	10.20	–	–
500-999	–	0.06	–	4.48	41.71	12.10
1000-2499	–	0.03	–	1.72	31.30	35.87
2500-4999	–	0.01	–	0.37	13.54	21.74
5000-9999	–	–	–	0.10	6.68	14.13
10000-24999	–	–	–	0.04	4.31	10.58
25000-49999	–	–	–	–	1.52	2.88
50000-plus	–	–	–	0.01	0.93	2.71
Average Size	3.40	16.30	65.80	209.80	3,648.00	8,041.00

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Table 4c. Percent of High-Impact Firms by Employment Size of Firm, 2002-2006

Average Number of Employees	1-19		20-499		500-plus	
	Start of Period	End of Period	Start of Period	End of Period	Start of Period	End of Period
0-4	87.21	25.55	–	–	–	–
5-9	8.22	34.38	–	–	–	–
10-24	4.56	27.66	22.24	–	–	–
25-49	–	8.62	41.60	20.76	–	–
50-99	–	2.99	20.52	36.76	–	–
100-249	–	0.62	11.80	27.54	–	–
250-499	–	0.11	3.85	9.01	–	–
500-999	–	0.04	–	3.82	38.59	12.74
1000-2499	–	0.02	–	1.62	32.41	32.03
2500-4999	–	0.01	–	0.24	14.88	23.96
5000-9999	–	–	–	0.15	7.57	15.64
10000-24999	–	–	–	0.09	5.42	10.21
25000-49999	–	–	–	0.01	0.76	3.40
50000-plus	–	–	–	–	0.38	2.02
Average Size	2.70	14.00	61.70	182.90	3,233.80	6,975.10

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Table 4d. Percent of Low-Impact Firms by Employment Size of Firm, 1994-1998

Average Number of Employees	1-19		20-499		500-plus	
	Start of Period	End of Period	Start of Period	End of Period	Start of Period	End of Period
0-4	70.56	70.93	–	3.20	–	3.34
5-9	19.56	18.53	–	2.09	–	1.71
10-24	9.88	9.78	21.46	20.88	–	2.68
25-49	–	0.61	42.33	36.91	–	2.90
50-99	–	0.11	20.94	20.92	–	3.34
100-249	–	0.03	11.56	11.93	–	5.90
250-499	–	0.01	3.70	3.50	–	6.91
500-999	–	–	–	0.50	41.65	30.24
1000-2499	–	–	–	0.05	30.28	25.92
2500-4999	–	–	–	0.01	11.49	8.54
5000-9999	–	–	–	–	6.59	4.35
10000-24999	–	–	–	–	5.43	2.63
25000-49999	–	–	–	–	2.02	0.87
50000-plus	–	–	–	–	2.53	0.68
Average Size	4.40	4.60	61.40	63.40	7,340.10	2,793.60

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Table 4e. Percent of Low-Impact Firms by Employment Size of Firm, 1998-2002

Average Number of Employees	1-19		20-499		500-plus	
	Start of Period	End of Period	Start of Period	End of Period	Start of Period	End of Period
0-4	74.13	73.52	–	1.85	–	1.91
5-9	16.79	16.79	–	1.54	–	1.13
10-24	9.08	9.09	22.53	22.10	–	2.04
25-49	–	0.45	42.46	38.66	–	1.98
50-99	–	0.10	20.45	20.52	–	2.15
100-249	–	0.03	11.11	11.47	–	4.10
250-499	–	0.01	3.45	3.39	–	6.38
500-999	–	–	–	0.41	44.89	35.57
1000-2499	–	–	–	0.05	29.89	26.04
2500-4999	–	–	–	0.01	10.96	9.37
5000-9999	–	–	–	–	6.29	4.74
10000-24999	–	–	–	–	4.30	2.80
25000-49999	–	–	–	–	1.72	1.02
50000-plus	–	–	–	–	1.94	0.77
Average Size	3.90	4.10	59.50	62.70	5,501.80	3,051.00

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Table 4f. Percent of Low-Impact Firms by Employment Size of Firm, 2002-2006

Average Number of Employeees	1-19		20-499		500-plus	
	Start of Period	End of Period	Start of Period	End of Period	Start of Period	End of Period
0-4	79.06	79.18	–	3.63	–	2.97
5-9	13.55	13.42	–	1.64	–	1.12
10-24	7.39	7.13	22.91	23.44	–	1.76
25-49	–	0.21	42.57	38.89	–	1.90
50-99	–	0.04	20.47	19.03	–	2.16
100-249	–	0.01	10.83	10.12	–	3.33
250-499	–	–	3.22	2.97	–	4.70
500-999	–	–	–	0.23	46.98	37.68
1000-2499	–	–	–	0.03	28.17	26.00
2500-4999	–	–	–	0.01	10.41	8.96
5000-9999	–	–	–	–	6.18	4.68
10000-24999	–	–	–	–	4.52	2.70
25000-49999	–	–	–	–	2.03	1.22
50000-plus	–	–	–	–	1.71	0.81
Average Size	3.30	3.50	58.02	56.80	5,199.90	3,153.10

Source: Corporate Research Board, American Corporate Statistical Library (2007).

As shown in Table 4b, during our focus period, the average employment size of the largest firms (500-plus employees) increased from 3,648 in 1998 to 8,041 in 2002, a 120 percent increase. The results are even more dramatic for the non-recessionary periods before and after our focus period, during which average firm size went from 2,916 to

7,306 and 3,234 to 6,975, respectively. These results appear to be inconsistent with our results in Section 2 that the 500-plus firm-size class loses employment from entry. The answer is found by looking at the low-impact firms' behavior. Below, Tables 4d, 4e, and 4f show that employment in large low-impact firms decreases by almost 40 to 62 percent in the periods studied. For example, in 1994-1998, average firm size decreased from 7,340 to 2,794 (Table 4d). Large firm shrinkage is evident in Tables 4d, 4e, and 4f as firms with more than 500 employees start to repopulate the smaller firm-size classes. While the two smaller size classes of low-impact firms exhibited almost no statistical trend, the 500-plus firm-size class exhibits a steady and persistent decline in employment. In fact, these tables show how the economy sheds jobs—the larger firms that do not grow shed large numbers of jobs in a relatively short period of time. The striking trend of rapidly growing employment in high-impact firms is almost cancelled out by large, low-impact firms' decline in employment.

The results from Tables 4a-4c are consistent with the results from the SBA data in Section 2. Most, if not all, of the growth in employment comes from the 300,000 high-impact firms in the economy over any four-year period. Depending on the time period studied, this is about evenly split between firms with fewer than 500 employees and firms with more than 500 employees. Therefore, it would appear that both small and large firms contribute about equally to employment growth.

However, when one looks at the performance of low-impact firms another picture emerges. As shown in Table 4d-f, while the low-impact firms in the 0-19 and the 20-499 firm-size class exhibit either no change or a slight increase in average employment size, the 500-plus firm-size class exhibits a persistent and steady decrease in average firm size, down by 62 percent between 1994 and 1998. The declines in average firm size were similar for the other two time periods. These results are consistent with the SBA data showing that the entry into the 500-plus firm-size class results on average in no employment gain over a five- or six-year period.

4.1.3 Efficiency

Are high-impact firms more efficient than low-impact firms? We use revenue per employee to provide an indication of labor productivity. Tables 5a and 5b present results on revenue per employee by one-digit industry for 1994-2006 for all high- and low-impact enterprises. For example, for the period 2002-2006, revenue per employee was $286,082 per year for high-impact firms with 500 or more employees and $203,892 per year for low-impact firms of this size. Revenue per employee was greater for high-impact firms in total for all time periods studied and firm-size categories. For 2002-2006, the only two industries where low-impact firms outperformed high-impact firms were high-technology and wholesale trade. The gap between high- and low-impact firm productivity also seems to be increasing over time. These results are consistent with the theory that newer firms drive out older inefficient firms, resulting in higher productivity in new firms. (High-impact firms are on average younger than low-impact firms).

Table 5a. High-Impact Firm Efficiency, by Industry and Employment Size, Selected Periods (Revenue per Employee, in Dollars)

Industry	1994-1998			1998-2002			2002-2006		
	1-19	20-499	500-plus	1-19	20-499	500-plus	1-19	20-499	500-plus
Agriculture/Forest/Mining	63,261	190,960	159,502	68,201	246,583	407,686	90,296	637,717	832,423
Construction	119,666	199,275	230,306	144,676	159,947	295,062	125,695	210,304	862,301
Manufacturing	110,088	152,111	189,864	117,459	164,352	239,157	124,650	185,090	332,381
High-Tech Manufacturing	141,864	182,385	277,861	137,892	181,061	321,520	120,804	247,600	233,813
Comm/Utilities	170,285	173,002	278,806	150,986	304,959	616,504	138,257	420,215	447,272
Distribution/Wholesale	246,372	363,533	467,522	247,555	388,998	535,783	210,523	409,630	335,306
Retail	118,617	234,587	142,693	142,752	261,964	167,608	113,105	242,743	270,135
Eating/Drinking Retail	28,384	28,851	32,729	29,694	42,453	40,055	27,833	29,396	52,820
Fin/Ins/Real Estate	110,054	247,777	288,713	142,788	242,752	323,609	125,605	396,144	388,101
Services	42,013	58,352	65,247	43,978	51,531	66,536	43,369	84,323	64,560
Professional Services	76,313	74,147	71,295	82,616	114,214	110,006	76,327	113,110	104,370
TOTAL	101,690	156,440	177,123	110,745	168,396	254,923	99,439	224,786	286,082

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Table 5b. Low-Impact Firm Efficiency, by Industry and Employment Size, Selected Periods (Revenue per Employee, in Dollars)									
Industry	1994-1998			1998-2002			2002-2006		
	1-19	20-499	500-plus	1-19	20-499	500-plus	1-19	20-499	500-plus
Agriculture/Forest/Mining	70,556	111,179	455,757	67,556	79,248	419,929	65,961	96,816	712,840
Construction	109,846	153,937	196,926	117,275	158,409	228,623	107,255	149,299	226,547
Manufacturing	92,728	119,540	230,444	93,776	123,052	223,765	90,278	131,763	299,925
High-Tech Manufacturing	120,996	121,763	196,965	125,700	133,755	199,144	118,552	146,213	263,381
Comm/Utilities	158,279	162,402	239,795	166,682	167,381	259,133	131,806	175,954	343,362
Distribution/Wholesale	226,412	269,776	285,932	225,429	262,393	251,320	190,581	259,461	378,686
Retail	99,983	206,568	129,583	100,803	210,192	172,644	96,164	213,054	186,133
Eating/Drinking Retail	28,239	26,593	35,477	28,645	26,448	33,468	28,909	27,776	36,953
Fin/Ins/Real Estate	115,789	189,815	338,076	121,797	204,664	351,986	113,928	181,577	376,204
Services	39,880	49,345	63,745	42,329	54,457	66,536	42,189	52,709	61,738
Professional Services	70,621	63,826	71,308	75,377	70,988	92,090	72,244	73,186	95,923
TOTAL	92,867	113,744	163,316	93,656	117,306	170,733	85,691	116,145	203,892

Source: Corporate Research Board, American Corporate Statistical Library (2007).

4.2 WHERE ARE HIGH-IMPACT FIRMS FOUND?

Where do high-impact firms occur? In what industries and regions, and in what proximity to the central business district? One might expect that most high-impact companies would be in high-technology industries where technological change has been rapid.

4.2.1 High-Impact Firms by Industry

In what industries are high-impact firms most prevalent? Economists have long debated the merits of having an economy that is specialized versus one that exhibits high levels of diversity (Glaeser, et al. 1992**).** The empirical evidence suggests that economies that are more diversified will grow more rapidly than ones that are more specialized. Table 6 shows the percentage of high-impact firms aggregated by 2-digit SIC industry for 1998-2006. The most striking observation is that high-impact firms exist in virtually all of the 2-digit SIC codes for all of the years. Second, the percentage of high-impact firms appears to be declining over time; however, this is in part the result of the growth in overall number of firms (the denominator).

Table 6. Share of High-Impact Firms by Industry (Percent)				
SIC	Description	1998	2002	2006
1	Agriculture-Crops	1.53	1.18	1.72
2	Agriculture-Animals	1.21	1.34	1.86
7	Agriculture Services	4.90	2.50	3.42
8	Forestry	4.34	2.60	2.79
9	Fishing, Hunting	3.40	1.98	2.69
10	Metal Mining	4.51	1.43	3.66
12	Coal, Lignite Mining	3.07	2.16	2.47
13	Oil, Gas Extraction	4.11	3.17	3.83
14	Non-Metallic Mining	4.98	3.93	2.94
15	General Contractors	4.01	2.27	2.12
16	Heavy Construction	6.13	4.52	4.60
17	Special Trade Contractors	4.94	3.08	2.93
20	Food, Kindred Products	4.96	3.40	3.36
21	Tobacco Products	1.45	2.35	2.80
22	Textile Mill Products	4.02	2.89	2.45
23	Apparel, Textiles	4.24	2.49	2.18
24	Lumber, Wood Products	4.99	2.69	2.63
25	Furniture, Fixtures	5.98	3.70	2.97
26	Paper Products	5.52	3.13	3.15
27	Printing, Publishing	3.79	2.13	2.21
28	Chemical Products	5.23	4.02	3.91
29	Petroleum, Coal Products	4.74	3.20	3.71
30	Rubber, Plastics	7.18	4.04	3.36
31	Leather Products	3.94	1.99	2.57
32	Stone, Clay, Glass	5.21	3.19	2.59
33	Primary Metal Industries	6.39	3.44	3.65
34	Fabricated Metals	6.39	3.84	3.25
35	Machinery not Electric	6.91	3.29	3.00
36	Electric, Electronic	7.03	4.39	3.51
37	Transportation Equipment	6.90	3.86	3.58
38	Instruments, Related	6.06	4.29	3.98
39	Misc. Manufacturing	3.93	1.75	2.12
40	Railroad Transport	1.83	1.31	1.66
41	Transit	2.95	2.35	2.15
42	Trucking, Warehouse	4.11	2.52	2.56
44	Water Transportation	4.82	2.79	3.19
45	Air Transportation	3.91	3.60	3.46
46	Pipelines, not Gas	0.63	0.95	2.91
47	Transportation Services	4.04	1.91	1.79
48	Communications	1.97	1.70	1.67
49	Utility Services	4.79	3.45	3.68
50	Durable Wholesale	4.37	2.89	2.77
51	Non-Durable Wholesale	4.10	2.62	2.48
52	Building, Garden	3.73	2.49	2.67
53	General Merchandise Retail	2.06	1.38	1.40
54	Food Stores	3.63	2.41	2.46
55	Automotive Dealers	4.01	2.32	2.42
56	Apparel Stores	2.06	1.50	1.53
57	Home Furnishing Retail	2.99	2.03	2.19
58	Eating, Drinking	1.94	1.38	1.26

Table 6. Share of High-Impact Firms by Industry (Percent) (cont'd)				
SIC	Description	1998	2002	2006
59	Miscellaneous Retail	2.97	1.81	2.06
60	Banking	3.16	2.76	3.12
61	Non-Bank Credit	2.30	2.57	3.07
62	Securities Brokers	3.41	2.52	2.22
63	Insurance Carriers	3.33	2.26	3.17
64	Insurance Agents	4.31	2.65	3.43
65	Real Estate	4.04	2.53	2.27
67	Holding Investments	4.17	0.98	0.88
70	Hotels and Lodging	3.14	2.29	2.16
72	Personal Services	4.33	1.78	2.18
73	Business Services	3.54	1.69	2.01
75	Auto Repair Services	3.97	2.03	2.27
76	Misc Repair Services	2.78	1.84	1.70
78	Motion Pictures	3.33	1.52	1.46
79	Recreation Services	3.82	2.09	2.59
80	Health Services	5.39	2.64	3.67
81	Legal Services	5.11	3.22	2.98
82	Educational Services	1.23	0.96	1.84
83	Social Services	6.30	3.69	4.35
84	Museums, Gardens	0.00	0.00	0.00
86	Member Organizations	0.33	0.15	0.20
87	Engineering, Management	4.46	2.45	2.98
89	Miscellaneous Services	1.38	0.34	0.92

Source: Corporate Research Board, American Corporate Statistical Library (2007).

The industries with the highest shares of high-impact firms in 1998 are SIC 36, electronic equipment; SIC 30, rubber and plastics; and SIC 35, machinery not electric. Disregarding the industries at the extremes, the range is between 2 and 6 percent. When we compare years, we notice that the percent of high-impact firms varies significantly over time. For example in electronic equipment, the rate declined from 7 percent in 1998 to 4.4 percent in 2002 and settled at 3.5 percent in 2006. The trend is similar for many industries. However the range is roughly between 2 and 6 percent across industries and over time, with some exceptions.

At the more aggregate level, manufacturing as a whole does very well, with numbers that compare favorably with other sectors including finance, insurance, and real estate; transportation; and services in general. We can see why a diversified economy grows more rapidly than one that is less diversified. The industries that are rapidly growing, which are led by high-impact firms, seem to shift over time. Therefore, encouraging diversity as a policy seems to make much more sense than targeting select industries.

4.2.2 High-Impact Firms by Geography

The location of economic activity is of great interest to economic development officials and communities alike. Several authors, including Jane Jacobs (1969), Michael Porter (1990), and Richard Florida (2002) have presented theses on how regional economies grow and prosper. At the heart of these models is the idea that economic and social inputs lead to rapidly growing companies. A large literature over the past decade has argued that these firms are located in high-tech regions and that most of them are also high-tech firms by nature (Lee, Florida, and Acs, 2004).

We start by examining the distribution of high-impact firms by Census region. Table 7 provides data for all nine Census regions for the number of high-impact firms, the number of companies, the ratio of high-impact firms, and an index scaled from zero to 100. What we find as a first cut is that the distribution of high-impact firms shows some variation across regions, but not a lot. The rates are calculated as the number of high-impact firms divided by the total numbers of firms in the regions as defined by the ACSL. The Mountain region leads, with 29,893 high-impact firms or 2.33 percent of all firms. Table 7 shows the rankings of the other eight regions. However, the range is only 2.12 to 2.33 percent, showing only a slight variation among regions.[10]

Table 7. High-Impact Firm Distribution by Region, 2002-2006

Region	Rank	Number of High-Impact Firms	Total Firms	Percent High-Impact Firms	Index Value
Mountain	1	29,893	1,281,786	2.33	100.00
West North Central	2	26,895	1,195,553	2.25	60.37
East North Central	3	50,936	2,269,977	2.24	57.64
Pacific	4	64,108	2,888,440	2.22	45.91
South Atlantic	5	81,126	3,705,610	2.19	31.41
New England	6	18,786	865,929	2.17	21.90
East South Central	7	18,769	869,048	2.16	17.22
West South Central	8	39,952	1,860,120	2.15	11.51
Middle Atlantic	9	46,156	2,173,218	2.12	0.00

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Table 8 ranks the 50 states and the District of Columbia. Again we see that the variation is not very large, ranging from 2.76 to 1.92 percent. However, at this lower level of aggregation the range is wider than in the regional distribution. The states with the

[10] The index value varies from 100 to zero for the percent of high-impact firms.

highest ratios are Alaska, Arizona, Wyoming, South Carolina, North Dakota, and Virginia.

