

# **Accelerating Job Creation in America: The Promise of High-Impact Companies**

by

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## EXECUTIVE SUMMARY<sup>‡</sup>

This study is an update to and expansion of a report published by the U.S. Small Business Administration's Office of Advocacy in 2008. The report, *High-Impact Firms: Gazelles Revisited*, found that a relatively small class of firms was responsible for generating nearly all net new jobs in the U.S. economy from 1994 to 2006. Given the report's findings and the changes in the economy since, there was general agreement that an update could help inform current discussions about job creation in America. This agreement rested on a straightforward logic: If the U.S. is confronting a job generation problem and if there is a class of companies known to account for nearly all net job creation, it stands to reason we may want to know more about these companies.<sup>1</sup> The aim of this report is to update and expand our knowledge about this unique class of firms, termed 'high impact companies' throughout this report.

There are limitations to a study of this kind. The analysis employed in this report is quantitative and therefore answers questions related to the 'what,' 'where,' and 'how many' of high impact companies. While an analysis of this kind is useful, it is by no means exhaustive. Knowing where high impact companies are located, how many exist, and the degree to which they contribute to job creation is helpful to many audiences, including policymakers, industry leaders, academicians and researchers, media organizations, and even high impact companies themselves. However, quantitative analysis does not answer other important questions, such as those related to the 'how' and 'why' of research. It would be helpful to the same audiences to understand *how* high impact companies are creating jobs in this challenging economic environment and *why* they are able to outperform their peers. Questions of this kind are not within the scope of this report, though it is acknowledged that a qualitative assessment of high impact companies is a necessary next step to broadening our understanding of this

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<sup>‡</sup> The author would like to thank William Parsons of Corporate Research Board and Randy Ilg of the U.S. Department of Labor, Bureau of Labor Statistics. This report would not have been possible without their invaluable contributions.

<sup>1</sup> The terms 'firm,' 'enterprise,' 'company,' and 'business' are used interchangeably throughout this report to mean a business organization consisting of one or more establishments that are under common ownership or control. The terms 'firm' and 'establishment' are the same for single-establishment firms.

important class of firms, which in turn may contribute to our developing more effective policies as we seek to accelerate job creation in America.

As in the previous report, this study examines employment and sales to classify enterprises as high impact companies. The definition of these companies remains the same: high impact companies are 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 same period.<sup>2</sup>

In the 2008 study, high impact companies were analyzed over three four-year periods from 1994 to 2006 (i.e., 1994-1998, 1998-2002, and 2002-2006). In this study, the analysis is updated by including the most recent four-year period for which reliable data are available: 2004-2008. With the addition of this new period, the analysis presented here captures for the first time the nature and role of high impact companies across two consecutive business cycles, including the longest peacetime expansion in modern U.S. history and the beginning of the most severe economic downturn since the Great Depression.

Also analyzed for the first time are the gender of high impact company owners, the financial condition of these companies relative to all other enterprises, and the location of high impact companies along a number of new geographic dimensions. To put a face to this class of firms, profiles are provided for select high impact companies across a variety of industries.

Unlike the previous study, there is no discussion of the theoretical linkages between new firm formation and job growth. Instead, this report takes a more practical tack. The focus is on investigating the role high impact companies may play in helping to accelerate job creation throughout the country.

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<sup>2</sup> The employment growth quantifier is the product of a firm's absolute and percent change in employment. For a more detailed description, see section 4.

### **Findings Overview:**

There are, on average, about 350,000 high impact companies in the U.S., representing about 6.3 percent of all companies in the economy. These companies are younger and more productive than all other firms and are found in relatively equal shares across all industries, even declining and stagnant ones. They generate all net jobs in the economy and their job creation capacity is largely immune from the expansions and contractions of the business cycle.<sup>3</sup> The number of woman-owned high impact companies is proportionate to the number of woman-owned non-high impact companies. The status of high impact companies is neither a significant predictor of credit risk nor credit worthiness.

### **High Impact Company Universe:**

On average, there were about 350,000 high impact companies in the U.S. economy in each of the four periods of analysis. This represents about 6.3 percent of all companies in the economy. The greatest share of high impact companies was in the 1-19 employee-size segment, which on average contained nearly 330,000 high impact companies, or about 94 percent of the total universe in a given period. About 5.5 percent of the remaining high impact companies were in the 20-499 segment and approximately .5 percent were in the 500-plus segment. The change in size of the total universe appears to be procyclical, expanding and contracting, within a relatively narrow range, with the expansions and contractions of the business cycle.

### **High Impact Companies and Job Creation:**

U.S.: On average, high impact companies created about 10.7 million jobs in each of the periods of analysis. All other companies shed, on average, about 4.1 million jobs in aggregate per period. From 1994 to 2008, the U.S. economy would have lost about 16.3 million jobs had it not been for

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<sup>3</sup> It should be noted that studying four-year intervals is an imperfect approach to studying business cycles.

the contribution of high impact companies. High impact companies appear to create the most jobs in periods of contraction, though the difference between such periods and periods of expansion are minimal. Said another way, high impact companies' capacity to generate jobs appears to be largely immune from the expansions and contractions of the business cycle.

**SBA Regions:** Almost 75 percent of high impact companies and high impact company jobs are found in five of the 10 SBA regions. Paradoxically, the Northeast Region, which is comprised of New York and New Jersey, contained the least number of high impact companies among the top five regions, yet it produced the most high impact company jobs of all regions.

**High Impact Company Characteristics:**

**Age:** On average, across all periods of analysis and all employee-size segments, high impact companies are younger than all other companies, and the difference in age increases with firm size. The average age of high impact companies in the 1-19 segment is 17 years, which is 5 years younger than all other companies in the same segment. The average age of high impact companies in the 20-499 segment is 25 years, which is 8 years younger than all other companies in the same segment. And the average age of high impact companies in the 500-plus segment is 35 years, which is 16 years younger than all other companies in the same segment.

**Size:** Even though nearly all high impact and non-high impact companies are about the same size at any given period (in both instances about 95 percent of companies are found in the 1-19 employee-size segment), their change in size over time is remarkably different. On average, high impact companies grow in size between 115 and 400 percent. By contrast, nearly all other companies grow by no more than one to six

percent, and the largest firms among this group have consistently experienced nontrivial declines in size ranging, on average, from about 35 to 65 percent.

**Industry:** One might expect a disproportionate share of high impact companies to be found in high-tech industries where technological change has been rapid. But high impact companies are relatively evenly distributed across all sectors of the economy. No industry dominates consistently in its share of high impact companies, and no industry other than museums and membership organizations contains a disproportionately low share of high impact companies.

**Productivity:** Across all industries, employee-size segments, and periods of analysis, high impact companies generate more revenue with the same share of human capital inputs than all other companies. Of the three employee-size segments, the 20-499 segment appears to be the most productive relative to its non-high impact counterparts, as well as to high impact companies in the 1-19 and 500-plus segments. For the period 1994-1998, for instance, high impact companies in the 20-499 segment were about 40 percent more productive than all other companies in the same employee-size segment. During the same period, high impact companies in the 1-19 and 500-plus segment were respectively about 10 and 9 percent more productive than all other firms in the corresponding segments.