Table 8. Distribution of High-Impact Firms by State

State	Rank	Number of High-Impact Firms	Total Firms	Percent High-Impact Firms	Index Value
Alaska	1	1,117	40,468	2.76	100.00
Arizona	2	7,463	290,687	2.57	77.11
Wyoming	3	988	38,801	2.55	74.61
South Carolina	4	5,252	206,531	2.54	74.21
North Dakota	5	1,108	44,636	2.48	67.01
Virginia	6	9,284	376,337	2.47	65.18
Pennsylvania	7	14,147	577,328	2.45	63.22
Washington D.C.	8	1,092	44,728	2.44	62.15
Rhode Island	9	1,297	53,625	2.42	59.45
Wisconsin	10	6,832	282,737	2.42	59.18
Montana	11	1,773	73,942	2.40	56.98
Ohio	12	12,878	541,169	2.38	54.82
Washington	13	8,919	376,102	2.37	53.84
New Mexico	14	2,313	97,713	2.37	53.33
Maine	15	1,836	77,867	2.36	52.23
North Carolina	16	11,253	479,124	2.35	51.14
Maryland	17	7,330	313,585	2.34	49.81
Idaho	18	2,458	105,246	2.34	49.58
West Virginia	19	1,591	68,188	2.33	49.31
South Dakota	20	1,300	56,067	2.32	47.58
Oregon	21	5,832	252,048	2.31	47.01
Hawaii	22	1,410	61,062	2.31	46.45
Minnesota	23	7,323	317,897	2.30	45.79
Vermont	24	1,005	43,842	2.29	44.45
Tennessee	25	7,016	306,755	2.29	43.84
Kansas	26	3,683	161,411	2.28	43.20
Delaware	27	979	43,086	2.27	42.06
Alabama	28	4,823	212,298	2.27	42.02
Colorado	29	7,928	350,608	2.26	40.76
Missouri	30	6,891	304,981	2.26	40.55
New Hampshire	31	1,891	84,329	2.24	38.53
Louisiana	32	5,677	253,725	2.24	37.94
Nebraska	33	2,409	108,349	2.22	36.27
New Jersey	34	10,300	463,976	2.22	35.86
Illinois	35	13,443	607,417	2.21	35.05
Utah	36	3,778	171,195	2.21	34.30
Indiana	37	6,777	307,631	2.20	33.84
Arkansas	38	3,077	140,945	2.18	31.49
California	39	46,830	2,158,760	2.17	29.85
Oklahoma	40	3,993	184,085	2.17	29.82
Massachusetts	41	8,098	378,452	2.14	26.34
Texas	42	27,205	1,281,365	2.12	24.36
Nevada	43	3,192	153,594	2.08	19.03
Michigan	44	11,006	531,023	2.07	18.37

State	Rank	Number of High-Impact Firms	Total Firms	Percent High-Impact Firms	Index Value
Iowa	45	4,181	202,212	2.07	17.78
Florida	46	32,078	1,556,496	2.06	16.98
Mississippi	47	2,822	137,086	2.06	16.70
Connecticut	48	4,659	227,814	2.05	15.10
Georgia	49	12,267	617,535	1.99	8.14
Kentucky	50	4,108	212,909	1.93	1.37
New York	51	21,709	1,131,914	1.92	0.00

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix B provides data for the 52 top-tier metropolitan statistical areas (MSAs). The MSA with the highest high-impact firm rate is Norfolk–Virginia Beach–Newport News, Virginia, with 2.58 percent high-impact firms. The lowest is Orlando, Florida, with 1.93 percent. Once again, the range is not very large. Appendix C provides similar data for the mid-tier MSAs; these have a slightly greater range, 1.81 percent to 2.81 percent.

The greatest variation is found in the lower-tier MSAs (Appendix D). Of this group, College Station, Pennsylvania, has 196 high-impact firms or 3.28 percent. The lowest is Danville, Virginia, with 266 high-impact firms or 1.8 percent.

Appendixes E, F, and G present data by county (top tier, mid-tier, and lower tier). For top-tier counties, the range of high-impact firms is 1.55 percent to 2.71 percent. Among large counties, the one with the highest share of high-impact firms is Fairfax, Virginia, followed by Du Page, Illinois; Franklin, Ohio; and Riverside, California. The lowest rates are found in Queens, New York; Wayne, Michigan; and Kings, New York. Mid-tier counties are similar to the top tier, with high-impact firm rates ranging from 1.38 percent to 2.74 percent. The smallest counties have a wider range of high-impact firm ratios, from 0.99 percent to 3.33 percent (Appendix G).

4.2.3 High-Impact Firms' Proximity to the Central Business District

The role that central business districts play in economic development and the growth of cities is an ongoing area of research. Of interest are the role of specialization versus diversity and of tolerance versus intolerance, as well as the role of density (Florida, 2002). Density is viewed as creating a fertile setting for the incubation of ideas,

especially those that relate to innovation and productivity growth. So the location of high-impact firms with respect to the central business district is an interesting issue.

Table 9a provides data on the share of high-impact firms located in metropolitan areas; these can be compared to low-impact firm locations (Table 9b).

Table 9a. High-Impact Firm Distribution by Proximity to the Central Business District

Distance from Central Business District (Miles)	1994-1998		1998-2002		2002-2006	
	Number	Percent	Number	Percent	Number	Percent
In CBD	36,758	10.48	28,085	9.38	33,249	8.84
1-5	31,771	9.06	27,547	9.20	33,966	9.03
6-10	59,279	16.90	50,357	16.82	63,458	16.88
11-15	35,154	10.02	31,476	10.52	39,269	10.45
16-20	26,307	7.50	23,018	7.69	30,169	8.02
21-25	27,998	7.98	24,197	8.08	30,383	8.08
26-30	15,579	4.44	13,507	4.51	18,014	4.79
31-35	10,377	2.96	9,661	3.23	12,866	3.42
36-40	10,180	2.90	8,941	2.99	11,046	2.94
41 or more	14,432	4.12	15,004	5.01	19,515	5.19
Rural	82,840	23.62	67,549	22.57	84,008	22.35

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Table 9b. Low-Impact Firm Distribution by Proximity to the Central Business District

Distance from Central Business District (Miles)	1994-1998		1998-2002		2002-2006	
	Number	Percent	Number	Percent	Number	Percent
In CBD	983,126	9.83	1,197,286	8.24	1,345,903	7.92
1-5	879,598	8.79	1,318,135	9.07	1,538,320	9.05
6-10	1,660,875	16.60	2,461,005	16.93	2,921,467	17.19
11-15	984,786	9.85	1,513,943	10.41	1,794,170	10.55
16-20	722,589	7.22	1,122,682	7.72	1,359,973	8.00
21-25	762,361	7.62	1,180,531	8.12	1,373,575	8.08
26-30	438,348	4.38	662,607	4.56	801,096	4.71
31-35	290,937	2.91	443,464	3.05	562,935	3.31
36-40	279,359	2.79	411,190	2.83	483,402	2.84
41 or more	434,649	4.35	714,863	4.92	877,225	5.16
Rural	2,566,109	25.65	3,513,281	24.16	3,941,502	23.19

Source: Corporate Research Board, American Corporate Statistical Library (2007).

There are four important observations. First, about 23 percent of high-impact firms are located in rural areas, and they exhibit a slight decline over time. This is a very high number; close to one-quarter of the firms that are important for growth are not located in metropolitan areas. Second, the percentage of high-impact firms located in the central

business district has declined over the past 12 years, from 10.5 to 8.8 percent. The share of low-impact firms has likewise declined. Third, most high-impact firms are concentrated about 6 to 15 miles from the central business district. About 100,000 firms (close to one-third of the total) are in these concentric rings. Finally, the patterns of location of high- and low-impact firms are very similar; a discernible trend over the 12-year period is that both rural and central business districts appear to be losing firms to semi-rural areas.

4.3 What Are High-Impact Firms Like In Their Pre-Growth Phase?

Since it is clear that high-impact firms tend to be older rather than startups, the very interesting question arises, what do these firms look like before their growth surge? In the two and half decades since the publication of Birch's work (1981), there has been an active line of research trying to answer questions about firm age, size, and growth (Dunne, Roberts, and Samuelson, 1989; Davis, Haltiwanger, and Schuh, 1996a and 1996b; and Acs and Armington, 2006).

Data limitations and inconsistent theoretical models have hampered research in this area. In fact, Richard Caves (1993), in a review article in the *Journal of Economic Literature* described the efforts to sort out the empirical issues as an exercise in "hunting and gathering." One of the important issues in this paper has been to try to get a better handle on where high-impact firms come from and what happens to them afterward. Perhaps the most important question has been the role of firm age.

Many theoretical models and empirical findings have suggested that firm age is important and that new firms grow faster than older firms. Moreover, it has been suggested that the timeline between a firm's birth and the point at which it starts to grow is almost instantaneous. This was articulated in Audretsch (1995) when he suggested that the "trees in the forest" metaphor of Marshall should be contrasted with the "revolving door." The "trees in the forest" model suggests that firms will stay around for a long time and grow into high-impact firms. The "revolving door" model suggests that firms enter and exit simultaneously, and some of these firms survive and grow.

To examine the question of what firms were before they became high-impact firms we classify them in six degrees of volatility:

Constant Grower - The firm grew (had at least one job gain) in each two-year period of a four-year period of analysis.

Mixed Grower - The firm grew in one two-year period of a four-year period of analysis, and declined or experienced no change during the other two-year period. The net result over four years was an increase.

Non-Changer - The firm had zero change in each two-year period of a four-year period of analysis.

Volatile Non-Changer - The firm grew in one two-year period of a four-year period of analysis and declined in the other two-year period, with the overall four-year change netting out to zero.

Mixed Decliner -The firm declined in one two-year period of a four-year period of analysis, grew or experienced no change during the other two-year period, and the net result over four years was a decrease.

Constant Decliner - The firm declined in each two-year period of a four-year period of analysis.

Next we identify all high-impact firms between the years 1998-2002 and divide them into three firm-size classes (1-19, 20-49, and 500-plus employees). Then we determine the status of these firms during the four-year period 1994-1998. Tables 10a and 10b consider high- and low-impact firms in terms of growth status and volatility in the four years prior to the primary study period.

Table 10a shows that 53 percent of the firms in the 1-19 firm-size class were born before 1994 but were not in the D&B file. (The term “new listing” indicates that they existed before 1994 but entered the D&B file between 1994 and 1998.) Only 9 percent of the firms labeled “high impact” in 1998-2002 were born between 1994 and 1998. A small portion, 1.4 percent or 4,894 firms, were high-growth firms in the 1994-1998 period. The overwhelming majority of the small high-impact firms were born prior to 1994. As noted above, the average age of a high-impact firm for this firm-size class was 17.4 years (Table 3a).

Table 10a. High-Impact Firm Status and Volatility In the Preceding Four Years (1994-1998)

Status	Firm Size (Number of Employees)					
	1-19		20-499		500-plus	
	Number	%	Number	%	Number	%
Births	34,197	9.6	1,292	7.9	51	6.4
New Listings	191,743	53.8	2,247	13.7	69	8.7
Growth	19,043	5.3	7,033	42.9	499	63.1
No Change	70,166	19.7	4,479	27.3	70	8.8
Decline	41,582	11.7	1,334	8.1	102	12.9
High-Impact	4,894	1.4	2,131	13.0	192	24.3
Data Missing	32	0.0	7	0.0	1	0.1
Volatility	**Firm Size (Number of Employees)**					
	1-19		20-499		500-plus	
	Number	%	Number	%	Number	%
Constant Growth	1,641	1.3	1,920	15.0	254	37.9
Mixed Growth	17,047	13.2	5,024	39.3	242	36.1
Non-Changer	66,857	51.7	4,370	34.2	70	10.4
Volatile Non-Changer	1,682	1.3	48	0.4	0	0.0
Mixed Decline	40,188	31.1	1,303	10.2	83	12.4
Constant Decline	1,870	1.4	129	1.0	21	3.1
Data Missing	4,032	3.1	183	1.4	2	0.3

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Table 10b. Low-Impact Firm Status and Volatility in the Preceding Four Years (1994-1998)

Status	Firm Size (Number of Employees)					
	1-19		20-499		500-plus	
	Number	%	Number	%	Number	%
Births	786,148	6.6	26,457	3.7	692	3.1
New Listing	5,808,553	48.4	116,583	16.3	1389	6.1
Growth	884,417	7.4	243,481	34.1	11331	50.0
No Change	3,246,093	27.1	267,278	37.4	5702	25.2
Decline	1,265,742	10.6	60,576	8.5	3533	15.6
High-Impact	215,897	1.8	74,183	10.4	2676	11.8
Data Missing	27,383	0.2	22,254	3.1	1881	8.3
Volatility	**Firm Size (Number of Employees)**					
	1-19		20-499		500-plus	
	Number	%	Number	%	Number	%
Constant Growth	57,151	1.1	38,553	7.0	2938	15.7
Mixed Growth	808,887	15.3	194,600	35.2	7498	40.1
Non-Changer	3,081,905	58.2	251,057	45.3	4948	26.5
Volatile Non-Changer	64,541	1.2	2,237	0.4	84	0.4
Mixed Decline	1,244,481	23.5	61,927	11.2	2719	14.5
Constant Decline	38,699	0.7	5,244	0.9	518	2.8
Data Missing	151,087	2.9	11,008	2.0	148	0.8

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Another interesting question is whether high-impact firms can be identified in the previous time period. The answer appears to be no. Table 10a identifies the volatility of the enterprises in the previous four-year period. In fact, 52 percent of firms exhibited no change in employment or revenue in the prior period, and 31 percent of enterprises were mixed decliners.

In short, high-impact firms showed no signal or mixed signals as to their subsequent potential in the years preceding their growth surge. Table 10b provides comparable information for low-impact firms. The patterns of behavior of high- and low-impact firms are broadly similar.

The results are significantly different for the 20-499 firm-size class. First, 7.9 percent of high-impact firms in the study period were born in the previous four years and only 13 percent are new listings. Only 5.3 percent of the 1-19 firm-size class were growers, compared with 43 percent of the larger firm-size class. Only 1.4 percent of the 1-19 firm-size class was already high impact, but 13 percent the 20-499 firm-size class were. Firms in the 1-19 firm-size class exhibited considerable volatility, but most of the larger firms (73 percent) were either mixed growers or non-changers. As noted earlier, the average age of high-impact firms in the 20-499 firm-size class is 24 years old (Table 3a).

Among the largest firms (500-plus employees) fully 25 percent were already high-impact firms in the previous time period, and 63 percent were growth firms. Only 6.4 percent were born in the previous period. Volatility declines further for the 500-plus group: 38 percent experienced constant growth and 36 percent had mixed growth.

4.4 What Happens To High-Impact Firms after Their Growth Period?

What happens to high-impact firms in the years after their high performance years? Do they remain in the high-impact firm category for a longer period of time, or do they move on to something else? Table 11a provides a glimpse into these questions by examining the four-year period (2002-2006) after our study period. We present comparable data to that found in Tables 10a and 10b for easy cross-referencing. The data in the bottom half of Table 11 is smaller because the deaths and the high-impact firms have been eliminated.

Table 11a presents the status of 1-19 firm-size class of high-impact firms from 1998 to 2002, focusing on firm exit. If the earlier results are any indication of the symmetry of firm behavior, we would expect that firm exit would be higher for the smaller firm-size class than the larger ones. In fact after being classified as "high impact" in 1998-2002, 6 percent exit the file two years later and another 4 percent exit by the end of four years. Another 60 percent exhibit no change. However, 2.4 percent remain high-impact firms. In fact, with the exception of a small number of firms that stay high impact or show mixed growth, most of the smallest firms exhibit some sort of decline. The results for the low-impact firms are even more striking, with more than one-quarter exiting (Table 11b).

The results for the 20-499 firm-size class are similar to those for the 1-19 firm-size class, except that the exit rates are lower and almost 30 percent of the high-impact firms exhibit constant or mixed growth. Fifty percent showed no change.

There are important differences in the 500-plus firm-size class. First, the rate of high-impact firms that remain in a high growth pattern is 8 percent, more than double the rate for the smaller firm size classes. In fact the number of firms that remain high-impact firms is larger than the number that exit after four years. Moreover, almost 50 percent exhibit either constant or mixed growth, and almost 75 percent of surviving firms exhibit no decline. A comparison of the survival of large high- and low-impact firms (Tables 11a and 11b) shows two discernible differences. First, the rate of constant growers is 25 percent for high-impact firms and only 8 percent for low-impact firms. Second, the rate of non-changers is twice as large for low-impact firms. Clearly, being a high-impact firm in the previous four years has a significant impact on firm performance in the subsequent four years, and the effect is more evident as firm-size class increases.

Table 11a. High-Impact Firm Status and Volatility after the Study Period (2002-2006)

Status	Firm Size (Number of Employees)					
	1-19		20-499		500-plus	
	Number	%	Number	%	Number	%
Deaths within 2 Years	15,564	5.9	691	3.4	36	3.1
Deaths within 2-4 Years	10,445	4.0	500	2.5	21	1.8
Growth	34,553	13.1	5,445	27.1	530	45.3
No Change	160,499	60.9	9,667	48.1	282	24.1
Decline	42,651	16.2	3,784	18.8	301	25.7
High impact	6,419	2.4	703	3.5	95	8.1
Missing Data	407	0.2	35	0.2	6	0.5
Volatility	**Firm Size (Number of Employees)**					
	1-19		20-499		500-plus	
	Number	%	Number	%	Number	%
Constant Growth	3,672	1.6	1,235	6.6	267	24.2
Mixed Growth	30,478	12.9	4,175	22.2	260	23.6
Non-Changer	158,814	67.2	9,536	50.8	275	24.9
Volatile Non-Changer	1,058	0.4	75	0.4	7	0.6
Mixed Decline	40,395	17.1	3,343	17.8	201	18.2
Constant Decline	1,969	0.8	401	2.1	93	8.4
Missing Data	994	0.4	105	0.6	4	0.4

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Table 11b. Low-Impact Firm Status and Volatility after the Study Period (2002-2006)

Status	Firm Size (Number of Employees)					
	1-19		20-499		500-plus	
	Number	%	Number	%	Number	%
Deaths within 2 Years	1,190,267	10.4	46,448	6.7	883	4.0
Deaths within 2-4 Years	1,793,290	15.7	25,022	3.6	519	2.4
Growth	1,171,409	10.2	112,274	16.2	5872	26.7
No Change	6,385,655	55.9	391,769	56.6	10107	45.9
Decline	890,504	7.8	116,948	16.9	4646	21.1
High impact	354,395	3.1	15,912	2.3	698	3.2
Missing Data	68,684	0.6	25,530	3.7	1863	8.5
Volatility	**Firm Size (Number of Employees)**					
	1-19		20-499		500-plus	
	Number	%	Number	%	Number	%
Constant Growth	63,756	0.8	12,671	2.1	1488	8.0
Mixed Growth	1,071,988	13.0	88,803	15.0	3964	21.2
Non-Changer	6,169,259	75.0	380,294	64.1	8840	47.3
Volatile Non-Changer	48,990	0.6	2,257	0.4	101	0.5
Mixed Decline	845,524	10.3	101,212	17.1	3447	18.4
Constant Decline	25,175	0.3	8,128	1.4	861	4.6
Missing Data	174,374	2.1	3,354	0.6	99	0.5

Source: Corporate Research Board, American Corporate Statistical Library (2007).

5. DO "DECLINERS" CANCEL OUT THE CONTRIBUTION OF HIGH-IMPACT FIRMS?

How many dramatically declining firms exist that might cancel out the positive effect of high-growth companies in a given time period? Table 12 provides details on the decliners by both firm-size class and year. When we compare Table 12 with Table 1, we can see that, for example, there were 327,397 high-impact firms in the 1-19 employee firm-size class between 1994 and 1998. The decliners for that period were 90,016. So the net effect was 237,381. For each four-year period and each firm-size class, job creation was greater than the job destruction.

Table 12. Dramatically Declining Firms

Employment Size Range	Period	Number of Firms	Job Change	Revenue Change ($1,000s)
1-19	1994-1998	90,016	-498,161	-$45,199,711
	1998-2002	64,422	-364,207	-$35,969,588
	2002-2006	61,613	-366,674	-$41,777,878
20-499	1994-1998	22,228	-902,145	-$110,247,248
	1998-2002	18,641	-725,416	-$119,861,091
	2002-2006	26,224	-1,097,147	-$389,814,740
500-plus	1994-1998	737	-1,275,384	-$177,153,624
	1998-2002	775	-1,602,940	-$281,123,106
	2002-2006	867	-1,927,681	-$623,710,585

Source: Corporate Research Board, American Corporate Statistical Library (2007).

6. CONCLUSION

The purpose of this study was to revisit earlier conclusions about the role of high-impact firms in the economy. First, we use the Business Information Tracking System (BITS) data to examine the role different types of entrants play over time. We find that different entrants have different trajectories with respect to job creation, with the 20-499 firm-size class exhibiting sustained job growth. However, the BITS database is not accessible enough to examine these high-impact firms in greater detail. To better understand the role of these high-potential firms in the economy, we used the American Corporate Statistical Library (ACSL), a database that contains over 130 variables on more than 18 million firms in the United States. By using the ACSL we are able to identify and track high-impact firms over a 12-year period from January 1, 1994, to January 1, 2006.

The results of this study shed light on the characteristics of high-impact firms and changes over time. Our results find consistencies with Birch's work and similar studies, namely that high-impact firms appear to account for the lion's share of the employment and revenue growth in the economy. Job creation is almost evenly split among small high-impact firms (fewer than 500 employees) and large ones (500-plus employees), with small firms creating about half the jobs and large ones creating the other half. Low-Impact Firms do not grow on average. Almost all of the job loss in the economy over any four-year period comes from the large low-impact firms. We found that the average high-impact firm while younger than all firms is not a new startup; instead, the average age is around 25 years old. These firms have been around for a long time before they make a significant impact on the economy.

Less than 3 percent of high-impact firms were born in the previous four-year period. Almost one-quarter of all high-impact firms in the study period had been high-impact firms during the previous four-year period as well. In other words, some enterprises have been doubling their revenues and adding jobs over an eight-year period. This trend accelerates among the largest firm-size class. These super high-impact firms account for a small percentage of firms but they still number in the thousands. In the four years after our study period, only about 3 percent of the high-impact firms died. Most continued and exhibited at least some growth. Most high-impact firms are not small or young. Therefore, we find little support for the original Birch findings with respect to firm age.

How can economic development policy affect these high-potential firms? The study should help us better understand economic policy that focuses on economic development. Local economic development officials should recognize the value of cultivating high-growth firms versus trying to increase entrepreneurship overall or trying to attract relocating companies when utilizing their resources.

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8. APPENDIXES

Appendix A. Dun and Bradstreet Birth Rates by MSA, 1998-2001										
MSA	Rank	% Births 98-01	% Births <20	% Births 20-499	% Births 500+	Total Births 98-01	Total Births <20	Total Births 20-499	Total Births 500+	Total Firms
Las Vegas, NV-AZ MSA	1	16.78	15.61	1.14	0.02	9,182	8,546	625	11	54,731
Atlanta, GA MSA	2	16.30	15.31	0.95	0.04	29,271	27,493	1,711	67	179,571
Austin-San Marcos, TX MSA	3	15.94	14.90	1.02	0.02	8,156	7,624	521	11	51,174
Phoenix-Mesa, AZ MSA	4	15.89	14.84	1.04	0.01	16,772	15,661	1,102	9	105,567
Colorado Springs, CO MSA	5	14.31	13.63	0.65	0.03	2,946	2,807	133	6	20,593
Raleigh-Durham-Chapel Hill, NC MSA	6	14.26	13.27	0.97	0.03	6,617	6,156	448	13	46,397
Fort Collins-Loveland, CO MSA	7	14.23	13.67	0.56	0.00	1,789	1,718	71	0	12,571
Orlando, FL MSA	8	14.19	13.40	0.78	0.01	11,314	10,684	619	11	79,733
Denver-Boulder-Greeley, CO CMSA	9	14.16	13.37	0.77	0.02	16,957	16,019	920	18	119,788
Huntsville, AL MSA	10	13.99	13.20	0.78	0.01	1,576	1,487	88	1	11,262
Dallas-Fort Worth, TX CMSA	11	13.92	12.98	0.91	0.03	29,643	27,653	1,928	62	212,969
Miami-Fort Lauderdale, FL CMSA	12	13.68	12.98	0.68	0.02	27,066	25,691	1,339	36	197,892
Wilmington, NC MSA	13	13.52	12.86	0.65	0.01	1,514	1,440	73	1	11,199
Charlotte-Gastonia-Rock Hill, NC-SC MSA	14	13.51	12.64	0.85	0.02	7,631	7,138	480	13	56,492
Charleston-North Charleston, SC MSA	15	13.45	12.66	0.78	0.02	2,506	2,358	145	3	18,630
Houston-Galveston-Brazoria, TX CMSA	16	13.42	12.56	0.82	0.04	25,066	23,459	1,541	66	186,849
Ocala, FL MSA	17	13.20	12.73	0.47	0.00	1,378	1,329	49	0	10,437
West Palm Beach-Boca Raton, FL MSA	18	13.13	12.47	0.66	0.01	8,378	7,951	418	9	63,784
San Antonio, TX MSA	19	13.11	12.42	0.68	0.01	6,252	5,924	322	6	47,688
Boise City, ID MSA	20	13.08	12.55	0.52	0.01	2,734	2,623	108	3	20,907
Albuquerque, NM MSA	21	12.95	12.37	0.57	0.02	3,295	3,146	144	5	25,439
Fort Myers-Cape Coral, FL MSA	22	12.86	12.17	0.68	0.00	2,832	2,681	150	1	22,022
Columbia, SC MSA	23	12.76	12.05	0.67	0.03	2,385	2,253	126	6	18,695
Greenville-Spartanburg-Anderson, SC MSA	24	12.73	12.03	0.66	0.04	3,967	3,750	206	11	31,171
Mobile, AL MSA	25	12.61	11.97	0.63	0.01	2,350	2,230	118	2	18,634
Pensacola, FL MSA	26	12.61	12.08	0.52	0.01	1,916	1,835	79	2	15,195
Provo-Orem, UT MSA	27	12.60	11.68	0.91	0.01	2,092	1,940	151	1	16,606
Naples, FL MSA	28	12.59	11.90	0.69	0.01	1,828	1,727	100	1	14,517
San Diego, CA MSA	29	12.56	11.73	0.81	0.02	12,841	11,995	829	17	102,272
Savannah, GA MSA	30	12.53	11.68	0.84	0.01	1,347	1,256	90	1	10,749
Jacksonville, FL MSA	31	12.52	11.80	0.70	0.02	5,188	4,889	291	8	41,427
Melbourne-Titusville-Palm Bay, FL MSA	32	12.52	11.92	0.58	0.02	2,634	2,508	122	4	21,034
Killeen-Temple, TX MSA	33	12.45	12.10	0.35	0.00	1,034	1,005	29	0	8,307
Athens, GA MSA	34	12.44	11.84	0.56	0.04	686	653	31	2	5,515
Seattle-Tacoma-Bremerton, WA CMSA	35	12.41	11.81	0.58	0.01	18,817	17,913	882	22	151,648
El Paso, TX MSA	36	12.39	11.67	0.70	0.02	2,136	2,012	121	3	17,234
Birmingham, AL MSA	37	12.36	11.60	0.73	0.02	3,897	3,659	231	7	31,536

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix A. Dun and Bradstreet Birth Rates 1998-2001 by MSA (cont'd)

MSA	Rank	% Births 98-01	% Births <20	% Births 20-499	% Births 500+	Total Births 98-01	Total Births <20	Total Births 20-499	Total Births 500+	Total Firms
Montgomery, AL MSA	38	12.34	11.59	0.73	0.02	1,234	1,159	73	2	9,996
Myrtle Beach, SC MSA	39	12.33	11.56	0.75	0.02	1,251	1,173	76	2	10,145
Fort Pierce-Port St. Lucie, FL MSA	40	12.27	11.81	0.45	0.01	1,857	1,788	68	1	15,134
Laredo, TX MSA	41	12.26	11.72	0.54	0.00	771	737	34	0	6,288
McAllen-Edinburg-Mission, TX MSA	42	12.26	11.55	0.70	0.01	1,618	1,524	93	1	13,198
Fayetteville-Springdale-Rogers, AR MSA	43	12.24	11.60	0.62	0.02	1,373	1,301	70	2	11,219
Pueblo, CO MSA	44	12.22	11.81	0.42	0.00	588	568	20	0	4,811
Fort Walton Beach, FL MSA	45	12.17	11.60	0.57	0.00	1,000	953	47	0	8,218
Daytona Beach, FL MSA	46	12.17	11.63	0.54	0.00	2,630	2,513	117	0	21,614
Fayetteville, NC MSA	47	12.16	11.45	0.71	0.00	913	860	53	0	7,510
Spokane, WA MSA	48	12.14	11.65	0.48	0.01	1,903	1,826	75	2	15,669
Memphis, TN-AR-MS MSA	49	12.10	11.25	0.82	0.03	4,189	3,897	283	9	34,630
Punta Gorda, FL MSA	50	12.07	11.73	0.34	0.00	641	623	18	0	5,311
Green Bay, WI MSA	51	12.04	11.40	0.64	0.00	900	852	48	0	7,472
Tampa-St. Petersburg-Clearwater, FL MSA	52	11.97	11.24	0.72	0.01	12,419	11,665	743	11	103,779
Yuma, AZ MSA	53	11.93	11.23	0.70	0.00	408	384	24	0	3,419
Sherman-Denison, TX MSA	54	11.89	11.41	0.46	0.02	542	520	21	1	4,559
Indianapolis, IN MSA	55	11.75	10.95	0.78	0.02	5,861	5,461	391	9	49,883
Tuscaloosa, AL MSA	56	11.75	11.17	0.58	0.00	568	540	28	0	4,836
Biloxi-Gulfport-Pascagoula, MS MSA	57	11.72	11.09	0.59	0.03	1,402	1,327	71	4	11,961
Bryan-College Station, TX MSA	58	11.72	10.91	0.79	0.02	639	595	43	1	5,452
Las Cruces, NM MSA	59	11.71	11.02	0.70	0.00	520	489	31	0	4,439
Tucson, AZ MSA	60	11.69	11.09	0.60	0.01	2,793	2,648	143	2	23,883
Asheville, NC MSA	61	11.68	11.11	0.57	0.00	1,062	1,010	52	0	9,089
Nashville, TN MSA	62	11.67	11.00	0.65	0.03	5,585	5,262	309	14	47,848
Little Rock-North Little Rock, AR MSA	63	11.64	11.01	0.63	0.00	2,528	2,391	136	1	21,724
Bellingham, WA MSA	64	11.62	11.21	0.41	0.00	987	952	35	0	8,495
Springfield, MO MSA	65	11.59	10.97	0.61	0.02	1,422	1,345	75	2	12,265
Albany, GA MSA	66	11.59	10.84	0.75	0.00	496	464	32	0	4,280
Lakeland-Winter Haven, FL MSA	67	11.58	11.05	0.53	0.00	2,023	1,930	93	0	17,470
Richland-Kennewick-Pasco, WA MSA	68	11.55	11.08	0.47	0.00	784	752	32	0	6,790
Dover, DE MSA	69	11.52	10.70	0.83	0.00	418	388	30	0	3,627
Madison, WI MSA	70	11.52	10.72	0.76	0.03	1,680	1,564	111	5	14,588
Greensboro–Winston-Salem–High Point, NC MSA	71	11.50	10.88	0.60	0.02	5,289	5,008	274	7	46,010
Lincoln, NE MSA	72	11.47	10.73	0.72	0.01	886	829	56	1	7,725
Greenville, NC MSA	73	11.42	10.87	0.53	0.03	454	432	21	1	3,976
Gainesville, FL MSA	74	11.41	10.64	0.75	0.01	954	890	63	1	8,362
Columbus, OH MSA	75	11.40	10.68	0.69	0.03	5,861	5,489	355	17	51,390
Los Angeles-Riverside-Orange County, CA CMSA	76	11.39	10.64	0.73	0.02	72,074	67,334	4,644	96	632,988
Augusta-Aiken, GA-SC MSA	77	11.37	10.79	0.57	0.02	1,627	1,543	81	3	14,304
Gadsden, AL MSA	78	11.37	10.95	0.41	0.00	357	344	13	0	3,141

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix A. Dun and Bradstreet Birth Rates 1998-2001 by MSA (cont'd)

MSA	Rank	% Births 98-01	% Births <20	% Births 20-499	% Births 500+	Total Births 98-01	Total Births <20	Total Births 20-499	Total Births 500+	Total Firms
Washington-Baltimore, DC-MD-VA-WV CMSA	79	11.32	10.49	0.79	0.03	34,894	32,362	2,447	85	308,386
Sacramento-Yolo, CA CMSA	80	11.31	10.65	0.65	0.01	6,829	6,435	390	4	60,401
Brownsville-Harlingen-San Benito, TX MSA	81	11.30	10.72	0.58	0.00	910	863	47	0	8,051
Sarasota-Bradenton, FL MSA	82	11.27	10.75	0.51	0.01	3,547	3,382	162	3	31,467
Tallahassee, FL MSA	83	11.19	10.62	0.56	0.01	1,210	1,148	61	1	10,814
Tulsa, OK MSA	84	11.18	10.55	0.61	0.02	3,309	3,122	182	5	29,602
Reno, NV MSA	85	11.15	10.41	0.70	0.03	1,717	1,604	108	5	15,406
Portland-Salem, OR-WA CMSA	86	11.14	10.62	0.51	0.01	10,495	10,003	484	8	94,234
Tyler, TX MSA	87	11.12	10.46	0.64	0.01	846	796	49	1	7,609
Norfolk-Virginia Beach-Newport News, VA-NC MSA	88	11.04	10.39	0.64	0.01	5,092	4,792	296	4	46,116
Kansas City, MO-KS MSA	89	11.04	10.28	0.73	0.03	6,907	6,434	455	18	62,575
Louisville, KY-IN MSA	90	11.03	10.37	0.63	0.02	3,845	3,617	221	7	34,874
Clarksville-Hopkinsville, TN-KY MSA	91	10.96	10.45	0.51	0.00	539	514	25	0	4,917
Longview-Marshall, TX MSA	92	10.96	10.43	0.52	0.01	974	927	46	1	8,889
Dothan, AL MSA	93	10.94	10.50	0.41	0.02	501	481	19	1	4,579
Portland, ME MSA	94	10.86	10.17	0.69	0.01	1,218	1,140	77	1	11,214
Detroit-Ann Arbor-Flint, MI CMSA	95	10.84	10.17	0.65	0.02	19,308	18,124	1,154	30	178,144
Chicago-Gary-Kenosha, IL-IN-WI CMSA	96	10.82	10.05	0.75	0.02	30,296	28,126	2,104	66	279,908
Medford-Ashland, OR MSA	97	10.81	10.36	0.46	0.00	948	908	40	0	8,768
Knoxville, TN MSA	98	10.76	10.17	0.57	0.02	2,865	2,708	152	5	26,620
Oklahoma City, OK MSA	99	10.76	10.13	0.62	0.01	4,187	3,942	242	3	38,929
Macon, GA MSA	100	10.72	10.24	0.46	0.02	1,112	1,062	48	2	10,373
Lexington, KY MSA	101	10.68	9.92	0.73	0.03	1,920	1,782	132	6	17,970
Appleton-Oshkosh-Neenah, WI MSA	102	10.68	10.11	0.55	0.03	1,215	1,150	62	3	11,373
San Francisco-Oakland-San Jose, CA CMSA	103	10.67	9.64	1.02	0.01	30,071	27,162	2,867	42	281,901
Charlottesville, VA MSA	104	10.66	10.11	0.54	0.02	656	622	33	1	6,154
Waco, TX MSA	105	10.65	9.97	0.68	0.00	813	761	52	0	7,636
Cheyenne, WY MSA	106	10.63	10.16	0.46	0.00	368	352	16	0	3,463
San Angelo, TX MSA	107	10.60	10.28	0.32	0.00	400	388	12	0	3,773
Rapid City, SD MSA	108	10.59	10.07	0.50	0.02	446	424	21	1	4,211
Salt Lake City-Ogden, UT MSA	109	10.56	9.87	0.67	0.01	6,398	5,983	406	9	60,609
Corpus Christi, TX MSA	110	10.54	9.99	0.54	0.02	1,396	1,322	71	3	13,239
Sioux Falls, SD MSA	111	10.50	9.86	0.64	0.00	708	665	43	0	6,744
Modesto, CA MSA	112	10.49	9.93	0.55	0.01	1,359	1,287	71	1	12,955
Richmond-Petersburg, VA MSA	113	10.45	9.81	0.63	0.01	3,585	3,364	216	5	34,293
Panama City, FL MSA	114	10.38	9.90	0.47	0.02	686	654	31	1	6,607
Milwaukee-Racine, WI CMSA	115	10.25	9.62	0.59	0.04	4,967	4,663	286	18	48,459
Lubbock, TX MSA	116	10.24	9.75	0.45	0.04	1,048	998	46	4	10,237
Chattanooga, TN-GA MSA	117	10.22	9.58	0.63	0.01	1,716	1,608	106	2	16,785
Grand Rapids-Muskegon-Holland, MI MSA	118	10.21	9.63	0.57	0.01	3,800	3,584	211	5	37,209

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix A. Dun and Bradstreet Birth Rates 1998-2001 by MSA (cont'd)