**Credit Risk:** In comparing high impact companies to all other companies, the status of high impact company is not a significant predictor of credit risk or worthiness. However, company size as measured by the number of employees is a significant predictor.

Gender: Of the high impact companies existing during the 2004-2008 period, 11.7 percent were woman-owned. Of all other companies existing during the same period, 12.8 percent were woman-owned. These findings indicate that the share of woman-owned high impact companies is virtually the same as that of woman-owned non-high impact firms. Thus the success rate for woman-owned firms achieving high impact status shows negligible difference from their counterparts owned by men. Women created high impact companies at virtually the same rate as men. But the larger the high impact company, the lower the likelihood it will be woman-owned. This same pattern is observed for all other companies. In other words, women-owned firms generally succeed at the same rate as men-owned firms, but women ownership diminishes with increased size, regardless of growth. It seems that as firm size increases, the 'glass ceiling' phenomenon takes a stronger hold.

## 1. INTRODUCTION

The recent recession and its lingering effects have dealt a severe blow to the U.S. Few parts of the economy have suffered as much as the labor market. From December 2007 to June 2009, the official beginning and end of the recession, the economy shed, on net, an average of 374,000 jobs per month. Monthly losses peaked in January 2009 at 779,000. Over the full 18-month period, the economy sustained a total net loss of 6.7 million jobs, or 4.9 percent of all nonfarm jobs in the economy prior to the start of the recession.

Since the recession ended, the economy has lost, on net, an additional 616,000 jobs, bringing the total net job loss from December 2007 to December 2010 to 7.3 million, or 5.3 percent of all nonfarm jobs in the economy prior to the start of the recession. And while the economy has been shedding jobs, America's working-age population has been growing steadily, sending a continuous flow of new workers into the labor force and increasing the total size of the current jobs deficit to about 10.8 million.

Yet bubbling just beneath the losses is a faint trace of positive activity. For 11 consecutive months beginning in January 2010, the private sector added new jobs. Monthly gains peaked in October at 160,000 jobs. Across the full 11-month period, the private sector created about 1.2 million jobs, or an average of 109,000 jobs each month.

Despite these encouraging signs, there is much more work to be done. As President Obama remarked recently in a speech at Forsyth Technical Community College in Winston-Salem, North Carolina, "Plenty of Americans are still without work. Plenty of Americans are still hurting. And our challenge now is to do whatever it takes to accelerate job creation and economic growth."

But, where will the new jobs come from? The simple answer is that they can only come from either the public or private sector, and if history is any guide, the lion's share will come from the latter.

In recent years, the public sector has provided about 16 percent of all jobs in the economy. Assuming it continues to contribute as it has in the recent past—an assumption worth questioning given the sector’s deteriorating finances and recent job cuts across all levels of government—the private sector will need to produce the remaining 84 percent of new jobs, all while facing increasing, and in some instances unprecedented, competition from abroad.

So which firms will create these jobs? In which industries will they operate? Are they likely to be young, mature, or old firms? Will they be small, midsize, or large firms? In short, what do we know today about the firms that will generate tomorrow’s jobs?

Answers to these questions, among others, can advance our understanding of the nature and role of those companies that may be best suited to help accelerate job creation. A deeper understanding may in turn contribute to the development of more effective policies as we seek to address this issue.

This study will attempt to answer these questions. The next section reviews the job creation literature and shows how thinking about job creation has evolved over the last half-century. In the third section, a description of the data and methodology used to identify and analyze a particular class of firms believed to create nearly all net new jobs is outlined, and in the fourth section results are presented. Conclusions and recommendations for further research are provided in the final section.

## **2. THE EVOLUTION OF CONTEMPORARY VIEWS OF JOB CREATION**

Throughout much of the twentieth century, conventional wisdom held that large enterprises were the primary driver of job creation in the U.S. economy. However, in 1979, David Birch overturned this longstanding thesis in his seminal work, *The Job Generation Process*. Birch revealed for the first time a more dynamic economy in which small firms played the principal role in job creation. Most recently, a growing body of research has produced yet another dramatically different picture of job creation—one in which jobs are created not by either small firms or large firms, but rather by a unique class of both small and large firms. Yet to focus on their size is to overlook their most important attributes: innovation and growth.

This section traces the evolution of contemporary thinking about job creation in America. It shows how the facts—and our explanations of them—have changed over the last half-century as new datasets and methods have allowed researchers to view and analyze the economy in ever-increasing detail.

### **2.1 The ‘Poulet Frit Kentucky’ School of Thought**

While on vacation with his family in Quebec in the mid-1970s, economist and Nobel Laureate Robert Lucas stopped for lunch at a small, inexpensive restaurant on the St. Lawrence River. “The décor, the menu, and the service,” he observed of the family-run business, “were unique to it, and reflected a large number of managerial decisions, all solved in a way reflecting both the tastes of the owners and local prices of food and other materials.” He later theorized, “should we return in ten years we shall find a Poulet Frit Kentucky outlet in its place... because rising real wages will make working for someone else more lucrative than the return to making managerial decisions for a single, small restaurant” (Lucas 1978, 522-523).

This ‘trend to bigness,’ as Lucas termed it, was not a view unique to him. Conventional wisdom at the time held that large firms were the primary source of job creation and economic activity in the industrialized world. “Industrial society,” argued Kerr et al. in

their influential book *Industrialism and Industrial Man*, was “distinctively associated with large-scale organizations” (1960, 39).

Buttressing this view of large firms and their role in the economy was a substantial body of research which was, to paraphrase John Kenneth Galbraith, esteemed for its acceptability ([1958] 1998, 8).<sup>4</sup>

The ideas and arguments of many labor and industrial organization economists of the day were based on standard tools of the trade: theory, data, and methods. Their theory of choice was general equilibrium theory, a branch of neoclassical economics that dominated the discipline throughout the twentieth century and continues to do so today. As Kirchhoff and Greene (1995, 155) note in their observations of general equilibrium theory and its relation to job creation, “One assumption in general equilibrium theory, economies of scale, is of special interest to the job creation debate. Combining this assumption with the perfect market assumption of a uniform market price leads to the theoretical conclusion that large firms have lower costs, greater profits, and therefore the greatest profit incentive to expand.”

To test their theory, economists used aggregated government data and comparative statistical analysis, which together produced an outpouring of stylized facts in support of their propositions. Over time, these ideas and arguments contributed to a self-reinforcing cycle that advanced the theory that large firms were the primary source of job creation in the U.S. economy. As with all such cycles it continued in the direction of its momentum until an external force—a new view—intervened and broke it up.

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<sup>4</sup> There is an irony in invoking Galbraith in a discussion reconciling the relative role of large firms in the job creation process. Much of his work, particularly *American Capitalism: The Concept of Countervailing Power* (1952) and *The New Industrial State* (1967), exalted large enterprise. That small business could contribute in a meaningful way to job creation was to him a ‘myth.’ His sentiments in this regard were made clear in 1990 in his endorsement of *Employers Large and Small*, a book that argues, in part, “small employers do not create a particularly impressive share of jobs in the economy...” (Brown, Hamilton, and Medoff 1990, 1-2). Of the book Galbraith stated: “There is nothing more inconvenient and more useful than the book that takes the reader through popular and banal rhetoric to undoubted reality. By attacking and dissolving the popular mythology of the small entrepreneur and the supposed threat of big business, that is precisely what this book does, and with a lucid display of evidence that no one can escape” (Brown, Hamilton, and Medoff 1990, back cover).

## 2.2 The Rise of Small Business

In 1979, David Birch, then director of MIT's Program on Neighborhood and Regional Change, published *The Job Generation Process*. Birch's report was an all-out assault on the received wisdom of the day. Beyond his seminal finding that small firms, not large enterprises, were the principal driver of job creation in the U.S. economy, the data and techniques he marshaled were at odds with existing sources and practices.

Ironically, Birch's work was born of an interest to better understand industrial relocation. He and his research team at MIT were awarded a grant from the U.S. Department of Commerce, Economic Development Administration to investigate the employment effects of interstate firm relocations. As he later recounted about his team's work:

...We came to appreciate how little we knew about the processes by which job creation took place. Most students of the economy have tended to focus on the aggregate measures of economic change flowing out of the GNP accounts, and have not probed the activities of the individual companies that make it all happen....

On the other end of the spectrum, those who have studied the behavior of individual corporations rarely have added up the firms to see how they come together to create the whole...

Frustrated by the inability to relate the micro and the macro, and thereby to discover how change takes place, our group began casting about for a new data source that would permit us to analyze inexpensively a large sample of the entire corporate population, one establishment at a time.<sup>5</sup>

Birch's effort led to the development of a powerful new database that enabled him to peer beneath the surface of the aggregate U.S. economy and assess economic activity at the establishment level. For the first time, the components of job creation and destruction—firm startups, expansions, closures, and contractions—could be studied at the business unit level for the full economy over time.

Analyzing data from 1969 to 1976, Birch found that of all net new jobs created in the U.S. 82 percent were generated by firms with 100 or fewer employees. Larger firms (firms with more than 500 employees), by contrast, generated less than 15 percent of all net new jobs (Birch 1979). "Larger businesses," Birch commented in a follow-up study,

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<sup>5</sup> Birch 1981, 3-4.

“...may be expanding output with more capital equipment... or they may expand by opening operations abroad. Whatever they are doing, however, large firms are no longer the major providers of new jobs for Americans” (1981, 7-8).

This groundbreaking insight opened up an entirely new way of looking at the U.S. economy. Evidence now existed that stood in sharp contrast to the idea that large firms, by virtue of their size and the supposed gains that accrue as a result, were the primary source of job creation. Birch’s research supported a more dynamic view of the economy in which small firms play the principal role in job creation.

In addition to the theoretical implications of his work, Birch’s report bore practical effects as well. It motivated the development of new datasets to investigate his findings and better understand the dynamics of the job generation process (Headd 2010).<sup>6</sup> It also introduced new measurement techniques on par with existing methods (Picot, Baldwin, and Dupuy 1994), and initiated the systematic study of small business.

### 2.2.1 Initial Reaction

As is common with pioneering efforts, Birch’s report received much attention<sup>7</sup> and sparked a storm of research seeking to understand the nature and role of small business. Initial analysis of one aspect of small business activity, job creation patterns, produced mixed results. Findings from some studies were consistent with the small

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<sup>6</sup> The U.S. Small Business Administration, Office of Advocacy commissioned the development of the Small Business Data Base (SBDB) (also known as the United States Establishment and Enterprise Microdata (USEEM)) in response to Birch’s work. Datasets developed in subsequent efforts include: the Longitudinal Research Database (LRD), previously called the Longitudinal Establishment Database (LED); the Business Information Tracking Series (BITS), formerly referred to as the Longitudinal Establishment and Enterprise Microdata (LEEM); the Longitudinal Business Database (LBD); and the Integrated Longitudinal Business Database (ILBD), which is an extension of the LBD. For reviews of each dataset, see Phillips (1983), McGuckin and Pascoe (1988), Robb (2000), Jarmin and Miranda (2002), and Haltiwanger and Jarmin (2007), respectively.

<sup>7</sup> In a review of Birch’s work, Hans Landström (2005, 160-161) records: “Birch’s report not only opened up the field of research, it also received considerable attention from politicians and the media... However, it was not only American politicians who took an interest in Birch’s results. It also attracted great attention in the UK, where Margaret Thatcher was one of the leading advocates of Birch’s study.”

business job creation hypothesis that Birch's empirical work supported. Other findings were inconsistent with it.<sup>8</sup>

#### *2.2.1.1 Research Inconsistent with the Small Business Job Creation Hypothesis*

In 1982, Armington and Odle, senior research analysts with Brookings Institution's Economic Studies program, produced the first serious study to challenge the small business job creation hypothesis. Under contract with the U.S. Small Business Administration, Office of Advocacy, they developed a new dataset modeled after Birch's in an effort to try to reproduce his findings. What they found was that from 1978 to 1980 small businesses created about 40 percent of all net new jobs. This was in stark contrast to Birch's work, which showed that small firms created about 80 percent of net new jobs.

In 1990, Brown, Hamilton, and Medoff wrote *Employers Large and Small*. The authors argued that the contribution of small business to the U.S. economy had been misrepresented in previous research. Underpinning their main contention were eight supporting arguments across a range of topics, which they termed 'elements,' from job generation and the work environment to ownership wealth and political influence. In reference to small business's role in the job creation process, they wrote: "Perhaps the most widespread misconception about small businesses in the United States is that they generate the vast majority of jobs and are therefore the key to economic growth.... Small employers do not create a particularly impressive share of jobs in the economy, especially when we focus on jobs that are not short lived" (Brown, Hamilton, and Medoff 1990, 1-2).<sup>9</sup>

Perhaps the most persuasive and widely cited critique of the small business job creation hypothesis was published in 1993. Davis, Haltiwanger, and Schuh employed a new

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<sup>8</sup> An overview of selected research that helped shape the discussion, particularly in the U.S., is presented here. For a summary of early international research on small business job creation, see, for example, Organisation for Economic Cooperation and Development (1985).