MSA	Rank	% Births 98-01	% Births <20	% Births 20-499	% Births 500+	Total Births 98-01	Total Births <20	Total Births 20-499	Total Births 500+	Total Firms
Minneapolis-St. Paul, MN-WI MSA	119	10.18	9.55	0.61	0.02	12,311	11,553	734	24	120,930
Omaha, NE-IA MSA	120	10.14	9.46	0.65	0.03	2,399	2,238	155	6	23,668
Bangor, ME MSA	121	10.13	9.31	0.82	0.00	370	340	30	0	3,651
Beaumont-Port Arthur, TX MSA	122	10.11	9.56	0.53	0.02	1,382	1,307	72	3	13,673
Billings, MT MSA	123	10.05	9.51	0.54	0.00	615	582	33	0	6,120
Jacksonville, NC MSA	124	10.05	9.23	0.82	0.00	345	317	28	0	3,434
Fort Smith, AR-OK MSA	125	10.02	9.54	0.43	0.04	719	685	31	3	7,178
St. Louis, MO-IL MSA	126	9.97	9.32	0.62	0.03	8,473	7,928	523	22	85,024
Joplin, MO MSA	127	9.95	9.45	0.49	0.00	606	576	30	0	6,093
Lynchburg, VA MSA	128	9.94	9.28	0.66	0.00	728	680	48	0	7,325
Wichita Falls, TX MSA	129	9.94	9.34	0.59	0.00	536	504	32	0	5,394
Cleveland-Akron, OH CMSA	130	9.93	9.33	0.58	0.02	9,591	9,016	557	18	96,603
Anniston, AL MSA	131	9.91	9.42	0.49	0.00	364	346	18	0	3,672
Anchorage, AK MSA	132	9.91	9.23	0.64	0.04	1,097	1,022	71	4	11,068
Baton Rouge, LA MSA	133	9.90	9.21	0.68	0.01	2,166	2,015	149	2	21,868
Hattiesburg, MS MSA	134	9.87	9.33	0.53	0.00	407	385	22	0	4,125
Florence, AL MSA	135	9.81	9.18	0.63	0.00	438	410	28	0	4,466
Columbus, GA-AL MSA	136	9.70	9.16	0.54	0.00	732	691	41	0	7,546
Cincinnati-Hamilton, OH-KY-IN CMSA	137	9.66	8.98	0.64	0.03	6,110	5,684	407	19	63,281
Sumter, SC MSA	138	9.65	9.10	0.55	0.00	280	264	16	0	2,901
Yakima, WA MSA	139	9.64	9.21	0.42	0.00	730	698	32	0	7,576
Amarillo, TX MSA	140	9.62	9.27	0.35	0.00	845	814	31	0	8,780
Santa Fe, NM MSA	141	9.62	9.22	0.39	0.00	733	703	30	0	7,622
Odessa-Midland, TX MSA	142	9.60	8.94	0.66	0.00	1,013	943	70	0	10,552
Abilene, TX MSA	143	9.55	9.07	0.48	0.00	519	493	26	0	5,436
Jackson, MS MSA	144	9.54	9.04	0.49	0.01	1,674	1,586	86	2	17,543
Fargo-Moorhead, ND-MN MSA	145	9.53	8.80	0.71	0.01	707	653	53	1	7,421
Bakersfield, CA MSA	146	9.52	9.05	0.46	0.01	1,605	1,525	78	2	16,860
Casper, WY MSA	147	9.49	8.98	0.51	0.00	333	315	18	0	3,508
Fort Wayne, IN MSA	148	9.48	8.89	0.59	0.00	1,600	1,501	99	0	16,877
Eugene-Springfield, OR MSA	149	9.47	9.09	0.38	0.00	1,359	1,305	54	0	14,357
Decatur, AL MSA	150	9.46	8.92	0.52	0.02	418	394	23	1	4,417
Elkhart-Goshen, IN MSA	151	9.46	8.80	0.63	0.03	629	585	42	2	6,647
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA	152	9.43	8.81	0.60	0.02	82,896	77,436	5,255	205	878,677
New Orleans, LA MSA	153	9.43	8.79	0.63	0.01	4,724	4,404	317	3	50,085
Texarkana, TX-Texarkana, AR MSA	154	9.42	9.05	0.34	0.02	441	424	16	1	4,683
Hickory-Morganton-Lenoir, NC MSA	155	9.38	8.75	0.61	0.02	1,054	983	69	2	11,231
Bloomington, IN MSA	156	9.38	8.78	0.60	0.00	376	352	24	0	4,010
Florence, SC MSA	157	9.37	8.92	0.45	0.00	441	420	21	0	4,706
Boston-Worcester-Lawrence, MA-NH-ME-CT CMSA	158	9.35	8.57	0.76	0.03	17,467	16,007	1,413	47	186,745
Jackson, TN MSA	159	9.34	8.86	0.45	0.03	332	315	16	1	3,554
Lafayette, IN MSA	160	9.31	8.88	0.41	0.02	496	473	22	1	5,326

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix A. Dun and Bradstreet Birth Rates 1998-2001 by MSA (cont'd)

MSA	Rank	% Births 98-01	% Births <20	% Births 20-499	% Births 500+	Total Births 98-01	Total Births <20	Total Births 20-499	Total Births 500+	Total Firms
Des Moines, IA MSA	161	9.27	8.71	0.54	0.01	1,739	1,635	102	2	18,764
Columbia, MO MSA	162	9.27	8.67	0.60	0.00	464	434	30	0	5,007
Lafayette, LA MSA	163	9.25	8.68	0.55	0.01	1,372	1,288	82	2	14,839
Lawrence, KS MSA	164	9.24	8.48	0.73	0.03	340	312	27	1	3,681
Lansing-East Lansing, MI MSA	165	9.23	8.71	0.52	0.01	1,439	1,357	81	1	15,586
Monroe, LA MSA	166	9.22	8.49	0.69	0.04	519	478	39	2	5,630
Springfield, IL MSA	167	9.21	8.80	0.41	0.00	653	624	29	0	7,087
Houma, LA MSA	168	9.18	8.41	0.76	0.01	626	573	52	1	6,817
Jackson, MI MSA	169	9.18	8.61	0.55	0.02	416	390	25	1	4,531
Cedar Rapids, IA MSA	170	9.17	8.54	0.61	0.01	656	611	44	1	7,155
Stockton-Lodi, CA MSA	171	9.12	8.51	0.60	0.01	1,354	1,264	89	1	14,854
Redding, CA MSA	172	9.10	8.62	0.47	0.00	576	546	30	0	6,331
Fresno, CA MSA	173	9.04	8.44	0.60	0.01	2,306	2,152	152	2	25,501
Lake Charles, LA MSA	174	9.01	8.49	0.51	0.02	569	536	32	1	6,315
Victoria, TX MSA	175	8.95	8.58	0.37	0.00	291	279	12	0	3,250
Canton-Massillon, OH MSA	176	8.93	8.35	0.57	0.01	1,128	1,055	72	1	12,634
San Luis Obispo-Atascadero-Paso Robles, CA MSA	177	8.92	8.39	0.52	0.01	961	904	56	1	10,770
Rocky Mount, NC MSA	178	8.90	8.37	0.53	0.00	372	350	22	0	4,181
St. Joseph, MO MSA	179	8.88	8.49	0.39	0.00	298	285	13	0	3,357
Dayton-Springfield, OH MSA	180	8.88	8.32	0.54	0.02	2,690	2,521	164	5	30,309
Wausau, WI MSA	181	8.87	8.43	0.42	0.02	401	381	19	1	4,519
Charleston, WV MSA	182	8.86	8.39	0.47	0.00	815	772	43	0	9,198
Evansville-Henderson, IN-KY MSA	183	8.86	8.18	0.67	0.01	780	720	59	1	8,805
Toledo, OH MSA	184	8.86	8.17	0.68	0.01	1,692	1,560	130	2	19,105
Goldsboro, NC MSA	185	8.80	8.33	0.47	0.00	316	299	17	0	3,590
Santa Barbara-Santa Maria-Lompoc, CA MSA	186	8.79	8.25	0.52	0.01	1,459	1,370	87	2	16,604
Bismarck, ND MSA	187	8.75	8.27	0.48	0.00	398	376	22	0	4,548
Lawton, OK MSA	188	8.74	8.37	0.37	0.00	259	248	11	0	2,962
Syracuse, NY MSA	189	8.73	8.26	0.46	0.02	2,119	2,003	112	4	24,260
Honolulu, HI MSA	190	8.73	8.15	0.58	0.00	2,323	2,168	154	1	26,602
Kalamazoo-Battle Creek, MI MSA	191	8.73	8.30	0.42	0.01	1,297	1,233	63	1	14,861
South Bend, IN MSA	192	8.72	8.03	0.68	0.00	765	705	60	0	8,777
Enid, OK MSA	193	8.65	8.25	0.35	0.04	198	189	8	1	2,290
Johnson City-Kingsport-Bristol, TN-VA MSA	194	8.63	8.17	0.44	0.02	1,167	1,104	60	3	13,517
Iowa City, IA MSA	195	8.63	8.11	0.52	0.00	331	311	20	0	3,835
Rochester, NY MSA	196	8.56	7.93	0.60	0.03	3,161	2,928	222	11	36,924
Sheboygan, WI MSA	197	8.55	8.00	0.55	0.00	297	278	19	0	3,475
Decatur, IL MSA	198	8.52	7.88	0.61	0.03	278	257	20	1	3,261
Rockford, IL MSA	199	8.52	8.12	0.40	0.00	1,061	1,011	50	0	12,449
Rochester, MN MSA	200	8.47	7.95	0.53	0.00	386	362	24	0	4,556
Lewiston-Auburn, ME MSA	201	8.47	7.75	0.72	0.00	260	238	22	0	3,069
Roanoke, VA MSA	202	8.46	8.01	0.46	0.00	781	739	42	0	9,230
Wichita, KS MSA	203	8.44	7.81	0.60	0.02	1,534	1,421	109	4	18,184
Saginaw-Bay City-Midland, MI MSA	204	8.40	7.99	0.41	0.01	1,119	1,064	54	1	13,315

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix A. Dun and Bradstreet Birth Rates 1998-2001 by MSA (cont'd)

MSA	Rank	% Births 98-01	% Births <20	% Births 20-499	% Births 500+	Total Births 98-01	Total Births <20	Total Births 20-499	Total Births 500+	Total Firms
Bloomington-Normal, IL MSA	205	8.40	7.84	0.57	0.00	401	374	27	0	4,772
Shreveport-Bossier City, LA MSA	206	8.40	7.94	0.44	0.01	1,148	1,086	60	2	13,670
Chico-Paradise, CA MSA	207	8.39	8.14	0.25	0.00	636	617	19	0	7,580
Huntington-Ashland, WV-KY-OH MSA	208	8.39	7.78	0.59	0.02	840	779	59	2	10,014
Benton Harbor, MI MSA	209	8.31	7.84	0.44	0.03	565	533	30	2	6,801
Pine Bluff, AR MSA	210	8.26	8.03	0.23	0.00	218	212	6	0	2,640
Champaign-Urbana, IL MSA	211	8.24	7.67	0.56	0.00	468	436	32	0	5,681
Kokomo, IN MSA	212	8.18	7.87	0.28	0.03	234	225	8	1	2,859
Youngstown-Warren, OH MSA	213	8.18	7.66	0.50	0.02	1,410	1,321	86	3	17,241
Eau Claire, WI MSA	214	8.18	7.66	0.48	0.04	424	397	25	2	5,186
Burlington, VT MSA	215	8.10	7.68	0.43	0.00	683	647	36	0	8,427
Alexandria, LA MSA	216	8.10	7.63	0.47	0.00	379	357	22	0	4,678
Salinas, CA MSA	217	8.08	7.67	0.40	0.01	1,053	1,000	52	1	13,032
Albany-Schenectady-Troy, NY MSA	218	8.06	7.54	0.51	0.01	2,425	2,268	153	4	30,083
Owensboro, KY MSA	219	8.03	7.47	0.56	0.00	244	227	17	0	3,037
Providence-Fall River-Warwick, RI-MA MSA	220	8.03	7.61	0.40	0.02	3,066	2,907	152	7	38,187
Parkersburg-Marietta, WV-OH MSA	221	8.03	7.58	0.41	0.04	411	388	21	2	5,121
New London-Norwich, CT-RI MSA	222	8.01	7.55	0.46	0.00	695	655	40	0	8,676
Great Falls, MT MSA	223	7.88	7.61	0.27	0.00	265	256	9	0	3,364
St. Cloud, MN MSA	224	7.82	7.48	0.34	0.00	574	549	25	0	7,338
Mansfield, OH MSA	225	7.81	7.46	0.35	0.00	452	432	20	0	5,789
Davenport-Moline-Rock Island, IA-IL MSA	226	7.81	7.33	0.46	0.02	923	867	54	2	11,822
Janesville-Beloit, WI MSA	227	7.79	7.55	0.19	0.04	363	352	9	2	4,660
Hartford, CT MSA	228	7.79	7.28	0.48	0.02	3,195	2,989	198	8	41,034
Pittsfield, MA MSA	229	7.77	7.21	0.54	0.03	274	254	19	1	3,525
Visalia-Tulare-Porterville, CA MSA	230	7.76	7.13	0.62	0.00	746	686	60	0	9,615
Muncie, IN MSA	231	7.74	7.31	0.42	0.00	274	259	15	0	3,541
Yuba City, CA MSA	232	7.73	7.40	0.33	0.00	306	293	13	0	3,958
Buffalo-Niagara Falls, NY MSA	233	7.68	7.13	0.52	0.02	2,830	2,630	193	7	36,869
Lima, OH MSA	234	7.67	7.09	0.58	0.00	410	379	31	0	5,344
Springfield, MA MSA	235	7.67	7.30	0.37	0.01	1,457	1,386	70	1	18,999
La Crosse, WI-MN MSA	236	7.66	7.21	0.45	0.00	344	324	20	0	4,492
Peoria-Pekin, IL MSA	237	7.62	7.04	0.57	0.02	806	744	60	2	10,571
Cumberland, MD-WV MSA	238	7.60	7.11	0.49	0.00	233	218	15	0	3,064
Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD CMSA	239	7.53	7.02	0.49	0.02	19,167	17,877	1,249	41	254,622
Terre Haute, IN MSA	240	7.48	7.13	0.35	0.00	362	345	17	0	4,841
Barnstable-Yarmouth, MA MSA	241	7.46	7.20	0.26	0.00	684	660	24	0	9,163
Topeka, KS MSA	242	7.33	6.92	0.39	0.02	428	404	23	1	5,841
Merced, CA MSA	243	7.31	6.95	0.36	0.00	349	332	17	0	4,774

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix A. Dun and Bradstreet Birth Rates 1998-2001 by MSA (cont'd)										
MSA	Rank	% Births 98-01	% Births <20	% Births 20-499	% Births 500+	Total Births 98-01	Total Births <20	Total Births 20-499	Total Births 500+	Total Firms
Duluth-Superior, MN-WI MSA	244	7.28	6.82	0.44	0.02	693	649	42	2	9,518
Binghamton, NY MSA	245	7.25	6.96	0.29	0.00	546	524	22	0	7,532
State College, PA MSA	246	7.18	6.84	0.34	0.00	342	326	16	0	4,765
Glens Falls, NY MSA	247	7.15	6.75	0.40	0.00	325	307	18	0	4,547
Grand Forks, ND-MN MSA	248	7.01	6.60	0.42	0.00	270	254	16	0	3,849
Wheeling, WV-OH MSA	249	6.91	6.33	0.56	0.02	373	342	30	1	5,400
Jamestown, NY MSA	250	6.83	6.35	0.48	0.00	327	304	23	0	4,790
Waterloo-Cedar Falls, IA MSA	251	6.70	6.30	0.40	0.00	299	281	18	0	4,463
Utica-Rome, NY MSA	252	6.67	6.27	0.40	0.01	591	555	35	1	8,857
Reading, PA MSA	253	6.66	6.24	0.41	0.01	897	840	55	2	13,468
Allentown-Bethlehem-Easton, PA MSA	254	6.66	6.20	0.45	0.01	1,615	1,504	109	2	24,250
Danville, VA MSA	255	6.59	6.28	0.32	0.00	209	199	10	0	3,171
Elmira, NY MSA	256	6.52	6.08	0.40	0.04	162	151	10	1	2,485
Steubenville-Weirton, OH-WV MSA	257	6.48	6.07	0.41	0.00	255	239	16	0	3,938
Sioux City, IA-NE MSA	258	6.31	5.74	0.57	0.00	287	261	26	0	4,550
Harrisburg-Lebanon-Carlisle, PA MSA	259	6.28	5.84	0.43	0.01	1,682	1,564	114	4	26,799
Sharon, PA MSA	260	6.23	6.01	0.20	0.02	287	277	9	1	4,610
Pittsburgh, PA MSA	261	6.20	5.72	0.46	0.01	5,907	5,454	440	13	95,277
York, PA MSA	262	6.20	5.87	0.32	0.01	814	771	42	1	13,131
Erie, PA MSA	263	6.18	5.86	0.32	0.00	635	602	33	0	10,272
Dubuque, IA MSA	264	6.14	5.60	0.54	0.00	240	219	21	0	3,908
Lancaster, PA MSA	265	5.87	5.54	0.32	0.01	1,095	1,033	60	2	18,651
Johnstown, PA MSA	266	5.83	5.40	0.41	0.01	451	418	32	1	7,737
Altoona, PA MSA	267	5.79	5.46	0.33	0.00	261	246	15	0	4,507
Scranton–Wilkes-Barre–Hazleton, PA MSA	268	5.67	5.24	0.41	0.02	1,414	1,307	101	6	24,935
Williamsport, PA MSA	269	4.94	4.58	0.34	0.02	221	205	15	1	4,477

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix B. High-Impact Firm Distribution by Large MSAs						
Large MSAs	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Norfolk-Virginia Beach-Newport News	VA-NC	1	1,813	70,323	2.58	100.00
Raleigh-Durham-Chapel Hill	NC	2	2,124	84,618	2.51	89.45
Phoenix-Mesa	AZ	3	4,932	197,548	2.50	87.36
Pittsburgh	PA	4	2,675	109,040	2.45	80.63
Charlotte-Gastonia-Rock Hill	NC-SC	5	2,389	97,753	2.44	79.18
Washington-Baltimore	DC-MD-VA-WV	6	11,496	471,315	2.44	78.44
Columbus	OH	7	2,014	82,810	2.43	77.34
Fort Myers-Cape Coral	FL	8	1,268	52,148	2.43	77.26
New Orleans	LA	9	1,839	76,763	2.40	71.70
Grand Rapids-Muskegon-Holland	MI	10	1,382	57,713	2.39	71.53
Nashville	TN	11	1,945	81,437	2.39	70.56
Kansas City	MO-KS	12	2,281	96,000	2.38	68.65
St. Louis	MO-IL	13	3,109	130,922	2.37	68.44
Richmond-Petersburg	VA	14	1,287	54,214	2.37	68.32
Portland-Salem	OR-WA	15	3,701	157,028	2.36	65.68
Minneapolis-St. Paul	MN-WI	16	4,353	184,904	2.35	65.26
Cincinnati-Hamilton	OH-KY-IN	17	2,160	92,551	2.33	62.11
Sacramento-Yolo	CA	18	2,523	108,121	2.33	62.05
San Diego	CA	19	4,397	188,597	2.33	61.73
Cleveland-Akron	OH	20	3,329	143,153	2.33	60.81
Jacksonville	FL	21	2,091	90,307	2.32	59.25
Greensboro–Winston-Salem–High Point	NC	22	1,732	74,962	2.31	58.48
Providence-Fall River-Warwick	RI-MA	23	1,387	60,147	2.31	57.79
Seattle-Tacoma-Bremerton	WA	24	5,318	230,909	2.30	57.33
Philadelphia-Wilmington-Atlantic City	PA-NJ-DE-MD	25	7,107	309,157	2.30	56.67
Austin-San Marcos	TX	26	2,048	90,720	2.26	50.26
Oklahoma City	OK	27	1,329	59,128	2.25	48.74
Las Vegas	NV-AZ	28	2,476	110,194	2.25	48.62
Denver-Boulder-Greeley	CO	29	4,651	208,632	2.23	45.88
Chicago-Gary-Kenosha	IL-IN-WI	30	9,797	443,569	2.21	42.69
West Palm Beach-Boca Raton	FL	31	3,026	137,630	2.20	41.13
Boston-Worcester-Lawrence	MA-NH-ME-CT	32	7,811	357,620	2.18	38.88
Milwaukee-Racine	WI	33	1,693	77,621	2.18	38.41
Memphis	TN-AR-MS	34	1,248	57,720	2.16	35.47

Appendix B. High-Impact Firm Distribution by Large MSAs (cont'd)

Large MSAs	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Salt Lake City-Ogden	UT	35	2,130	99,712	2.14	31.44
San Antonio	TX	36	1,687	79,232	2.13	30.36
Indianapolis	IN	37	1,904	89,729	2.12	29.23
Los Angeles-Riverside-Orange County	CA	38	22,990	1,083,743	2.12	29.14
Sarasota-Bradenton	FL	39	1,321	62,408	2.12	28.42
Houston-Galveston-Brazoria	TX	40	6,715	317,577	2.11	28.07
San Francisco-Oakland-San Jose	CA	41	9,942	473,933	2.10	25.48
Louisville	KY-IN	42	1,251	59,745	2.09	24.88
Dallas-Fort Worth	TX	43	7,782	372,045	2.09	24.54
Hartford	CT	44	1,486	71,688	2.07	21.62
Buffalo-Niagara Falls	NY	45	1,096	54,036	2.03	14.70
Rochester	NY	46	1,089	54,129	2.01	12.15
New York-Northern New Jersey-Long Island	NY-NJ-CT-PA	47	26,412	1,332,117	1.98	7.63
Miami-Fort Lauderdale	FL	48	8,599	434,666	1.98	6.95
Atlanta	GA	49	7,371	377,439	1.95	3.01
Tampa-St. Petersburg-Clearwater	FL	50	3,976	203,767	1.95	2.75
Detroit-Ann Arbor-Flint	MI	51	5,626	290,040	1.94	0.96
Orlando	FL	52	3,354	173,466	1.93	0.00

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix C. High-Impact Firm Distribution by Medium-Size MSAs

Medium-Size Msas	State	Rank	Number of. High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Columbia	SC	1	840	29,940	2.81	100.00
Omaha	NE-IA	2	1,044	37,265	2.80	99.59
Tucson	AZ	3	1,093	39,825	2.74	93.84
Dayton-Springfield	OH	4	1,181	43,280	2.73	92.24
Greenville-Spartanburg-Anderson	SC	5	1,314	49,828	2.64	83.00
Charleston-North Charleston	SC	6	835	31,937	2.61	80.72
Harrisburg-Lebanon-Carlisle	PA	7	812	31,267	2.60	78.95
Knoxville	TN	8	1,068	41,339	2.58	77.59
Toledo	OH	9	719	28,054	2.56	75.51
El Paso	TX	10	636	25,308	2.51	70.48
Wichita	KS	11	690	27,552	2.50	69.61
Des Moines	IA	12	747	30,151	2.48	66.90
Naples	FL	13	780	31,496	2.48	66.80
Allentown-Bethlehem-Easton	PA	14	876	35,656	2.46	64.81
Mobile	AL	15	709	29,055	2.44	63.13
Fort Wayne	IN	16	642	26,560	2.42	60.81
Youngstown-Warren	OH	17	609	25,291	2.41	59.88
Stockton-Lodi	CA	18	598	25,026	2.39	58.02
Little Rock-North Little Rock	AR	19	789	33,270	2.37	56.20
Chattanooga	TN-GA	20	618	26,343	2.35	53.63
Colorado Springs	CO	21	824	35,212	2.34	53.03
Santa Barbara-Santa Maria-Lompoc	CA	22	612	26,158	2.34	52.99
Fresno	CA	23	1,020	43,781	2.33	51.99
Albuquerque	NM	24	970	42,039	2.31	49.73
Bakersfield	CA	25	725	31,462	2.30	49.43
Honolulu	HI	26	898	38,977	2.30	49.38
Birmingham	AL	27	1,149	49,999	2.30	48.79
Augusta-Aiken	GA-SC	28	574	25,111	2.29	47.56
Scranton–Wilkes-Barre–Hazleton	PA	29	661	29,297	2.26	44.57
Tulsa	OK	30	1,008	44,695	2.26	44.48
Jackson	MS	31	592	26,291	2.25	44.12
Fort Pierce-Port St. Lucie	FL	32	723	32,613	2.22	40.60
Baton Rouge	LA	33	836	37,883	2.21	39.58
Reno	NV	34	596	27,283	2.18	37.34
Provo-Orem	UT	35	627	28,999	2.16	35.08
Albany-Schenectady-Troy	NY	36	1,006	46,576	2.16	34.85
Lexington	KY	37	651	30,224	2.15	34.25
Melbourne-Titusville-Palm Bay	FL	38	885	41,289	2.14	33.19
Boise City	ID	39	820	38,304	2.14	32.92
Springfield	MA	40	614	29,353	2.09	27.98
Daytona Beach	FL	41	903	45,028	2.01	19.27
Syracuse	NY	42	729	36,377	2.00	19.12
Pensacola	FL	43	559	30,434	1.84	2.25
Lakeland-Winter Haven	FL	44	647	35,658	1.81	0.00

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix D. High-Impact Firm Distribution by Small MSAs

Small MSAs	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
State College	PA	1	196	5,978	3.28	100.00
Bismarck	ND	2	198	6,222	3.18	93.47
Sioux Falls	SD	3	342	10,942	3.13	89.63
Anchorage	AK	4	504	16,159	3.12	89.18
Appleton-Oshkosh-Neenah	WI	5	528	17,358	3.04	83.95
Altoona	PA	6	158	5,293	2.99	80.11
Pocatello	ID	7	128	4,299	2.98	79.59
Lancaster	PA	8	695	23,638	2.94	77.07
Casper	WY	9	144	4,899	2.94	77.01
Yuma	AZ	10	160	5,474	2.92	75.90
Odessa-Midland	TX	11	401	13,764	2.91	75.25
Richland-Kennewick-Pasco	WA	12	292	10,072	2.90	74.29
Williamsport	PA	13	154	5,341	2.88	73.22
Las Cruces	NM	14	207	7,223	2.87	72.03
Fargo-Moorhead	ND-MN	15	316	11,041	2.86	71.77
Sheboygan	WI	16	148	5,188	2.85	71.14
Elkhart-Goshen	IN	17	293	10,273	2.85	71.10
Rapid City	SD	18	175	6,148	2.85	70.72
Columbia	MO	19	225	8,049	2.80	67.26
Madison	WI	20	683	24,473	2.79	66.95
Jonesboro	AR	21	132	4,752	2.78	66.06
Eau Claire	WI	22	217	7,876	2.76	64.54
St. Cloud	MN	23	320	11,666	2.74	63.71
Missoula	MT	24	207	7,547	2.74	63.70
Jackson	TN	25	141	5,142	2.74	63.65
Bloomington	IN	26	161	5,914	2.72	62.31
Green Bay	WI	27	330	12,193	2.71	61.23
Florence	SC	28	182	6,731	2.70	61.06
Sumter	SC	29	106	3,924	2.70	60.89
Bloomington-Normal	IL	30	190	7,054	2.69	60.36
Flagstaff	AZ-UT	31	590	22,136	2.67	58.45
Springfield	MO	32	522	19,603	2.66	58.28
Reading	PA	33	446	16,765	2.66	58.11
Duluth-Superior	MN-WI	34	350	13,167	2.66	57.96
Peoria-Pekin	IL	35	401	15,145	2.65	57.25
Portland	ME	36	517	19,528	2.65	57.24
Great Falls	MT	37	127	4,804	2.64	56.98
Yakima	WA	38	285	10,801	2.64	56.64
Burlington	VT	39	371	14,095	2.63	56.20
Fort Collins-Loveland	CO	40	563	21,416	2.63	55.98
Lincoln	NE	41	323	12,290	2.63	55.93
Waterloo-Cedar Falls	IA	42	173	6,583	2.63	55.92
Cedar Rapids	IA	43	303	11,591	2.61	54.98
Bangor	ME	44	213	8,149	2.61	54.96
Lawrence	KS	45	144	5,511	2.61	54.90
San Angelo	TX	46	128	4,905	2.61	54.67

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix D. High-Impact Firm Distribution by Small MSAs (cont'd)

Small MSAs	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Auburn-Opelika	AL	47	134	5,142	2.61	54.43
Lewiston-Auburn	ME	48	137	5,273	2.60	53.89
South Bend	IN	49	349	13,440	2.60	53.80
Lubbock	TX	50	413	15,916	2.59	53.67
Spokane	WA	51	617	23,851	2.59	53.13
Wilmington	NC	52	517	20,010	2.58	52.92
Fort Smith	AR-OK	53	255	9,893	2.58	52.50
Wausau	WI	54	172	6,676	2.58	52.42
Charlottesville	VA	55	252	9,791	2.57	52.25
Cumberland	MD-WV	56	100	3,897	2.57	51.72
Hattiesburg	MS	57	165	6,449	2.56	51.21
La Crosse	WI-MN	58	168	6,568	2.56	51.17
Terre Haute	IN	59	168	6,577	2.55	50.93
Medford-Ashland	OR	60	387	15,155	2.55	50.88
Merced	CA	61	198	7,764	2.55	50.65
Abilene	TX	62	177	6,971	2.54	49.89
Gainesville	FL	63	403	15,878	2.54	49.83
Florence	AL	64	165	6,525	2.53	49.19
Greenville	NC	65	184	7,280	2.53	49.11
Enid	OK	66	79	3,132	2.52	48.76
York	PA	67	419	16,673	2.51	48.13
Huntsville	AL	68	465	18,520	2.51	47.98
Grand Forks	ND-MN	69	135	5,391	2.50	47.53
Iowa City	IA	70	155	6,195	2.50	47.38
Bryan-College Station	TX	71	207	8,301	2.49	46.82
Dothan	AL	72	173	6,950	2.49	46.51
Billings	MT	73	233	9,398	2.48	45.84
Tuscaloosa	AL	74	190	7,669	2.48	45.72
Anniston	AL	75	130	5,252	2.48	45.57
Charleston	WV	76	292	11,817	2.47	45.28
Erie	PA	77	294	11,918	2.47	45.00
Hickory-Morganton-Lenoir	NC	78	416	16,949	2.45	44.16
Bellingham	WA	79	327	13,324	2.45	44.14
Champaign-Urbana	IL	80	207	8,468	2.44	43.49
Montgomery	AL	81	396	16,210	2.44	43.38
San Luis Obispo-Atascadero-Paso Robles	CA	82	453	18,545	2.44	43.36
Grand Junction	CO	83	235	9,628	2.44	43.24
Parkersburg-Marietta	WV-OH	84	162	6,641	2.44	43.14
Sharon	PA	85	132	5,413	2.44	43.08
Sioux City	IA-NE	86	167	6,856	2.44	42.90
Wheeling	WV-OH	87	156	6,406	2.44	42.86
Redding	CA	88	280	11,505	2.43	42.76
Fayetteville-Springdale-Rogers	AR	89	470	19,341	2.43	42.51
Lake Charles	LA	90	254	10,465	2.43	42.31
Johnstown	PA	91	233	9,607	2.43	42.19
Asheville	NC	92	379	15,644	2.42	42.01
Rochester	MN	93	167	6,938	2.41	40.95
Topeka	KS	94	214	8,914	2.40	40.52

Appendix D. High-Impact Firm Distribution by Small MSAs (cont'd)

Small MSAs	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Wichita Falls	TX	95	182	7,608	2.39	39.94
Alexandria	LA	96	184	7,699	2.39	39.79
Springfield	IL	97	254	10,679	2.38	39.01
Roanoke	VA	98	305	12,841	2.38	38.79
Lima	OH	99	185	7,819	2.37	38.17
Lynchburg	VA	100	250	10,586	2.36	37.87
Houma	LA	101	245	10,400	2.36	37.47
Joplin	MO	102	207	8,800	2.35	37.24
Rockford	IL	103	432	18,372	2.35	37.18
Muncie	IN	104	121	5,146	2.35	37.17
Goldsboro	NC	105	125	5,334	2.34	36.64
Janesville-Beloit	WI	106	159	6,792	2.34	36.47
Monroe	LA	107	226	9,683	2.33	36.00
Visalia-Tulare-Porterville	CA	108	364	15,596	2.33	36.00
Pueblo	CO	109	173	7,464	2.32	34.90
Gadsden	AL	110	108	4,663	2.32	34.79
Myrtle Beach	SC	111	380	16,408	2.32	34.78
Modesto	CA	112	498	21,542	2.31	34.49
Decatur	IL	113	108	4,695	2.30	33.72
Lafayette	IN	114	181	7,878	2.30	33.53
New London-Norwich	CT-RI	115	379	16,519	2.29	33.31
Barnstable-Yarmouth	MA	116	439	19,162	2.29	33.09
Eugene-Springfield	OR	117	522	22,806	2.29	32.94
Chico-Paradise	CA	118	289	12,646	2.29	32.70
Athens	GA	119	231	10,112	2.28	32.64
Corpus Christi	TX	120	452	19,861	2.28	32.06
Saginaw-Bay City-Midland	MI	121	433	19,036	2.27	31.98
Dubuque	IA	122	130	5,728	2.27	31.63
Waco	TX	123	266	11,726	2.27	31.56
Steubenville-Weirton	OH-WV	124	112	4,940	2.27	31.47
Dover	DE	125	139	6,142	2.26	31.20
Killeen-Temple	TX	126	300	13,261	2.26	31.14
Lawton	OK	127	100	4,423	2.26	31.05
Texarkana, TX-Texarkana	AR	128	151	6,690	2.26	30.79
Savannah	GA	129	447	19,869	2.25	30.29
Lafayette	LA	130	543	24,169	2.25	30.08
Santa Fe	NM	131	281	12,526	2.24	29.86
Pittsfield	MA	132	191	8,554	2.23	29.15
Punta Gorda	FL	133	284	12,805	2.22	28.13
Benton Harbor	MI	134	236	10,665	2.21	27.79
Fayetteville	NC	135	271	12,247	2.21	27.79
Shreveport-Bossier City	LA	136	488	22,132	2.20	27.26
Mansfield	OH	137	174	7,916	2.20	26.79
Lansing-East Lansing	MI	138	538	24,574	2.19	26.20
McAllen-Edinburg-Mission	TX	139	528	24,137	2.19	26.08
Utica-Rome	NY	140	281	12,858	2.19	25.93
Kokomo	IN	141	98	4,488	2.18	25.81
Canton-Massillon	OH	142	421	19,317	2.18	25.53

Appendix D. High-Impact Firm Distribution by Small MSAs (cont'd)

Small MSAs	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Pine Bluff	AR	143	79	3,626	2.18	25.48
Albany	GA	144	159	7,309	2.18	25.26
Laredo	TX	145	221	10,176	2.17	25.01
St. Joseph	MO	146	103	4,743	2.17	25.00
Clarksville-Hopkinsville	TN-KY	147	175	8,059	2.17	24.99
Tyler	TX	148	261	12,021	2.17	24.97
Binghamton	NY	149	247	11,420	2.16	24.41
Kalamazoo-Battle Creek	MI	150	486	22,602	2.15	23.55
Huntington-Ashland	WV-KY-OH	151	274	12,755	2.15	23.41
Yuba City	CA	152	144	6,801	2.12	21.32
Glens Falls	NY	153	151	7,151	2.11	20.93
Victoria	TX	154	105	4,976	2.11	20.83
Jacksonville	NC	155	123	5,835	2.11	20.69
Panama City	FL	156	265	12,574	2.11	20.66
Johnson City-Kingsport-Bristol	TN-VA	157	428	20,474	2.09	19.50
Beaumont-Port Arthur	TX	158	423	20,308	2.08	18.99
Davenport-Moline-Rock Island	IA-IL	159	377	18,115	2.08	18.87
Amarillo	TX	160	266	12,931	2.06	17.24
Elmira	NY	161	74	3,614	2.05	16.60
Decatur	AL	162	132	6,459	2.04	16.33
Macon	GA	163	375	18,385	2.04	16.06
Corvallis	OR	164	95	4,663	2.04	15.90
Cheyenne	WY	165	110	5,416	2.03	15.47
Biloxi-Gulfport-Pascagoula	MS	166	357	17,632	2.02	15.05
Tallahassee	FL	167	447	22,114	2.02	14.82
Fort Walton Beach	FL	168	316	15,662	2.02	14.57
Ocala	FL	169	436	21,695	2.01	14.03
Salinas	CA	170	422	21,092	2.00	13.42
Jamestown	NY	171	143	7,155	2.00	13.28
Longview-Marshall	TX	172	269	13,483	2.00	13.04
Brownsville-Harlingen-San Benito	TX	173	275	13,784	2.00	13.04
Jackson	MI	174	143	7,228	1.98	11.91
Rocky Mount	NC	175	128	6,679	1.92	7.71
Sherman-Denison	TX	176	135	7,072	1.91	7.20
Owensboro	KY	177	88	4,655	1.89	5.95
Evansville-Henderson	IN-KY	178	261	13,902	1.88	5.07
Columbus	GA-AL	179	247	13,253	1.86	4.14
Danville	VA	180	80	4,438	1.80	0.00

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix E. High-Impact Firm Distribution by Large Counties