<sup>9</sup> For a critical review of Brown, Hamilton, and Medoff, see, for example, Bruce A. Kirchoff (1991) and Paul D. Reynolds (1991).

technique and dataset, the Longitudinal Research Database (LDR), to compute job creation and destruction in the U.S. manufacturing sector from 1972 to 1988. They also evaluated previous datasets and methods used by other researchers whose findings supported the small business job creation hypothesis. Based on their own calculations of gross job flows, they found that “large firms and plants dominate the creation and destruction of jobs in the U.S. manufacturing sector” (1993, 24). Regarding net job creation, they found “no strong or systematic relationship between net job growth rates and either firm or plant size” (ibid.). In relation to their evaluation of earlier research, they drew two conclusions: the research rested on misleading interpretations of the data and the data that supported the research were unsuitable for the analysis.<sup>10</sup>

#### *2.2.1.2 Research Consistent with the Small Business Job Generation Hypothesis*

In 1986, in a follow-up effort to her 1982 study, Armington extended her analysis to include the 1976-1982 timeframe—a period more in line with, although not exactly parallel to, the period Birch analyzed in his 1979 study. Whereas in the 1982 report Armington and Odle had found that small businesses generated about 40 percent of net new jobs, in the 1986 report Armington found they accounted for 53 percent of new jobs. While the results were more consistent with Birch’s findings and the small business job creation hypothesis, they did not account for the full discrepancy, although what Armington stumbled upon in her analysis did help to shed light on the difference. In her investigation she discovered a new aspect of job generation dynamics. She found that “firms of different sizes make different employment contributions at different stages of the business cycle” (Dennis and Phillips 1994, 26). During periods of expansion large firms tend to increase their employment, whereas in periods of decline they tend to reduce employment. Small firms, on the other hand, tend to increase their employment during periods of decline and expansion. Armington and Odle’s initial study covered only a period of expansion. It therefore stood to reason that large firms would show a greater share of job creation in the 1982 study.

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<sup>10</sup> For a critical review of Davis, Haltiwanger, and Schuh, see, for example, Carree and Klomp (1996) and Davidsson, Lindmark, and Olofsson (1998).

In 1987, Birch produced an extensive update to his original work. Relying on the same techniques he had previously employed, he analyzed the period 1981-1985 and found that 88 percent of all net new jobs were created by enterprises with 1-19 employees, and enterprises with fewer than 100 employees accounted for nearly all net job creation.

In the wake of Birch's updated findings, Kirchoff and Phillips examined the relative contribution of small and large firms to U.S. job creation by each of the four components of job change: firm entry, firm expansion, firm contraction, and firm exit. Relying heavily on results from Armington (1986) and drawing on the SBA Office of Advocacy's Small Business Data Base (SBDB) for the period 1976-1984, they found "conclusive evidence that small firms are the major source of net new job creation with strongest performance in periods of economic recession" (Kirchoff and Phillips 1988, 271).

### 2.2.2 Lingerin Differences

By the early 1990s, nearly fifteen years after the publication of Birch's seminal work, lingering differences in the literature centered principally on methodological concerns. As noted earlier, Davis, Haltiwanger, and Schuh (1993) put forth what is perhaps the most persuasive challenge to the small business job creation hypothesis. Their critique rested on two lines of argument, the more compelling of which dealt with the method by which previous researchers accounted for job change. The authors claimed earlier research relied on a measurement technique—"base-year" analysis—that suffered from a "statistical pitfall known as the regression fallacy or the regression-to-the-mean bias" (15). Employing this technique, they held, "paints an overly favorable picture of the relative job growth performance of small employers" (18). To cure this statistical shortcoming, the researchers employed a new technique—"current average size" analysis—to compute job change, arguing that their method eliminated the bias characteristic of the base-year approach. In calculating job change using their method, the authors found "no strong or systematic relationship between net job growth rates

and either firm or plant size” (24). In other words, they found no evidence that small firms accounted for a disproportionate share of net job growth—at least in the U.S. manufacturing sector from 1972 to 1988, which was the sector and period to which their analysis applied. Their finding cast doubt on the small business job creation hypothesis and the empirical work in support of it.

In 1994, Picot, Baldwin, and Dupuy, researchers with Statistics Canada and the Canadian Institute for Advanced Research, arrived at a different conclusion. Acknowledging the statistical bias of the base-year approach, the authors set out to determine “what impact the various measurement issues can have on the calculation of net and gross employment change by firm size” (4). Using a longitudinal database of the entire Canadian economy covering a full business cycle (Davis, Haltiwanger, and Schuh [1993] relied on a database of just the U.S. manufacturing sector), the authors tested the four methods Davis, Haltiwanger, and Schuh (1993) used, in addition to their own method. They found that “both gross job gain and job loss, as well as net employment increase, is disproportionately located in small firms, no matter which measure is used...” (Picot, Baldwin, and Dupuy 1994, 19). “And while measurement issues are important,” they continued, “the application of different measures influences the magnitude, although not the overall direction, of the results” (ibid.).

Differences regarding methodology remain in the literature and may persist well into the future as illustrated by the Davis, Haltiwanger, and Schuh (1993)/Picot, Baldwin, and Dupuy (1994) debate. Further evidence of existing differences can be found in a more recent study by Haltiwanger, Jarmin, and Miranda (2010). Using the Census Bureau’s Longitudinal Research Database (LRB)—the first time the LRB has been used for these purposes—the authors revisit the small business job creation hypothesis, but from a different methodological perspective. Controlling for firm age, the authors find “the negative relationship between firm size and net growth disappears and may even reverse sign as a result of relatively high rates of exit amongst the smallest firms” (2010, 30).

### 2.3 Toward A High Impact Hypothesis

In an unlikely turn of events in 1994, Birch, a leading proponent of the small business job creation hypothesis, and Medoff, one of its earliest and most strident critics, collaborated “in order to find some common ground in the debate” (Landström 2005, 168). Among the conclusions they reached was that a small class of firms was responsible for generating a large portion of all new jobs in the U.S. economy. Analyzing data from 1988 to 1992, Birch and Medoff found that about 4 percent of companies generated 70 percent of all new jobs among ongoing firms and 60 percent of jobs across all firms. The companies, which they referred to as ‘gazelles,’ employed on average 61 people and were represented in near equal share across all industries. (Birch and Medoff 1994).<sup>11</sup>

Since the Birch-Medoff collaboration, a number of other studies have analyzed this unique class of firms, termed ‘high impact companies’ for the balance of this report, and the role they play in the job generation process and all have reached the same general conclusion.

In 1995, Birch, Haggerty, and Parsons affirmed the Birch-Medoff findings. Analyzing the period 1990-1994, they found that high impact companies made up 3 percent of all businesses in the U.S. economy and generated all net job growth for the period. Eighty-two percent of the companies employed fewer than 19 people and about 3.5 percent had 100 or more employees.

Henrekson and Johansson (2008) surveyed 20 studies analyzing high impact companies in nine countries, including the two reports cited above. Acknowledging that the studies used different definitions, methods, and time periods, the authors noted: “Sometimes this is a drawback since comparability may be impaired. However, in this case the large

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<sup>11</sup> The gazelle phenomenon was observed as early as 1981, but it was not discussed in the literature as such until the late 1980s and early 1990s. For early observations of the phenomenon in the U.S., see Birch (1981) and Teitz, Glasmeier, and Svensson (1981). In addition to ‘gazelles,’ several other terms have been used to refer to this class of firms, including ‘flyers,’ ‘high growth small and medium-sized enterprises (HGSMES),’ ‘rapid growth firms,’ and ‘high growth companies.’

variation should be seen as an advantage, since the results regarding the importance of [high impact companies] turn out to be quite robust” (240). Henrekson and Johansson’s analysis found that “a few rapidly growing firms generate a disproportionately large share of all new net jobs... [they] can be of all sizes [though] small firms are overrepresented... [and they] exist in all industries” (ibid.).