Large Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Fairfax	VA	1	1,633	60,265	2.71	100.00
Du Page	IL	2	1,444	56,558	2.55	86.53
Franklin	OH	3	1,455	57,897	2.51	83.09
Riverside	CA	4	2,104	84,088	2.50	82.15
Saint Louis	MO	5	1,388	55,540	2.50	81.89
Maricopa	AZ	6	4,764	190,763	2.50	81.74
Allegheny	PA	7	1,535	61,862	2.48	80.36
Montgomery	MD	8	1,525	63,708	2.39	72.82
Travis	TX	9	1,453	60,862	2.39	72.28
Hennepin	MN	10	1,836	77,339	2.37	71.12
Duval	FL	11	1,474	62,096	2.37	71.10
San Diego	CA	12	4,397	188,597	2.33	67.46
King	WA	13	2,939	127,057	2.31	65.89
Bergen	NJ	14	1,446	62,590	2.31	65.65
Sacramento	CA	15	1,539	67,604	2.28	62.74
Cuyahoga	OH	16	1,526	67,451	2.26	61.53
Orange	CA	17	5,134	227,173	2.26	61.32
New York	NY	18	4,447	198,631	2.24	59.50
San Bernardino	CA	19	1,853	83,365	2.22	58.12
Middlesex	MA	20	2,091	94,500	2.21	57.25
Palm Beach	FL	21	3,026	137,630	2.20	56.04
Clark	NV	22	2,152	99,812	2.16	52.38
Bexar	TX	23	1,439	66,939	2.15	51.84
Harris	TX	24	5,087	237,589	2.14	51.09
Tarrant	TX	25	2,009	94,106	2.13	50.56
Salt Lake	UT	26	1,534	72,069	2.13	50.01
Dallas	TX	27	3,562	168,101	2.12	49.19
Cook	IL	28	5,049	238,590	2.12	48.95
Contra Costa	CA	29	1,190	56,648	2.10	47.62
Santa Clara	CA	30	2,258	107,567	2.10	47.49
Fulton	GA	31	2,118	101,056	2.10	47.20
Philadelphia	PA	32	1,208	58,280	2.07	45.22
Fairfield	CT	33	1,475	72,182	2.04	42.70
Oakland	MI	34	1,815	89,981	2.02	40.43
Broward	FL	35	3,686	182,962	2.01	40.22
Gwinnett	GA	36	1,154	57,517	2.01	39.51
Pinellas	FL	37	1,568	78,663	1.99	38.38
Suffolk	NY	38	2,186	109,779	1.99	38.21
San Francisco	CA	39	1,331	66,959	1.99	37.91
Los Angeles	CA	40	12,700	640,121	1.98	37.58
Hillsborough	FL	41	1,742	88,587	1.97	36.07
Alameda	CA	42	1,733	88,168	1.97	36.00
Miami/Dade	FL	43	4,913	251,704	1.95	34.82
Orange	FL	44	1,821	95,309	1.91	31.27
Westchester	NY	45	1,355	71,718	1.89	29.44

Appendix E. High-Impact Firm Distribution by Large Counties (cont'd)

Large Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Nassau	NY	46	2,008	112,554	1.78	20.38
De Kalb	GA	47	1,042	60,049	1.74	16.19
Queens	NY	48	1,593	94,733	1.68	11.57
Wayne	MI	49	1,346	84,571	1.59	3.83
Kings	NY	50	1,690	109,241	1.55	0.00

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix F. High-Impact Firm Distribution by Medium-Size Counties

Medium-Size Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Pima	AZ	1	1,093	39,825	2.74	100.00
Hamilton	OH	2	1,059	40,985	2.58	88.26
Multnomah	OR	3	1,305	50,781	2.57	87.24
Wake	NC	4	1,358	53,558	2.54	84.73
Middlesex	NJ	5	951	37,805	2.52	83.27
Baltimore	MD	6	979	39,691	2.47	79.69
Mecklenburg	NC	7	1,336	54,327	2.46	79.15
Ventura	CA	8	1,199	48,996	2.45	78.27
Wash DC	DC	9	1,092	44,728	2.44	77.85
Lee	FL	10	1,268	52,148	2.43	77.13
Denver	CO	11	1,190	49,401	2.41	75.47
Montgomery	PA	12	1,153	47,941	2.41	75.20
Oklahoma	OK	13	960	39,983	2.40	74.90
Bernalillo	NM	14	839	35,121	2.39	74.02
Tulsa	OK	15	833	35,198	2.37	72.39
Davidson	TN	16	970	41,133	2.36	71.77
El Paso	CO	17	824	35,212	2.34	70.45
Arapahoe	CO	18	868	37,172	2.34	70.08
Fresno	CA	19	891	38,385	2.32	69.07
Honolulu	HI	20	898	38,977	2.30	67.81
Snohomish	WA	21	817	35,534	2.30	67.46
Jefferson	AL	22	847	37,448	2.26	64.73
Norfolk	MA	23	929	41,284	2.25	63.89
Lake	IL	24	872	38,851	2.24	63.46
Pierce	WA	25	821	36,922	2.22	61.94
Suffolk	MA	26	952	43,094	2.21	60.88
Monmouth	NJ	27	860	39,092	2.20	60.21
Jackson	MO	28	766	35,041	2.19	59.19
Shelby	TN	29	1,026	47,044	2.18	58.82
Sarasota	FL	30	851	39,039	2.18	58.74
Jefferson	KY	31	946	43,441	2.18	58.58
Macomb	MI	32	886	40,931	2.16	57.63
Hartford	CT	33	1,110	51,670	2.15	56.43
Brevard	FL	34	885	41,289	2.14	56.08
Seminole	FL	35	824	38,559	2.14	55.61
Essex	MA	36	889	41,906	2.12	54.47
Essex	NJ	37	882	42,352	2.08	51.63
Volusia	FL	38	800	38,803	2.06	50.11
Jefferson	CO	39	883	42,866	2.06	49.98
Collin	TX	40	800	38,858	2.06	49.90
Erie	NY	41	915	44,679	2.05	49.10
Marion	IN	42	984	48,303	2.04	48.31
Milwaukee	WI	43	743	36,497	2.04	48.22
San Mateo	CA	44	975	47,949	2.03	48.04
New Haven	CT	45	1,042	51,439	2.03	47.48

Appendix F. High-Impact Firm Distribution by Medium-Size Counties (cont'd)						
Medium-Size Counties	State	Rank	No high-impact firms	Total Firms	% high-impact firms	Index Value
Monroe	NY	46	720	36,230	1.99	44.67
Prince Georges	MD	47	928	46,818	1.98	44.30
Worcester	MA	48	769	39,448	1.95	41.90
Cobb	GA	49	964	51,400	1.88	36.50
Polk	FL	50	647	35,658	1.81	32.04
Bronx	NY	51	548	39,828	1.38	0.00

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix G. High-Impact Firm Distribution by Small Counties						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Eau Claire	WI	1	153	4,594	3.33	100.00
Bonneville	ID	2	209	6,367	3.28	97.95
Centre	PA	3	196	5,978	3.28	97.79
Outagamie	WI	4	290	8,903	3.26	96.88
Burleigh	ND	5	149	4,595	3.24	96.25
Gallatin	MT	6	256	7,912	3.24	95.95
Hall	NE	7	104	3,243	3.21	94.72
James City	VA	8	133	4,178	3.18	93.71
Anchorage	AK	9	504	16,159	3.12	90.96
Mohave	AZ	10	270	8,669	3.11	90.77
Fauquier	VA	11	128	4,130	3.10	90.12
Cass	ND	12	259	8,357	3.10	90.12
Minnehaha	SD	13	280	9,085	3.08	89.38
Coconino	AZ	14	215	7,027	3.06	88.43
Midland	TX	15	232	7,601	3.05	88.11
Sarpy	NE	16	155	5,088	3.05	87.86
Fairbanks	AK	17	148	4,954	2.99	85.34
Blair	PA	18	158	5,293	2.99	85.24
Winnebago	WI	19	210	7,051	2.98	84.95
Bannock	ID	20	128	4,299	2.98	84.91
Greene	OH	21	190	6,390	2.97	84.74
Flathead	MT	22	224	7,542	2.97	84.60
Calvert	MD	23	125	4,216	2.96	84.38
Vigo	IN	24	139	4,690	2.96	84.33
Johnson	KS	25	858	29,066	2.95	83.82
Lancaster	PA	26	695	23,638	2.94	83.32
Natrona	WY	27	144	4,899	2.94	83.29
Douglas	NE	28	726	24,744	2.93	83.06
Yuma	AZ	29	160	5,474	2.92	82.58
Blue Earth	MN	30	105	3,599	2.92	82.35
Benton	WA	31	211	7,250	2.91	82.05
Aiken	SC	32	185	6,361	2.91	81.96
Lewis	WA	33	135	4,643	2.91	81.93
San Juan	NM	34	143	4,925	2.90	81.76
Navajo	AZ	35	112	3,880	2.89	81.03
Lycoming	PA	36	154	5,341	2.88	80.89
La Crosse	WI	37	147	5,106	2.88	80.71
Dona Ana	NM	38	207	7,223	2.87	80.14
Richland	SC	39	519	18,117	2.86	80.10
Sheboygan	WI	40	148	5,188	2.85	79.58
Elkhart	IN	41	293	10,273	2.85	79.56
Pennington	SD	42	175	6,148	2.85	79.32
Indiana	PA	43	102	3,587	2.84	79.19
Greenville	SC	44	677	23,831	2.84	79.08
Harrisonburg City	VA	45	88	3,099	2.84	79.02
Lebanon	PA	46	157	5,529	2.84	79.02

Source: Corporate Research Board, American Corporate Statistical Library (2007).

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Medina	OH	47	224	7,905	2.83	78.77
Cape Girardeau	MO	48	115	4,067	2.83	78.51
Stearns	MN	49	258	9,155	2.82	78.11
Saint Marys	MD	50	105	3,726	2.82	78.10
Lewis and Clark	MT	51	120	4,273	2.81	77.69
Lauderdale	AL	52	111	3,958	2.80	77.52
Chittenden	VT	53	312	11,148	2.80	77.27
Montgomery	OH	54	733	26,217	2.80	77.15
Boone	MO	55	225	8,049	2.80	77.13
Greene	MO	56	397	14,209	2.79	77.07
Dane	WI	57	683	24,473	2.79	76.94
Klamath	OR	58	116	4,158	2.79	76.89
Faulkner	AR	59	126	4,528	2.78	76.59
Craighead	AR	60	132	4,752	2.78	76.38
Portage	WI	61	91	3,279	2.78	76.27
Matanuska/Susitna	AK	62	116	4,180	2.78	76.27
Saline	KS	63	88	3,175	2.77	76.12
Cache	UT	64	177	6,403	2.76	75.81
Williamson	IL	65	89	3,221	2.76	75.75
Peoria	IL	66	227	8,223	2.76	75.64
Wood	OH	67	147	5,332	2.76	75.49
Washington	MD	68	179	6,508	2.75	75.21
Charleston	SC	69	608	22,129	2.75	75.09
Houston	AL	70	141	5,134	2.75	75.04
Moore	NC	71	131	4,774	2.74	74.94
Missoula	MT	72	207	7,547	2.74	74.89
Ector	TX	73	169	6,163	2.74	74.86
Madison	TN	74	141	5,142	2.74	74.86
Napa	CA	75	258	9,416	2.74	74.77
Washington	RI	76	198	7,232	2.74	74.67
Albemarle	VA	77	115	4,218	2.73	74.18
New Hanover	NC	78	390	14,316	2.72	74.09
Monroe	IN	79	161	5,914	2.72	74.01
Lexington	SC	80	321	11,823	2.72	73.70
Adams	IL	81	97	3,573	2.71	73.69
Blaine	ID	82	96	3,537	2.71	73.66
Camden	MO	83	101	3,722	2.71	73.64
Brown	WI	84	330	12,193	2.71	73.33
Grand Forks	ND	85	88	3,254	2.70	73.24
Florence	SC	86	182	6,731	2.70	73.22
Sumter	SC	87	106	3,924	2.70	73.11
Montgomery	VA	88	96	3,554	2.70	73.11
York	SC	89	233	8,636	2.70	72.97
Mc Lean	IL	90	190	7,054	2.69	72.78
Sebastian	AR	91	162	6,033	2.69	72.43
Williamson	TN	92	340	12,670	2.68	72.35
Saint Louis	MN	93	296	11,031	2.68	72.34
Forrest	MS	94	144	5,367	2.68	72.33
Wood	WI	95	112	4,190	2.67	71.90

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Burke	NC	96	94	3,517	2.67	71.89
Cumberland	ME	97	493	18,460	2.67	71.80
Newport News City	VA	98	210	7,865	2.67	71.78
Chester	PA	99	681	25,533	2.67	71.65
Erie	OH	100	107	4,019	2.66	71.45
Loudoun	VA	101	372	13,980	2.66	71.39
Dauphin	PA	102	337	12,666	2.66	71.38
Berks	PA	103	446	16,765	2.66	71.36
Columbia	FL	104	96	3,609	2.66	71.35
Rowan	NC	105	145	5,454	2.66	71.29
Orange	NC	106	197	7,413	2.66	71.24
Franklin	PA	107	153	5,758	2.66	71.23
Fayette	PA	108	149	5,610	2.66	71.17
Dodge	WI	109	112	4,224	2.65	70.98
Oconee	SC	110	89	3,360	2.65	70.87
Mercer	NJ	111	495	18,699	2.65	70.80
Raleigh	WV	112	82	3,098	2.65	70.79
Allegany	MD	113	83	3,138	2.64	70.71
Payne	OK	114	90	3,403	2.64	70.69
Cascade	MT	115	127	4,804	2.64	70.65
Yakima	WA	116	285	10,801	2.64	70.43
Penobscot	ME	117	210	7,972	2.63	70.24
Blount	TN	118	141	5,360	2.63	70.09
Frederick	MD	119	337	12,817	2.63	70.04
Larimer	CO	120	563	21,416	2.63	70.02
Lancaster	NE	121	323	12,290	2.63	69.99
Black Hawk	IA	122	173	6,583	2.63	69.98
Knox	TN	123	625	23,803	2.63	69.88
Howard	MD	124	461	17,565	2.62	69.83
Clinton	NY	125	101	3,854	2.62	69.67
Placer	CA	126	532	20,305	2.62	69.64
Washington	VT	127	120	4,586	2.62	69.49
Cole	MO	128	116	4,435	2.62	69.45
Linn	IA	129	303	11,591	2.61	69.38
Douglas	KS	130	144	5,511	2.61	69.34
Polk	IA	131	655	25,082	2.61	69.27
Lehigh	PA	132	374	14,324	2.61	69.25
Walla Walla	WA	133	79	3,026	2.61	69.24
Tom Green	TX	134	128	4,905	2.61	69.19
Anne Arundel	MD	135	768	29,442	2.61	69.15
Sedgwick	KS	136	590	22,620	2.61	69.14
Lee	AL	137	134	5,142	2.61	69.04
Porter	IN	138	184	7,061	2.61	69.03
Cabell	WV	139	108	4,150	2.60	68.89
Lynchburg City	VA	140	125	4,810	2.60	68.73
Sevier	TN	141	162	6,235	2.60	68.71
Androscoggin	ME	142	137	5,273	2.60	68.70
Chelan	WA	143	134	5,159	2.60	68.67
Saint Joseph	IN	144	349	13,440	2.60	68.64

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Beaufort	SC	145	230	8,860	2.60	68.61
Lubbock	TX	146	413	15,916	2.59	68.56
Jefferson	WI	147	99	3,816	2.59	68.54
Spokane	WA	148	617	23,851	2.59	68.22
Chesapeake City	VA	149	522	20,210	2.58	68.05
Saint Croix	WI	150	107	4,146	2.58	67.96
Kitsap	WA	151	352	13,650	2.58	67.87
Marathon	WI	152	172	6,676	2.58	67.77
Jefferson	NY	153	119	4,620	2.58	67.75
Bulloch	GA	154	87	3,379	2.57	67.70
Spartanburg	SC	155	313	12,162	2.57	67.65
Madison	AL	156	407	15,852	2.57	67.39
La Plata	CO	157	134	5,230	2.56	67.16
Jasper	MO	158	172	6,724	2.56	66.99
Lucas	OH	159	516	20,194	2.56	66.87
Jackson	OR	160	387	15,155	2.55	66.80
Anoka	MN	161	361	14,138	2.55	66.79
Merced	CA	162	198	7,764	2.55	66.66
Iredell	NC	163	227	8,915	2.55	66.49
Cumberland	PA	164	286	11,262	2.54	66.20
Taylor	TX	165	177	6,971	2.54	66.18
Alachua	FL	166	403	15,878	2.54	66.14
Norfolk	VA	167	243	9,576	2.54	66.12
Northampton	PA	168	329	12,985	2.53	65.95
Lowndes	GA	169	165	6,514	2.53	65.92
Rutherford	TN	170	238	9,397	2.53	65.91
Imperial	CA	171	136	5,372	2.53	65.86
Bucks	PA	172	872	34,471	2.53	65.78
Westmoreland	PA	173	419	16,565	2.53	65.77
Manitowoc	WI	174	102	4,034	2.53	65.73
Washington	AR	175	262	10,364	2.53	65.70
Pitt	NC	176	184	7,280	2.53	65.68
De Kalb	IL	177	115	4,552	2.53	65.64
Strafford	NH	178	149	5,905	2.52	65.50
York	ME	179	271	10,743	2.52	65.47
Garfield	OK	180	79	3,132	2.52	65.46
Mahoning	OH	181	296	11,736	2.52	65.46
Shelby	AL	182	216	8,566	2.52	65.43
Allen	IN	183	452	17,929	2.52	65.41
Mobile	AL	184	478	18,964	2.52	65.39
Lafayette	LA	185	394	15,636	2.52	65.36
Tazewell	IL	186	135	5,364	2.52	65.23
Durham	NC	187	334	13,271	2.52	65.23
Miami	OH	188	132	5,250	2.51	65.12
Summit	OH	189	670	26,656	2.51	65.09
York	PA	190	419	16,673	2.51	65.07
El Paso	TX	191	636	25,308	2.51	65.07
Indian River	FL	192	301	11,980	2.51	65.04
Henrico	VA	193	402	16,013	2.51	64.96

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Johnson	IN	194	148	5,896	2.51	64.94
Yavapai	AZ	195	363	14,470	2.51	64.88
Washington	TN	196	140	5,584	2.51	64.81
Scioto	OH	197	81	3,234	2.50	64.71
Johnson	IA	198	155	6,195	2.50	64.59
Rankin	MS	199	158	6,316	2.50	64.58
Portsmouth City	VA	200	88	3,519	2.50	64.54
Charlottesville City	VA	201	102	4,084	2.50	64.40
Wood	WV	202	89	3,566	2.50	64.33
Saint Tammany	LA	203	374	14,996	2.49	64.25
Brazos	TX	204	207	8,301	2.49	64.24
Garland	AR	205	132	5,294	2.49	64.23
La Porte	IN	206	129	5,174	2.49	64.22
Washington	PA	207	241	9,670	2.49	64.18
Portage	OH	208	170	6,826	2.49	64.10
Guilford	NC	209	783	31,471	2.49	64.00
Douglas	OR	210	167	6,715	2.49	63.95
Sumner	TN	211	163	6,555	2.49	63.94
Kane	IL	212	507	20,410	2.48	63.83
Ramsey	MN	213	658	26,496	2.48	63.80
Dakota	MN	214	494	19,924	2.48	63.63
Yellowstone	MT	215	233	9,398	2.48	63.62
Saint Clair	MI	216	207	8,350	2.48	63.61
Tuscaloosa	AL	217	190	7,669	2.48	63.55
Collier	FL	218	780	31,496	2.48	63.50
Geauga	OH	219	140	5,654	2.48	63.49
Pinal	AZ	220	168	6,785	2.48	63.48
Calhoun	AL	221	130	5,252	2.48	63.45
Caldwell	NC	222	81	3,280	2.47	63.21
Union	NC	223	211	8,545	2.47	63.20
Franklin	MO	224	140	5,671	2.47	63.17
Spotsylvania	VA	225	111	4,497	2.47	63.15
Ottawa	MI	226	333	13,492	2.47	63.15
Buncombe	NC	227	365	14,789	2.47	63.14
Sonoma	CA	228	799	32,378	2.47	63.13
Waukesha	WI	229	521	21,114	2.47	63.12
Erie	PA	230	294	11,918	2.47	63.09
Cowlitz	WA	231	126	5,109	2.47	63.07
Dorchester	SC	232	130	5,272	2.47	63.05
Kent	MI	233	774	31,394	2.47	63.03
Eagle	CO	234	131	5,315	2.46	63.00
Wichita	TX	235	178	7,222	2.46	63.00
Lawrence	PA	236	104	4,223	2.46	62.91
Montgomery	AL	237	283	11,503	2.46	62.81
Humboldt	CA	238	170	6,923	2.46	62.61
Whatcom	WA	239	327	13,324	2.45	62.55
Rockingham	NH	240	521	21,232	2.45	62.54
Anderson	TN	241	79	3,220	2.45	62.52
Deschutes	OR	242	340	13,888	2.45	62.29

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Somerset	PA	243	89	3,636	2.45	62.28
Highlands	FL	244	159	6,497	2.45	62.26
Kanawha	WV	245	244	9,971	2.45	62.25
Pulaski	AR	246	550	22,477	2.45	62.24
Pickens	SC	247	118	4,824	2.45	62.21
Ross	OH	248	74	3,026	2.45	62.18
Champaign	IL	249	207	8,468	2.44	62.14
Prince William	VA	250	360	14,731	2.44	62.11
Saratoga	NY	251	259	10,599	2.44	62.10
San Luis Obispo	CA	252	453	18,545	2.44	62.06
Skagit	WA	253	182	7,452	2.44	62.04
Clark	WA	254	510	20,887	2.44	62.02
Allen	OH	255	123	5,038	2.44	62.01
Mesa	CO	256	235	9,628	2.44	61.98
Kootenai	ID	257	249	10,205	2.44	61.94
Kent	RI	258	211	8,650	2.44	61.91
Madison	IN	259	134	5,495	2.44	61.88
Mercer	PA	260	132	5,413	2.44	61.88
Roanoke City	VA	261	141	5,786	2.44	61.81
Sangamon	IL	262	245	10,055	2.44	61.80
Shasta	CA	263	280	11,505	2.43	61.68
Berkeley	WV	264	77	3,165	2.43	61.64
Butler	PA	265	210	8,634	2.43	61.61
Somerset	NJ	266	401	16,503	2.43	61.51
Calcasieu	LA	267	254	10,465	2.43	61.39
Otter Tail	MN	268	97	3,997	2.43	61.38
Jefferson	LA	269	715	29,468	2.43	61.36
Hampton City	VA	270	118	4,866	2.42	61.30
Columbia	PA	271	74	3,052	2.42	61.29
Columbia	WI	272	96	3,960	2.42	61.27
Marion	OR	273	452	18,653	2.42	61.23
Talbot	MD	274	74	3,054	2.42	61.22
Dare	NC	275	93	3,840	2.42	61.17
Lee	NC	276	75	3,103	2.42	60.96
Kauai	HI	277	94	3,891	2.42	60.91
De Soto	MS	278	131	5,423	2.42	60.90
Montgomery	TN	279	123	5,097	2.41	60.80
Cambria	PA	280	144	5,971	2.41	60.73
Troup	GA	281	81	3,359	2.41	60.72
Crawford	PA	282	105	4,356	2.41	60.68
Delaware	OH	283	188	7,801	2.41	60.66
Craven	NC	284	116	4,814	2.41	60.65
Washington	UT	285	229	9,507	2.41	60.61
Olmsted	MN	286	167	6,938	2.41	60.54
Maury	TN	287	91	3,782	2.41	60.50
Richmond City	VA	288	253	10,516	2.41	60.48
Bowie	TX	289	120	4,994	2.40	60.36
Carroll	MD	290	207	8,620	2.40	60.29
Saint Louis City	MO	291	388	16,161	2.40	60.27

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Shawnee	KS	292	214	8,914	2.40	60.27
Bradley	TN	293	110	4,582	2.40	60.26
Shiawassee	MI	294	86	3,583	2.40	60.24
Arlington	VA	295	266	11,084	2.40	60.23
Hawaii	HI	296	210	8,751	2.40	60.22
Cullman	AL	297	85	3,544	2.40	60.17
Ward	ND	298	77	3,220	2.39	59.86
Harford	MD	299	279	11,669	2.39	59.85
Madera	CA	300	129	5,396	2.39	59.84
Christian	MO	301	85	3,556	2.39	59.82
Rapides	LA	302	184	7,699	2.39	59.80
San Joaquin	CA	303	598	25,026	2.39	59.79
Hanover	VA	304	130	5,441	2.39	59.78
Martin	FL	305	373	15,612	2.39	59.77
Luzerne	PA	306	351	14,694	2.39	59.75
Winnebago	IL	307	333	13,943	2.39	59.73
Fond Du Lac	WI	308	110	4,613	2.38	59.57
Cape May	NJ	309	172	7,216	2.38	59.53
Saint Charles	MO	310	366	15,376	2.38	59.39
Muskingum	OH	311	98	4,118	2.38	59.37
Tippecanoe	IN	312	148	6,220	2.38	59.36
Worcester	MD	313	109	4,582	2.38	59.33
Wayne	OH	314	132	5,550	2.38	59.31
Camden	NJ	315	590	24,841	2.38	59.17
Washington	OH	316	73	3,075	2.37	59.12
Columbia	GA	317	150	6,320	2.37	59.10
Catawba	NC	318	208	8,774	2.37	58.98
Marshall	AL	319	101	4,262	2.37	58.94
Will	IL	320	565	23,851	2.37	58.90
Monroe	PA	321	162	6,840	2.37	58.89
Crow Wing	MN	322	115	4,859	2.37	58.81
Monongalia	WV	323	82	3,465	2.37	58.80
Terrebonne	LA	324	143	6,050	2.36	58.68
Boone	IN	325	75	3,174	2.36	58.65
Queen Annes	MD	326	71	3,007	2.36	58.57
Pottawattamie	IA	327	112	4,744	2.36	58.56
Walworth	WI	328	132	5,593	2.36	58.53
Lauderdale	MS	329	91	3,858	2.36	58.47
Providence	RI	330	702	29,784	2.36	58.40
Sauk	WI	331	88	3,735	2.36	58.36
Garfield	CO	332	133	5,645	2.36	58.36
Montrose	CO	333	80	3,396	2.36	58.34
Trumbull	OH	334	198	8,414	2.35	58.24
Georgetown	SC	335	71	3,018	2.35	58.21
Clermont	OH	336	187	7,951	2.35	58.18
Delaware	IN	337	121	5,146	2.35	58.16
Bell	TX	338	264	11,229	2.35	58.14
Bedford	VA	339	76	3,233	2.35	58.13
Lafourche	LA	340	102	4,350	2.34	57.88

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Orleans	LA	341	551	23,503	2.34	57.86
Wayne	NC	342	125	5,334	2.34	57.82
Cabarrus	NC	343	184	7,854	2.34	57.79
Warren	OH	344	171	7,304	2.34	57.72
Rock	WI	345	159	6,792	2.34	57.71
Santa Barbara	CA	346	612	26,158	2.34	57.65
Alexandria City	VA	347	226	9,668	2.34	57.57
Kennebec	ME	348	150	6,418	2.34	57.55
Washington	WI	349	144	6,169	2.33	57.42
Ouachita	LA	350	226	9,683	2.33	57.41
Tulare	CA	351	364	15,596	2.33	57.41
Whitfield	GA	352	130	5,571	2.33	57.39
Nevada	CA	353	193	8,279	2.33	57.29
Newport	RI	354	126	5,421	2.32	57.00
Clark	OH	355	126	5,423	2.32	56.96
Pueblo	CO	356	173	7,464	2.32	56.72
Benton	AR	357	208	8,977	2.32	56.69
Etowah	AL	358	108	4,663	2.32	56.65
Horry	SC	359	380	16,408	2.32	56.64
Butler	OH	360	324	13,995	2.32	56.61
Johnston	NC	361	141	6,096	2.31	56.52
Nueces	TX	362	396	17,126	2.31	56.49
Paulding	GA	363	99	4,282	2.31	56.47
Stanislaus	CA	364	498	21,542	2.31	56.46
Hillsborough	NH	365	560	24,225	2.31	56.46
Tuscarawas	OH	366	115	4,976	2.31	56.43
Woodbury	IA	367	133	5,757	2.31	56.40
Lincoln	OR	368	93	4,026	2.31	56.39
Kern	CA	369	725	31,462	2.30	56.15
Tuolumne	CA	370	83	3,602	2.30	56.14
Jefferson	TX	371	321	13,940	2.30	56.08
Lowndes	MS	372	72	3,128	2.30	56.04
Sussex	DE	373	241	10,471	2.30	56.03
Kalamazoo	MI	374	276	11,995	2.30	56.00
Macon	IL	375	108	4,695	2.30	55.97
Livingston	MI	376	204	8,869	2.30	55.97
Midland	MI	377	91	3,957	2.30	55.95
Forsyth	NC	378	432	18,793	2.30	55.91
Hunterdon	NJ	379	209	9,108	2.29	55.73
Cleveland	OK	380	208	9,065	2.29	55.73
Hamilton	TN	381	457	19,922	2.29	55.70
Carteret	NC	382	96	4,187	2.29	55.65
Lincoln	NC	383	81	3,533	2.29	55.65
Delaware	PA	384	634	27,664	2.29	55.61
Barnstable	MA	385	439	19,162	2.29	55.58
Baldwin	AL	386	231	10,091	2.29	55.50
Lane	OR	387	522	22,806	2.29	55.49
Robeson	NC	388	114	4,981	2.29	55.48
Madison	MS	389	121	5,289	2.29	55.44

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Butte	CA	390	289	12,646	2.29	55.33
Bay	MI	391	118	5,171	2.28	55.19
Floyd	GA	392	108	4,734	2.28	55.16
Hendricks	IN	393	116	5,088	2.28	55.10
Livingston	LA	394	105	4,612	2.28	54.96
Sullivan	TN	395	157	6,902	2.27	54.88
Albany	NY	396	399	17,571	2.27	54.71
Twin Falls	ID	397	124	5,463	2.27	54.67
Kings	CA	398	86	3,789	2.27	54.67
Dubuque	IA	399	130	5,728	2.27	54.66
Mc Lennan	TX	400	266	11,726	2.27	54.61
Clallam	WA	401	113	4,982	2.27	54.60
Reno	KS	402	81	3,573	2.27	54.55
Bossier	LA	403	116	5,119	2.27	54.51
Chatham	GA	404	375	16,553	2.27	54.48
Kent	DE	405	139	6,142	2.26	54.38
Thurston	WA	406	299	13,214	2.26	54.37
New Castle	DE	407	599	26,473	2.26	54.37
Saint Johns	FL	408	301	13,304	2.26	54.36
Ontario	NY	409	128	5,659	2.26	54.33
Oneida	NY	410	234	10,349	2.26	54.30
Comanche	OK	411	100	4,423	2.26	54.29
Saginaw	MI	412	224	9,908	2.26	54.29
Eaton	MI	413	132	5,845	2.26	54.18
Morris	NJ	414	700	31,013	2.26	54.13
Clay	MO	415	202	8,959	2.25	54.03
Van Buren	MI	416	92	4,085	2.25	53.92
Clarke	GA	417	151	6,713	2.25	53.80
Santa Fe	NM	418	260	11,561	2.25	53.78
Wilson	TN	419	116	5,159	2.25	53.76
Berkshire	MA	420	190	8,451	2.25	53.75
Licking	OH	421	162	7,208	2.25	53.72
Sherburne	MN	422	101	4,494	2.25	53.71
Solano	CA	423	418	18,606	2.25	53.68
Weld	CO	424	302	13,451	2.25	53.62
Clearfield	PA	425	70	3,118	2.25	53.61
Tangipahoa	LA	426	136	6,058	2.24	53.61
Cheshire	NH	427	98	4,367	2.24	53.57
Caddo	LA	428	335	14,941	2.24	53.49
Ada	ID	429	632	28,192	2.24	53.47
El Dorado	CA	430	262	11,690	2.24	53.45
East Baton Rouge	LA	431	631	28,158	2.24	53.44
Washtenaw	MI	432	422	18,832	2.24	53.43
Broome	NY	433	205	9,161	2.24	53.30
Columbiana	OH	434	115	5,141	2.24	53.26
Clatsop	OR	435	70	3,135	2.23	53.09
Madison	IL	436	263	11,786	2.23	53.03
Boulder	CO	437	580	25,997	2.23	53.01
Grant	WA	438	93	4,169	2.23	53.00

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Brunswick	NC	439	127	5,694	2.23	52.99
Yolo	CA	440	190	8,522	2.23	52.95
Platte	MO	441	87	3,909	2.23	52.78
Hancock	OH	442	75	3,370	2.23	52.78
Ellis	TX	443	154	6,926	2.22	52.69
Rock Island	IL	444	139	6,256	2.22	52.62
Henderson	NC	445	136	6,127	2.22	52.53
Emmet	MI	446	70	3,154	2.22	52.52
Charlotte	FL	447	284	12,805	2.22	52.45
Nacogdoches	TX	448	69	3,114	2.22	52.36
Grays Harbor	WA	449	88	3,972	2.22	52.35
Story	IA	450	103	4,653	2.21	52.27
Berrien	MI	451	236	10,665	2.21	52.24
Cumberland	NC	452	271	12,247	2.21	52.23
Fayette	GA	453	187	8,456	2.21	52.18
Lenoir	NC	454	69	3,121	2.21	52.15
Kenai Peninsula	AK	455	90	4,071	2.21	52.15
Walton	FL	456	105	4,751	2.21	52.12
Clackamas	OR	457	542	24,563	2.21	51.97
New London	CT	458	322	14,594	2.21	51.96
Gloucester	NJ	459	224	10,153	2.21	51.95
Buchanan	MO	460	91	4,126	2.21	51.92
Harnett	NC	461	82	3,719	2.20	51.90
Lenawee	MI	462	118	5353	2.20	51.87
Houston	GA	463	127	5764	2.20	51.83
White	AR	464	78	3541	2.20	51.81
Maui/Kalawao	HI	465	208	9443	2.20	51.80
Iberia	LA	466	89	4047	2.20	51.65
Chesterfield	VA	467	293	13341	2.20	51.53
Ingham	MI	468	350	15938	2.20	51.52
Grand Traverse	MI	469	163	7423	2.20	51.51
Clay	FL	470	225	10247	2.20	51.51
Cherokee	GA	471	313	14256	2.20	51.50
Cumberland	NJ	472	127	5785	2.20	51.49
Marin	CA	473	590	26877	2.20	51.48
Schuylkill	PA	474	136	6205	2.19	51.34
Hidalgo	TX	475	528	24137	2.19	51.15
Adams	CO	476	417	19065	2.19	51.14
Washoe	NV	477	596	27283	2.18	51.02
Stark	OH	478	400	18317	2.18	50.99
Ozaukee	WI	479	116	5312	2.18	50.99
Richland	OH	480	122	5592	2.18	50.90
Saint Mary	LA	481	72	3303	2.18	50.83
Washington	OR	482	660	30291	2.18	50.78
Jefferson	AR	483	79	3626	2.18	50.78
Rutland	VT	484	95	4361	2.18	50.76
Watauga	NC	485	69	3170	2.18	50.69
Josephine	OR	486	134	6160	2.18	50.63
Hamilton	IN	487	293	13471	2.18	50.62

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Davidson	NC	488	133	6118	2.17	50.57
Webb	TX	489	221	10176	2.17	50.48
Smith	TX	490	261	12021	2.17	50.46
Union	NJ	491	651	30001	2.17	50.40
Davis	UT	492	342	15771	2.17	50.34
Fayette	KY	493	380	17531	2.17	50.30
Lake	OH	494	261	12054	2.17	50.20
Saint Clair	IL	495	234	10813	2.16	50.15
Utah	UT	496	627	28999	2.16	50.07
Wayne	IN	497	71	3284	2.16	50.06
Howard	IN	498	78	3610	2.16	50.01
Dougherty	GA	499	136	6303	2.16	49.88
Charles	MD	500	136	6303	2.16	49.88
Anderson	SC	501	155	7185	2.16	49.86
Muskegon	MI	502	167	7747	2.16	49.79
Rice	MN	503	82	3806	2.15	49.74
Sutter	CA	504	98	4551	2.15	49.69
Grant	WI	505	77	3576	2.15	49.69
Windsor	VT	506	97	4506	2.15	49.66
Douglas	NV	507	81	3775	2.15	49.37
Lake	CA	508	70	3264	2.14	49.32
Putnam	TN	509	85	3968	2.14	49.21
Glynn	GA	510	136	6350	2.14	49.20
Orangeburg	SC	511	88	4110	2.14	49.17
Haywood	NC	512	75	3503	2.14	49.17
Montgomery	TX	513	473	22098	2.14	49.14
Weber	UT	514	254	11872	2.14	49.10
Wright	MN	515	150	7012	2.14	49.09
Berkeley	SC	516	97	4536	2.14	49.06
Warren	NY	517	97	4540	2.14	48.98
Atlantic	NJ	518	277	12977	2.13	48.89
Wicomico	MD	519	104	4873	2.13	48.88
Cayuga	NY	520	67	3140	2.13	48.86
Vanderburgh	IN	521	179	8389	2.13	48.86
Kaufman	TX	522	107	5015	2.13	48.85
Scott	IA	523	194	9097	2.13	48.81
Cleveland	NC	524	99	4643	2.13	48.79
Hinds	MS	525	313	14686	2.13	48.75
Surry	NC	526	88	4131	2.13	48.71
Kerr	TX	527	78	3663	2.13	48.67
Potter	TX	528	135	6341	2.13	48.65
Coos	OR	529	88	4136	2.13	48.60
Allegan	MI	530	108	5080	2.13	48.52
Douglas	GA	531	158	7435	2.13	48.49
Monroe	FL	532	241	11361	2.12	48.32
Madison	KY	533	78	3678	2.12	48.30
Mc Henry	IL	534	315	14858	2.12	48.27
Ocean	NJ	535	532	25123	2.12	48.16
Bristol	MA	536	553	26115	2.12	48.16