Assessing the job creation performance of firms in the U.S. for three four-year periods from 1994 to 2006, Acs, Parsons, and Tracy (2008) found that high impact companies created nearly all net job growth in the economy over all periods of analysis, and small and large high impact firms contributed in nearly equal shares. Most recently, Stangler found that the top 5 percent of companies in the U.S. creates two-thirds of new jobs in any given year. “High-growth firms,” he states, “represent the most fertile source of new job creation and, in many areas, the only way in which the economic future comes into being” (2010, 12).

This recent body of research stands in sharp contrast to previous thinking about job creation in the U.S. Mounting evidence now suggests that the principal drivers of job creation are not either small firms or large firms, but rather a unique class of both small and large firms. Yet to focus on their size is to overlook their most important attributes: innovation and growth.

Given the growing evidence of the role that high impact companies play in job creation, gaining a better understanding of these firms may help to create new policies (or alter existing ones) that enhance their unique contributions to the job generation process. The next two sections attempt to provide a deeper understanding of these firms. Section 4 will outline the data and methods used to identify and analyze high impact companies and section 5 will provide results of the analysis. Areas for further research are discussed in the final section.

### **3. DATA AND METHODS**

A recent, comprehensive study of the U.S. business data system conducted by the National Research Council found the system to be “inadequate for understanding many of the mechanisms leading to greater productivity and innovation or the dynamics of firm and job creation” (2007, 2). The report further noted that while U.S. statistical agencies have markedly improved the measurement of business activity over the past decade, substantial gaps remain. Corporate Research Board (CRB) has developed the Longitudinal Research Database of High Impact Companies (LRDHIC) to help fill this gap and permit the analysis of one of the most important class of firms in the U.S. economy.

#### **3.1 High Impact Companies Longitudinal Research Database**

The LRDHIC is the only database of its kind in the country. It contains establishment-level data at four-year annual intervals for all high impact companies in the U.S. at a given point in time. The file is constructed by drawing from a large sample of firms—about 15 million in the most recent period of analysis—across all sectors in the U.S. economy.<sup>12</sup> Data in the LRDHIC allow for the classification of firms by a variety of firmographic details, including company type, size, and industry.

#### **3.2 Definition of High Impact Companies**

Though there is no single definition of ‘high impact company,’ many of the earliest definitions were based solely on revenue growth.<sup>13</sup> A limitation of this approach is that it does not take into account employment change. This is an important policy consideration for government. In fact, a nontrivial number of firms classified according to earlier definitions do not contribute to employment growth, and some even shed jobs. For the purposes of this analysis, high impact companies must have contributed to sales and employment growth. More specifically, high impact companies are defined as firms whose sales have at least doubled over a four-year period and which have an

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<sup>12</sup> In developing the LRDHIC, CRB also draws from a sample of about 5 million sole proprietorships. Data were derived from a number of sources, including many private sector sources. The LRDHIC has a number of limitations due to its data sources. Among them are the limitations with capturing startups and young firms, thus making this analysis imperfect.

<sup>13</sup> See, for example, Birch and Medoff (1994) and Birch, Haggerty, and Parsons (1995).

employment growth quantifier of two or more over the same period. The employment growth quantifier (EGQ) is the product of a firm's absolute and percent change in employment. The EGQ helps to mitigate the bias of computing change statistics solely on the basis of either absolute or percent terms. To keep the results consistent with, and comparable to, this study's predecessor report, high impact companies are organized into three employee-size segments: 1-19, 20-499, and 500-plus.

### **3.3 Periods of Analysis**

In the previous report, high impact companies were analyzed over three four-year periods: December 31, 1994-December 31, 1998 (1994-1998); December 31, 1998-December 31, 2002 (1998-2002); and December 31, 2002-December 31, 2006 (2002-2006). By using three periods of analysis, authors of the report were able to analyze the disposition of firms before and after they became high impact companies, providing new insight into the nature of this important class.

In this study, the analysis was updated by including the most recent four-year period for which reliable data were available: June 30, 2004-June 30, 2008 (2004-2008). With the addition of this four-year period, the analysis presented here captures for the first time the nature and role of high impact companies across two consecutive business cycles, including the longest peacetime expansion in modern U.S. history and the beginning of the most severe economic downturn since the Great Depression.

By 1994 the U.S. economy had begun to experience robust growth, having emerged from the 1989-1992 recession. Even California, which had been hit particularly hard by military base realignments, had begun to recover by 1994. Throughout the next six years, fueled by the dot.com boom, the economy continued to expand at a rate of about four percent per year until 2000, marking the longest peacetime expansion in modern U.S. history. Over the course of the full expansion from 1993 to 2000, the economy produced about 24 million jobs. From 2000 to 2002, the economy lost about two million jobs as a result of the collapse of the dot.com bubble. In 2003, as housing prices began to rise, the economy entered its most recent period of expansion, generating about 8

million jobs through the end of 2007. In January 2008, the economy began to decline, losing nearly 670,000 jobs on net in the first six months of the year. Eighteen months later, the economy lost about seven million more jobs, on net, thereby giving up nearly all job gains from 2003 to 2007 and marking the second deepest job loss in American history.

The analysis presented here covers much of this activity, starting in 1994 as the economy began the first expansion and ending in 2008.

### 3.4 Unit of Analysis and Measuring Techniques

The unit of analysis used to identify high impact companies is the firm—a business organization consisting of one or more establishments that are under common ownership or control. Throughout this report, the employment statistics used are those reported at the firm, not the establishment, level. Employment change statistics are computed by subtracting employment figures at the beginning year of analysis ( $t_1$ ) from figures at the end year of analysis ( $t_1 + n$ ). In crediting the employment change to an employee-size segment, a base-year approach is used whereby firm-level changes that occur during an interval ( $n$ ) are credited to the employee-size segment to which the firm belonged at the beginning of the period of analysis.<sup>14</sup>

By way of illustration, assume there were three high impact companies in the U.S. from 2005 to 2009. Further assume each company performed as outlined in Table 1. In this example, the high impact company belonging to the 1-19 segment experienced a change

Employee-Size Segment	HIC Employee Size 2005	HIC Employee Size 2009	Size Change 2005-2009	Segment Credited
1-19	5	195	190	1-19
20-499	50	690	640	20-499
500-plus	500	3,000	2,500	500-plus

<sup>14</sup> As noted above, Davis, Haltiwanger, and Schuh (1993) have demonstrated that this approach suffers from the statistical flaw known as regression-to-the-mean bias. However, Picot, Baldwin, and Dupuy (1994) have shown that any effect the approach has is one of magnitude, not overall direction. Moreover, alternative solutions, including those proposed by Davis, Haltiwanger, and Schuh (1993), are not themselves free of weaknesses (Picot, Baldwin, and Dupuy 1994).

in employment of 190 during the period 2005-2009. The 190 jobs were credited to the 1-19 employee-size segment. The segment that created the greatest number of jobs over the period was the 500-plus segment, which generated 2,500 new jobs from 2005 to 2009.

### **3.5 Research Questions**

The purpose of this report is to analyze the nature of high impact companies and the role they play in job creation, and to assess whether their nature and role have changed in light of the recent recession. To this end, the following questions have been investigated. Nearly all questions are analyzed over time and in relation to all other companies in the U.S. ('non-high impact companies').

#### Questions About the Universe of High Impact Companies

1. How many high impact companies are there in the U.S. economy?
2. How do high impact companies compare to traditional high growth firms?
3. What is the ratio of high impact companies to all other companies?

#### Firmographic Questions About High Impact Companies

1. How old are high impact companies?
2. What size are high impact companies (in employment terms)?
3. In what industries are high impact companies located?

#### High Impact Company Performance Questions

1. What share of new jobs do high impact companies generate?
2. How productive are high impact companies?
3. How volatile are high impact companies?

#### Questions About High Impact Company Ownership and Financial Condition

1. What share of high impact companies are owned by women?
2. What is the financial condition of high impact companies?

## **4. FINDINGS**

This section provides answers to the questions posed in the previous section. Findings related to the universe of high impact companies are presented first, followed by high impact companies' contribution to job creation. To put a face to this class of firms, profiles are provided for selected high impact companies across a variety of industries, and characteristics about these firms are then presented.

### **4.1 High Impact Company Universe**

The top panel of Table 2 on the following page provides the total number of high impact companies for the four periods of analysis. Counts are also provided by employee-size segment for three categories: 1-19 employees, 20-499 employees, and 500-plus employees. The bottom panel provides statistics for traditionally defined high growth companies, referenced in the table as 'gazelles.' Using the original definition, gazelles are firms whose sales have increased by at least 20 percent per year over the four-year period of analysis (Birch et al. 1995).

On average, there were about 350,000 high impact companies in the U.S. economy in each of the four periods of analysis. The greatest share was in the 1-19 segment, which on average contained nearly 330,000 high impact companies, or about 94 percent of the total universe in a given period. On average, about five and a half percent of the remaining high impact companies were in the 20-499 segment and approximately a half percent was in the 500-plus segment.

The change in size of the total universe appears to be procyclical, or expanding and contracting, within a relatively narrow range, with the expansions and contractions of the business cycle. In the 1994-1998 period, there were 352,114 high impact companies. In the subsequent period, there were 299,973 companies—about 50,000 fewer, reflecting the downturn associated with the 2000-2002 dot.com recession. The universe of high impact companies expanded to 376,605 in 2002-2006, corresponding with the economic expansion fueled by the housing boom throughout much of the period. Most recently, the universe contracted by about 8,000 companies from 2004 to 2008,

reflecting the early impact of the latest recession, which began officially in December 2007, though the housing market in many areas of the country had peaked more than a year earlier and had begun declining rapidly by the first quarter of 2007.

<b>Table 2. Universe of High Impact Companies and Gazelles</b>		
<b>Number of Employees</b>	<b>Period</b>	<b>Number of HICs</b>
1-19	1994-1998	327,397
	1998-2002	278,190
	2002-2006	359,289
	2004-2008	350,996
20-499	1994-1998	23,464
	1998-2002	20,601
	2002-2006	16,523
	2004-2008	16,424
500-plus	1994-1998	1,253
	1998-2002	1,182
	2002-2006	793
	2004-2008	842
Total	1994-1998	352,114
	1998-2002	299,973
	2002-2006	376,605
	2004-2008	368,262
<b>Number of Employees</b>	<b>Period</b>	<b>Number of Gazelles</b>
1-19	1994-1998	309,160
	1998-2002	301,275
	2002-2006	283,308
	2004-2008	265,875
20-499	1994-1998	43,342
	1998-2002	42,390
	2002-2006	39,617
	2004-2008	40,771
500-plus	1994-1998	1,547
	1998-2002	1,665
	2002-2006	1,485
	2004-2008	1,624
Total	1994-1998	354,049
	1998-2002	345,330
	2002-2006	324,410
	2004-2008	308,270

Source: Corporate Research Board, LRDHIC Database (2008).

Given its relative size to the total universe, it is not surprising that the 1-19 segment follows the same procyclical pattern. Since the segment comprises about 94 percent of all companies in the universe, it dictates the direction of change.

The procyclical pattern does not hold for the two larger employee-size segments. In the 20-499 segment, an initial contraction was followed by a second and third contraction. In other words, the number of high impact companies in the 20-499 segment declined steadily from a peak of 23,464 in the first period to 16,424 in the final period. In the 500-plus segment, the initial contraction was followed by a second contraction, as with the 20-499 segment. But in the final period, unlike either the 20-499 or 1-19 segment, the 500-plus segment experienced a moderate increase in the number of high impact companies.

In relation to gazelles, high impact companies exhibit some similarities and some differences. In terms of similarities, the total size and distributional patterns of both universes are quite similar. There are on average about 330,000 gazelles in a given period, which compares nicely to the number of high impact companies (350,000). It is unexpected, however, that the number of high impact companies exceeds the number of gazelles, given the more restrictive criteria used to define them. In terms of distributional patterns, the employee-size segment containing the most gazelles and high impact companies is the 1-19 segment, and the segment with the least is the 500-plus segment.

There are also clear differences between the two universes. For example, while the distributional pattern of gazelles and high impact companies is the same by employee-size segment, composition differs. On average, about 94 percent of all high impact companies are in the 1-19 segment. This compares to about 87 percent of all gazelles. The same holds for the 20-499 segment. Approximately five and a half percent of high impact companies are in the 20-499 segment and the remaining half percent is in the 500-plus segment. By contrast, 12.5 percent of gazelles are in the 20-499 segment, more than double the number of high impact companies in the corresponding segment.

A second difference relates to the nature of the change in the universes over time. As noted, the change in the high impact company universe appears procyclical. This pattern holds for the 1-19 employee-size segment but does not for the two larger segments. By

contrast, the total gazelle universe decreases over all four periods of analysis. This observation holds for the 1-19 segment and for 20-499 segment, except for the 2004-2008 period. The 500-plus segment exhibits countercyclical change patterns, meaning the number of gazelles in the segment expand during periods of contraction and contract during periods of expansion.

Table 3 presents summary statistics on the ratio of high impact companies to all other firms for the four periods of analysis. Figures representing all other companies were derived from the Statistics of U.S. Businesses (SUSB) database. The data represent the total number of employer firms in the U.S. economy as of March 1994, 1998, 2002, and 2004. Of course, using a different denominator would yield a different rate.

The share of high impact companies increases and decreases with the expansions and contractions of the broader economy—an expected finding given the gradual increase in the total number of employer firms over the four periods of analysis and the procyclical change pattern of the high impact company universe.

<b>Table 3. Ratio of High Impact Companies to All Other Companies, by Period of Analysis</b>				
	<b>1994-1998</b>	<b>1998-2002</b>	<b>2002-2006</b>	<b>2004-2008</b>
High Impact Companies	352,114	299,973	376,605	368,262
All Other Companies	5,276,964	5,579,177	5,697,759	5,885,784
HIC Ratio	6.7	5.5	6.6	6.3

Source: Corporate Research Board, LRDHIC Database (2008) and SUSB Database (1994-2004).