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Hancock	ME	537	86	4063	2.12	48.13
Gaston	NC	538	199	9404	2.12	48.10
Lackawanna	PA	539	217	10257	2.12	48.08
Wise	TX	540	64	3027	2.11	48.02
Lorain	OH	541	249	11788	2.11	47.94
Warren	KY	542	120	5682	2.11	47.92
Hampden	MA	543	442	20945	2.11	47.85
Umatilla	OR	544	85	4028	2.11	47.85
Boone	KY	545	113	5355	2.11	47.85
Victoria	TX	546	105	4976	2.11	47.85
Nash	NC	547	96	4552	2.11	47.80
Tompkins	NY	548	102	4837	2.11	47.79
Onslow	NC	549	123	5835	2.11	47.75
Bay	FL	550	265	12574	2.11	47.73
Yamhill	OR	551	120	5715	2.10	47.40
Harrison	MS	552	215	10243	2.10	47.37
Sullivan	NY	553	98	4674	2.10	47.27
Windham	CT	554	120	5725	2.10	47.25
Carver	MN	555	104	4964	2.10	47.20
Jefferson	MO	556	159	7599	2.09	47.09
Hays	TX	557	158	7559	2.09	47.00
Ulster	NY	558	234	11200	2.09	46.96
Randolph	NC	559	118	5654	2.09	46.86
Mendocino	CA	560	122	5846	2.09	46.85
Hunt	TX	561	77	3690	2.09	46.85
Bibb	GA	562	213	10209	2.09	46.83
Carroll	NH	563	82	3931	2.09	46.81
Hampshire	MA	564	173	8315	2.08	46.58
Adams	PA	565	90	4327	2.08	46.56
Rockdale	GA	566	119	5724	2.08	46.51
Hall	GA	567	217	10446	2.08	46.45
Huron	OH	568	68	3278	2.07	46.32
Stafford	VA	569	94	4532	2.07	46.31
Hancock	IN	570	63	3039	2.07	46.26
Ascension	LA	571	82	3958	2.07	46.21
Fairfield	OH	572	114	5503	2.07	46.20
Morgan	AL	573	114	5503	2.07	46.20
Bartholomew	IN	574	68	3283	2.07	46.19
Burlington	NJ	575	428	20674	2.07	46.14
Leon	FL	576	406	19629	2.07	46.06
Walton	GA	577	120	5803	2.07	46.04
Gregg	TX	578	193	9340	2.07	45.98
Mc Cracken	KY	579	90	4359	2.06	45.90
Thomas	GA	580	64	3101	2.06	45.87
Bartow	GA	581	112	5429	2.06	45.83
Washington	MS	582	65	3155	2.06	45.71
Bonner	ID	583	72	3497	2.06	45.66
Saint Lucie	FL	584	350	17001	2.06	45.65
Lee	MS	585	100	4861	2.06	45.58

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Cerro Gordo	IA	586	67	3257	2.06	45.58
Cochise	AZ	587	111	5398	2.06	45.55
Kankakee	IL	588	100	4870	2.05	45.42
Rutherford	NC	589	66	3215	2.05	45.40
Rogers	OK	590	67	3272	2.05	45.18
Chemung	NY	591	74	3614	2.05	45.17
Scott	MN	592	149	7279	2.05	45.15
Saint Joseph	MI	593	66	3232	2.04	44.94
Benton	OR	594	95	4663	2.04	44.73
Johnson	TX	595	150	7381	2.03	44.52
Laramie	WY	596	110	5416	2.03	44.46
Kosciusko	IN	597	79	3890	2.03	44.46
Fort Bend	TX	598	477	23488	2.03	44.46
Comal	TX	599	134	6617	2.03	44.21
Alamance	NC	600	154	7629	2.02	43.93
Okaloosa	FL	601	316	15662	2.02	43.89
Angelina	TX	602	82	4065	2.02	43.88
Onondaga	NY	603	510	25319	2.01	43.75
Santa Cruz	CA	604	390	19365	2.01	43.74
Oxford	ME	605	62	3079	2.01	43.72
Manatee	FL	606	470	23369	2.01	43.62
Marion	FL	607	436	21695	2.01	43.55
Liberty	TX	608	63	3135	2.01	43.55
Merrimack	NH	609	191	9507	2.01	43.53
Kendall	IL	610	70	3493	2.00	43.31
Hernando	FL	611	220	10978	2.00	43.31
Knox	ME	612	65	3244	2.00	43.30
Jackson	GA	613	68	3395	2.00	43.27
Genesee	NY	614	61	3046	2.00	43.25
Washington	MN	615	230	11486	2.00	43.24
Monterey	CA	616	422	21092	2.00	43.17
Chautauqua	NY	617	143	7155	2.00	43.08
Williamson	TX	618	354	17721	2.00	43.04
Lapeer	MI	619	92	4608	2.00	42.99
Taney	MO	620	81	4060	2.00	42.93
Cameron	TX	621	275	13784	2.00	42.93
Pulaski	KY	622	68	3411	1.99	42.86
Randall	TX	623	131	6590	1.99	42.62
Citrus	FL	624	185	9309	1.99	42.60
Island	WA	625	90	4532	1.99	42.54
Summit	UT	626	94	4737	1.98	42.47
Racine	WI	627	169	8529	1.98	42.35
Putnam	FL	628	84	4242	1.98	42.29
Jackson	MI	629	143	7228	1.98	42.22
Jefferson	OH	630	60	3035	1.98	42.15
Rockwall	TX	631	81	4100	1.98	42.10
Waupaca	WI	632	67	3400	1.97	41.88
Schenectady	NY	633	144	7308	1.97	41.88
Dutchess	NY	634	323	16396	1.97	41.86

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Wayne	NY	635	87	4429	1.96	41.61
Sussex	NJ	636	168	8567	1.96	41.47
La Salle	IL	637	110	5612	1.96	41.43
Plymouth	MA	638	537	27400	1.96	41.42
Rockingham	NC	639	82	4186	1.96	41.38
Lake	FL	640	407	20792	1.96	41.32
Jackson	MS	641	106	5423	1.95	41.20
Nassau	FL	642	91	4660	1.95	41.12
Richmond	GA	643	204	10453	1.95	41.07
Brazoria	TX	644	261	13375	1.95	41.06
Guadalupe	TX	645	83	4255	1.95	41.03
Chippewa	WI	646	64	3282	1.95	41.00
Cattaraugus	NY	647	75	3850	1.95	40.92
Denton	TX	648	609	31277	1.95	40.88
Siskiyou	CA	649	65	3349	1.94	40.61
Parker	TX	650	106	5465	1.94	40.56
Rensselaer	NY	651	135	6974	1.94	40.39
Niagara	NY	652	181	9357	1.93	40.33
Passaic	NJ	653	508	26293	1.93	40.24
Linn	OR	654	131	6789	1.93	40.13
Douglas	CO	655	328	17000	1.93	40.12
Muskogee	OK	656	68	3536	1.92	39.85
Baltimore City	MD	657	601	31285	1.92	39.76
Galveston	TX	658	306	15937	1.92	39.72
Wyandotte	KS	659	128	6669	1.92	39.69
Ravalli	MT	660	67	3496	1.92	39.57
Hudson	NJ	661	510	26662	1.91	39.41
Saline	AR	662	69	3608	1.91	39.40
Forsyth	GA	663	152	7949	1.91	39.39
Grayson	TX	664	135	7072	1.91	39.25
Lake	IN	665	431	22590	1.91	39.20
Monroe	MI	666	124	6501	1.91	39.18
Warren	NJ	667	110	5772	1.91	39.11
Tuscola	MI	668	60	3150	1.90	39.07
Orange	NY	669	413	21703	1.90	38.99
Hardin	KY	670	97	5098	1.90	38.98
Grafton	NH	671	116	6113	1.90	38.76
Polk	OR	672	66	3486	1.89	38.58
Columbia	NY	673	76	4015	1.89	38.56
Daviess	KY	674	88	4655	1.89	38.46
Cecil	MD	675	83	4399	1.89	38.30
Creek	OK	676	57	3025	1.88	38.19
Putnam	NY	677	122	6479	1.88	38.14
Clark	IN	678	87	4638	1.88	37.83
Pike	KY	679	57	3041	1.87	37.77
Northumberland	PA	680	67	3583	1.87	37.58
Genesee	MI	681	412	22044	1.87	37.54
Escambia	FL	682	387	20719	1.87	37.49
Canyon	ID	683	188	10112	1.86	37.12

Appendix G. High-Impact Firm Distribution by Small Counties (cont'd)						
Small Counties	State	Rank	Number of High-Impact Firms	Total Firms	% High-Impact Firms	Index Value
Oswego	NY	684	93	5007	1.86	37.04
Coweta	GA	685	111	5981	1.86	36.98
Litchfield	CT	686	262	14122	1.86	36.95
Sandoval	NM	687	78	4210	1.85	36.85
Tolland	CT	688	128	6923	1.85	36.68
Ashtabula	OH	689	89	4819	1.85	36.59
Belknap	NH	690	85	4619	1.84	36.31
Saint Lawrence	NY	691	79	4298	1.84	36.22
Wilkes	NC	692	55	3007	1.83	35.83
Kenosha	WI	693	102	5618	1.82	35.26
Cass	MO	694	73	4022	1.82	35.23
Chisago	MN	695	58	3196	1.81	35.22
Hood	TX	696	64	3530	1.81	35.15
Calhoun	MI	697	118	6522	1.81	34.99
Muscogee	GA	698	187	10336	1.81	34.99
Beaver	PA	699	121	6699	1.81	34.86
Carroll	GA	700	115	6408	1.79	34.36
Middlesex	CT	701	200	11159	1.79	34.26
Kenton	KY	702	123	6864	1.79	34.25
Santa Rosa	FL	703	172	9715	1.77	33.33
Saint Landry	LA	704	71	4028	1.76	33.00
Bastrop	TX	705	55	3131	1.76	32.74
Henderson	TX	706	63	3596	1.75	32.54
Orange	TX	707	70	4008	1.75	32.31
Pasco	FL	708	446	25539	1.75	32.30
Henry	GA	709	169	9801	1.72	31.36
Windham	VT	710	62	3597	1.72	31.33
Livingston	NY	711	53	3075	1.72	31.33
Summit	CO	712	55	3201	1.72	31.10
Aroostook	ME	713	75	4366	1.72	31.08
Floyd	IN	714	63	3669	1.72	31.05
Wilson	NC	715	61	3597	1.70	30.14
Clayton	GA	716	210	12504	1.68	29.44
Morgan	IN	717	54	3244	1.66	28.81
Richmond	NY	718	355	21350	1.66	28.73
Rockland	NY	719	360	21754	1.65	28.39
Montcalm	MI	720	55	3324	1.65	28.38
Flagler	FL	721	103	6225	1.65	28.38
Goodhue	MN	722	56	3392	1.65	28.22
Newton	GA	723	78	4763	1.64	27.65
Spalding	GA	724	59	3609	1.63	27.53
Osceola	FL	725	302	18806	1.61	26.29
Franklin	MA	726	64	4019	1.59	25.72
Campbell	KY	727	59	3763	1.57	24.67
Barrow	GA	728	49	3126	1.57	24.65
Steuben	NY	729	64	4178	1.53	23.13
Canadian	OK	730	61	4142	1.47	20.60
Vermilion	IL	731	38	3471	1.09	4.45
Carson City	NV	732	130	13123	0.99	0.00
Source: Corporate Research Board, American Corporate Statistical Library (2007).						

APPENDIX H: DATA OVERVIEW

The ACSL is a new longitudinal business file built on 30 years of research and experience. William Parsons, one of its principal developers, helped create the first dataset to use Dun and Bradstreet's (D&B) DUNS Market Identifier (DMI) file to analyze U.S. businesses. Led by David Birch in the late 1970s and early 1980s, Parsons and a team of researchers at MIT and Harvard developed the dataset upon which Birch's seminal work on job creation and destruction was based.

The ACSL process begins with cross-sectional files of the full DUNS DMI file for each year over the last 10 years (this dataset is updated every six months). The primary purpose of D&B's data is to provide businesses with information about other businesses in order to enhance their decision-making. Relying on an enormous and proprietary data collection effort (including over 100 million telephone calls each year), D&B seeks to obtain information on all business establishments in the country. For every establishment identified, D&B assigns a unique DUNS (data universal number system) number, which is "retired" forever once an establishment dies. The Corporate Research Board's (CRB) researchers use this number to link and track each firm over the course of its life.

Although D&B does not collect data for scholarly research, it does have an incentive to ensure its accuracy, as inaccuracies would jeopardize D&B's core business and might also result in lawsuits. Consequently, D&B has instituted sophisticated quality control systems and its cross-sectional data are generally believed to provide high-quality "snapshots" of business establishments.

Using the DUNS number, CRB links D&B cross-sections into a longitudinal file that tracks every establishment from its birth through any physical moves it makes, capturing changes in ownership along the way, and recording the establishment's death if it occurs. There are multiple steps in this process, including merging data files and eliminating duplicate records, and CRB has developed robust proprietary systems to carry it out.

In addition to the DMI file, CRB also draws on other data sources, including federal government datasets, although the DMI file is the principal data source. The resulting

ACSL database contains over 130 variables on virtually every establishment in the United States. Some of the variables of particular importance to this proposal are: DUNS number; employment in each year; revenue in each year; SIC codes in each year; FIPS codes in each year; type of location (e.g., single, headquarters, branch) in each year; and, if the establishment moved, the year of movement, origin zip code, origin city, origin state, destination zip code, destination city, and destination state.

WEAKNESSES

No existing business dataset covers the entire universe of all businesses and therefore every dataset has weaknesses. Missing are very small, part-time proprietorships. Everyone who files a tax return for business (as distinct from a personal tax return) is a proprietorship. Some examples include all part-time waitresses, as well as anyone performing a few days of consulting or giving an occasional Tupperware party. The DMI file picks up about 5 million of these proprietorships—primarily the ones with one or more employees who operate on a somewhat regular basis.

However, one of the best sources of business information, the monthly Employment and Earnings series maintained by the U.S. Department of Labor's Bureau of Labor Statistics (BLS), ignores these proprietorships altogether. BLS's datasets ignore all of the 18 million proprietorships estimated to exist, and the DMI file ignores about 13 million of them—not very comprehensive in either case. The greatest weakness of both the DMI file and the Labor Department data is their respective coverage of births, i.e., startup companies. Up to three or more years are often required to discover, identify, and record valid data for newly started businesses. One study, conducted by Howard Aldrich at the University of North Carolina, exhaustively canvassed Durham County, North Carolina, over a three-year period for the purpose of counting up all business startups (including researchers walking the streets and knocking on doors). The study found that D&B's DMI file had picked up 38 percent of the actual number of startups found, and the ES202-based system used by the Labor Department picked up 43 percent of the startups—again, not very comprehensive in either case.

COVERAGE

Coverage of this file compares quite favorably with other business data sources. The datasets maintained by the Bureau of Labor Statistics provide the best current U.S. employment information available, the Employment and Earnings series, published on a monthly basis. In comparing "apples to apples" between the Labor Department and the DMI file, as of July 2007, Labor Department files show a total U.S. employment figure of 138.1 million. The corresponding DMI U.S. total employment figure is 142.9 million, about 4.8 million more. The approximate 5 million proprietorships picked up in the DMI file and left out by the Labor Department, most likely account for a significant portion of the difference. From an industry viewpoint, The DMI file and the Labor Department Employment and Earnings industry distributions are quite similar.

EMPLOYMENT DISTRIBUTION BY INDUSTRY

	DMI	BLS
Construction	6.1%	5.5%
Manufacturing	12.4	10.2
Utilities	4.4	4.0
Wholesale Trade	6.7	7.6
Retail Trade	17.8	18.2
Finance, Insurance, Real Estate	8.1	6.1
Services	42.3	41.1
All Other	2.2	7.3

Source: Corporate Research Board, American Corporate Statistical Library (2007), U.S. Department of Labor, Bureau of Labor Statistics.

The DMI file has slightly more coverage in manufacturing and utilities, and slightly less in trade, but the pattern is very similar. The Labor Department's datasets can no longer be used to ascertain DMI coverage by firm size, as they provide no size detail of any kind. County Business Patterns, prepared by the U.S. Bureau of the Census, does allow size comparisons for establishments, but not for enterprises. Comparing the size distributions by establishment in the DMI file and County Business Patterns yields a similar pattern.

ESTABLISHMENT DISTRIBUTION BY EMPLOYMENT SIZE

Establishment Employment Size	DMI	County Business Patterns
1-4	74.9%	54.9%
5-19	17.8	31.3
20-99	6.2	11.4
100-499	1.0	2.1
500-plus	0.1	.2

Source: Corporate Research Board, American Corporate Statistical Library (2007); U.S. Department of Commerce, Bureau of the Census, County Business Patterns.

The DMI numbers reflect, once again, the approximate 5 million very small proprietorships present in the DMI data and absent in the government data. The 1-4 size category shows a higher concentration of tiny establishments and a lower concentration in all other size categories relative to County Business Patterns. The distribution pattern, however, is quite similar.

All major business data sources in use today can provide only large samples of an inherently unknowable universe. The "comings and goings" of large numbers of particularly small businesses happen so quickly that most go unnoticed for a significant period of time. However, most of the employment base in the United States is covered by most of the larger business datasets. The portion that is missing tends to represent the very small, usually part-time proprietorships that account for a significant number of businesses but very few full-time equivalent employees.

STRENGTHS

In addition to its considerable coverage, when compared with virtually all other sources of business data, the DMI file has a considerable advantage in its integrated nature. All establishment records in the DMI file can be linked with its appropriate "family" member and put in its correct hierarchical position within the corporate family. Thus, all family members can then be summed to present the enterprise level statistics needed, among other purposes, to determine whether the enterprise is to be designated a "high-impact

firm" during a particular four-year period of analysis. The primary government sources for business information lack this capability. The ES202-based system used by the Labor Department, for example, will obtain information on a Big Four accounting office in Denver, but will not know about or acknowledge the main office in New York City. The ES202 data are provided on a state-by-state basis to be in compliance with a variety of state regulations on unemployment insurance. The Denver office needs to provide information on its activities to the state of Colorado, but has no reason to report any information concerning the New York main office.

Unlike the government business data sources, Dun & Bradstreet has the advantage of being able to collect far more information about each business. The government is greatly limited by the need for legal compliance. Thus it cannot expand the scope of what the legislation funding its operations has mandated, and so the collection must stick to a very narrow range of mandated information. Also, in many instances, because of confidentiality requirements, the data collected are not allowed to be disseminated and are often suppressed in the datasets made available to the public.

The ES202 collection system has the advantage in having the force of law on its side. All businesses are legally obligated to provide the required information and face stiff penalties for not complying or for providing false information. D&B has no such backing. To a certain degree, reporting business information to D&B is voluntary. D&B, as a credit-reporting agency, does have, however, considerable leverage and can contact its companies as often as it wishes in pursuing its data collection efforts.

PROCESSING

The data presented in this report are drawn primarily from Dun and Bradstreet's DMI (DUNS Market Identifier) file. At any moment, this file covers roughly 21 million enterprises and 23.5 million active establishments. Each day, D&B reporters update tens of thousands of these business records, including adding newly formed businesses and removing records of business that have ceased operations. Every year the Corporate Research Board acquires a "snapshot" of the full DMI file along with two- and four-year-old historical DMI data. The Corporate Research Board then "bolts" these DMI business records together to create a four-year longitudinal history for each establishment and

enterprise. As part of this procedure, a "data-cleansing" process eliminates any records likely to be data-entry errors or that show implausible shifts in employment or revenue. When completed, the current four-year file contains approximately 25.3 million establishment records incorporating all the business "comings and goings." This includes all the components of change: births, deaths, expansions, contractions, in-movers, and out-movers as well as all the corporate family affiliations, hierarchies, acquisitions, and dispositions. The schematic overview helps identify the structure of the database construction.