In sum, there were on average about 350,000 high impact companies in the U.S. for a given period of analysis, representing on average about 6.3 percent of all companies in the economy. About 94 percent of high impact companies have 1-19 employees and about a half percent has 500 or more. The total universe of high impact companies exhibits a procyclical change pattern, expanding and contracting over time with the ups and downs of the business cycle, though this pattern does not hold for all employee-size segments. Moreover, the change pattern stands in contrast to the universe of gazelles, which has declined steadily from 1994 to 2008.

## 4.2 High Impact Companies and Job Creation

As noted in Section 2, there is a growing body of research that suggests that the principal drivers of job creation are not either small firms or large firms, but rather a unique class of both small and large firms. This section analyzes, in part, the contribution these companies make to job growth and finds clear evidence in support of a high impact hypothesis. For the first time, high impact company jobs data are presented for each SBA region and all urban and rural areas in the U.S.

### 4.2.1 United States

On average, high impact companies created about 10.7 million jobs in the U.S. for each period of analysis. Non-high impact companies shed, on average, about 4.1 million jobs in aggregate per period. From 1994 to 2008, the U.S. economy would have lost about 16.3 million jobs had it not been for the contribution of high impact companies.

As Table 4 shows, while high impact companies were creating 100-plus percent of all net jobs in the economy for a given period, all other firms were shedding jobs in aggregate. For example, in the 1998-2002 period, high impact companies created about 11.7 million jobs. During the same period, all other firms lost 8.9 million jobs.

High impact companies appear to create the most jobs in periods of contraction, though the difference between such periods and periods of expansion are minimal. In other words, high impact companies' capacity to generate jobs appears to be immune from the expansions and contractions of the business cycle.

**Table 4. High Impact Company Job Creation, by Period of Analysis**

Period	Total High Impact Companies (HIC)	Total HIC Job Change	Total US Job Change	Total US Non-HIC Job Change
1994-1998	352,114	11,460,747	11,302,000	-158,747
1998-2002	299,973	11,736,316	2,824,000	-8,912,316
2002-2006	376,605	9,009,760	6,690,000	-2,319,760
2004-2008	368,262	10,727,618	5,843,000	-4,884,618

Source: Corporate Research Board, LRDHIC Database (2008) and Bureau of Labor Statistics, Current Employment Statistics Survey (1994-2008).

Note: U.S. jobs data represent total net change in nonfarm payrolls.

Table 5 presents data on high impact company job creation by employee-size segment. On average, small high impact companies—that is, those companies in the 1-19 and 20-499 segments—created about 6.1 million (or 57 percent) of all jobs generated by high impact companies in a given period. Large high impact companies (500-plus segment), by contrast, created about 4.6 million (or 43 percent) of all jobs generated by high impact companies in a given period.

<b>Employee-Size Segment</b>	<b>Period</b>	<b>Total High Impact Companies (HIC)</b>	<b>Total HIC Job Change</b>
1-19	1994-1998	327,397	3,170,729
	1998-2002	278,190	3,577,111
	2002-2006	359,289	4,041,099
	2004-2008	350,996	4,119,926
20-499	1994-1998	23,464	2,788,969
	1998-2002	20,601	2,966,647
	2002-2006	16,523	2,001,835
	2004-2008	16,424	1,845,198
500-plus	1994-1998	1,253	5,501,049
	1998-2002	1,182	5,192,558
	2002-2006	793	2,966,826
	2004-2008	842	4,762,494
Total	1994-1998	352,114	11,460,747
	1998-2002	299,973	11,736,316
	2002-2006	376,605	9,009,760
	2004-2008	368,262	10,727,618

Source: Corporate Research Board, LRDHIC Database (2008).

#### 4.2.2 SBA Regions

There are ten SBA regions in the U.S. Each region is comprised of two or more states and has an established regional office, which works with each SBA state office to advocate and accelerate economic development, growth, and competitiveness within their geographic area. (For a list of regions and corresponding states, see Appendix B.)

Table 6 on the following page presents by SBA region the total number of high impact companies and all high impact jobs created during the 2004-2008 study period. Also provided are all high impact companies and jobs created for the same period by urban and rural area within each SBA region. An urban area is defined as a metropolitan statistical area (MSA). Rural areas are all non-MSA areas.

At first glance, perhaps the most striking statistic in Table 6 is that nearly 85 percent of all high impact companies are located in urban areas. This finding is less compelling when considering that nearly 80 percent of all people in the U.S. reside in urban areas.

Almost 75 percent of high impact companies and high impact company jobs are found in five of the 10 SBA regions. Paradoxically, the Northeast had the least number of high impact companies among the top five regions, yet it produced the most high impact company jobs of all regions. In other words, high impact companies in the Northeast are producing more jobs per company than other top performing regions. This observation may be a function of industry structure. Perhaps industries with a greater share of human capital needs are located in the Northeast—a plausible hypothesis when considering the Northeast region is comprised of New York and New Jersey, states with high shares of economic activity in the professional services industries, the principal production variable of which is human capital.

**Table 6. High Impact Company Job Creation, by SBA Region and Urban/Rural Area (2004-2008)**

SBA Region	Total Region HICs		Urban HICs		Rural HICs	
	HICs	HIC Jobs	HICs	HIC Jobs	HICs	HIC Jobs
Region 1 – New England	17,202	652,312	14,901	604,288	2,301	48,024
Region 2 – Northeast	28,958	1,735,387	27,642	1,720,998	1,316	14,389
Region 3 – Mid Atlantic	31,744	889,570	27,111	828,709	4,633	60,861
Region 4 – Southeast	87,915	1,699,080	73,769	1,535,625	14,146	163,455
Region 5 – Great Lakes	52,964	1,595,609	42,153	1,436,436	10,811	159,173
Region 6 – South Central	41,057	1,530,033	34,137	1,442,068	6,920	87,965
Region 7 – Midwest	15,181	429,093	9,302	355,190	5,879	73,903
Region 8 – Rocky Mountain	15,658	280,982	10,612	223,160	5,046	57,822
Region 9 – Southwest	59,888	1,482,878	57,282	1,452,069	2,606	30,809
Region 10 – Pacific Northwest	17,515	430,103	12,770	366,833	4,745	63,270
Total U.S.	368,082	10,725,047	309,679	9,965,376	58,403	759,671

Source: Corporate Research Board, LRDHIC Database (2008).

Note: The total high impact companies and total high impact company jobs presented here do not sum to the total for the same period in Table 5 on the previous page due to absence of state, county, and/or MSA geography codes on some records in the LRDHIC Database.

#### 4.2.3 MSA Rankings

Given the findings above, it is not surprising to learn that New York, NY is the top ranking MSA by total number of high impact company jobs. What is perhaps somewhat surprising is that Oklahoma City, OK ranks 4th, and Providence, RI, Detroit, MI, and

**Table 7. High Impact Company Job Creation, by MSA (2004-2008)**

Rank	MSA	HICs	HIC Jobs
1	New York, NY	24,059	1,673,647
2	Los Angeles, CA	23,296	533,024
3	San Francisco, CA	10,460	476,429
4	Oklahoma City, OK	1,303	444,436
5	Washington, DC	10,970	412,876
6	Chicago, IL	9,373	365,604
7	Minneapolis-St. Paul, MN	4,280	314,107
8	Dallas-Fort Worth, TX	8,133	259,168
9	Boston, MA	7,319	254,308
10	Houston, TX	6,864	219,220
11	Seattle, WA	5,187	218,167
12	Atlanta, GA	8,591	188,775
13	Providence, RI	1,168	188,267
14	San Antonio, TX	1,836	179,591
15	Philadelphia, PA	6,316	175,073
16	Charlotte, NC	2,457	159,472
17	Nashville, TN	1,908	156,534
18	Miami, FL	11,789	147,903
19	Detroit, MI	5,359	146,229
20	Phoenix, AZ	4,780	117,027
21	West Palm Beach, FL	3,565	111,776
22	Denver, CO	4,675	109,823
23	St. Louis, MO	2,925	105,285
24	Tampa, FL	4,841	97,338
25	Columbus, OH	2,006	97,154
26	Portland, OR	3,949	91,438
27	Pittsburgh, PA	2,470	91,176
28	Wichita, KS	658	86,246
29	Cleveland, OH	2,895	83,114
30	San Diego, CA	4,951	81,305
31	Indianapolis, IN	1,829	73,374
32	Cincinnati, OH	1,917	66,442
33	Austin, TX	2,239	64,951
34	Las Vegas, NV	2,570	61,836
35	Jacksonville, FL	2,275	54,837
36	Orlando, FL	4,230	51,638
37	Kansas City, MO-KS	2,159	51,526
38	Salt Lake City, UT	2,076	50,078
39	Milwaukee, WI	1,786	43,633
40	Sacramento, CA	2,476	40,752
41	Birmingham, AL	1,158	36,468
42	Omaha, NE	875	36,075
43	York, PA	382	35,249
44	Louisville, KY	1,643	34,758
45	Greensboro--Winston-Salem, NC	1,773	34,366
46	Raleigh-Durham, NC	2,326	34,078
47	Tulsa, OK	973	33,653
48	Fort Myers, FL	1,590	32,328
49	Norfolk-Virginia Beach, VA	1,700	29,990
50	Sarasota, FL	1,626	29,773

Source: Corporate Research Board, LRDHIC Database (2008).

York, PA rank 13th, 19th, and 43rd, respectively. These findings, along with the other rankings presented in Table 10, are consistent with previous research that shows high impact companies and the jobs they generate are located throughout all areas of the U.S. No single area or region dominates.

### 4.3 High Impact Company Profiles

To put a face to high impact companies, this section presents nine high impact company profiles across three industry groups and three employee-size segments. Using 2004-2008 employment growth rates at the 3-digit NAICS level, all industries in the U.S. were classified as ‘growing,’ ‘average performing,’ or ‘declining.’ An average performing industry is one where aggregate employment growth was between 0 and 10 percent from 2004 to 2008. A growing industry had aggregate employment growth above 10 percent, and a declining industry experienced aggregate employment decline.

<b>Table 8. Profile Selection Matrix</b>			
<b>Industry Group</b>	<b>1-19</b>	<b>20-499</b>	<b>500+</b>
<b>Growing</b>	20	20	20
<b>Average Performing</b>	20	20	20
<b>Declining</b>	20	20	20

As illustrated in Table 8, in selecting high impact companies, a random sample of 20 companies was drawn from each industry group and employee-size segment 1-19, 20-499, and 500+ for a total of nine samples of 20. One high impact company was selected from each sample and is profiled below. Each profile provides information about the high impact company and the industry in which it operates. The information presented was obtained from Corporate Research Board’s Longitudinal Research Database of High Impact Companies (LRDHIC), company websites, interviews, and Federal government statistical agencies.

### 4.3.1 Average Performing Industries

From 2004 to 2008, there were 36 average performing industries found in virtually every sector of the U.S. economy, from Agriculture and Forestry Support (NAICS 115) to Amusement, Gambling, and Recreation (NAICS 713). Despite their mediocre performance, thousands of high impact companies flourished in these industries throughout the 2004-2008 period. Three high impact companies are featured here from the engineering services; metal fabrication; and veterinary services industries.

#### *4.3.1.1 Engineering Services (NAICS 541330)*

This industry comprises establishments primarily engaged in applying physical laws and principles of engineering in the design, development, and utilization of machines, materials, instruments, structures, processes, and systems. The assignments undertaken by these establishments may involve any of the following activities: provision of advice, preparation of feasibility studies, preparation of preliminary and final plans and designs, provision of technical services during the construction or installation phase, inspection and evaluation of engineering projects, and related services. According to the U.S. Census Bureau's Economic Census, in 2007 the engineering services industry had 58,391 establishments generating \$187.5 billion in annual sales and employing 977,031 people with a total annual payroll of \$71.8 billion.<sup>15</sup>

High Impact Company: **Allied Reliability**

Years in Business: **14**

Location: **Charleston, SC**

Website: **[www.alliedreliability.com](http://www.alliedreliability.com)**

Description: Allied Reliability uses a customized, integrated approach to identify defects in assets utilizing predictive maintenance (PdM) and condition monitoring (CBM) services. Since its founding in 1997, the company has expanded its service footprint and is now one of the largest consulting, engineering, training, and service firms focused on predictive and preventive maintenance.

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<sup>15</sup> The statistics cited here do not include figures from nonemployer establishments operating in the industry. Nonemployer establishments are businesses that have no paid employees. Most nonemployers are self-employed individuals operating very small unincorporated businesses, which may or may not be the owner's principal source of income.

#### *4.3.1.2 Fabricated Structural Metal Manufacturing (NAICS 332312)*

This industry comprises establishments primarily engaged in transforming metal into products by shaping individual pieces of metal through forging, stamping, bending, forming, and machining, and joining separate metal pieces together through welding, assembling, and other processes. According to the U.S. Census Bureau's Economic Census, in 2007 the fabricated structural metal manufacturing industry had 3,698 establishments generating \$32.5 billion in annual sales and employing 116,311 people with a total annual payroll of \$5.1 billion.<sup>16</sup>

High Impact Company: **New Century Fabricators**      Years in Business: **23**

Location: **New Iberia, LA**

Website: **[www.newcenturyfab.com](http://www.newcenturyfab.com)**

Description: Founded in 1988, New Century Fabricators (NCF) is a family-owned HUBZone-certified company. NCF provides fabrication services and offshore construction to the oil and gas industry.

#### *4.3.1.3 Veterinary Services (NAICS 541940)*

This industry comprises establishments of licensed veterinary practitioners primarily engaged in the practice of veterinary medicine, dentistry, or surgery for animals; and establishments primarily engaged in providing testing services for licensed veterinary practitioners. According to the U.S. Census Bureau's Economic Census, in 2007 the veterinary services industry had 28,400 establishments generating \$24.6 billion in annual sales and employing 292,940 people with a total annual payroll of \$8.5 billion.<sup>17</sup>

High Impact Company: **VCA Antech**      Years in Business: **25**

Location: **Los Angeles, CA**

Website: **[www.vcaantech.com](http://www.vcaantech.com)**

Description: VCA Antech is a provider of pet health care services throughout the U.S. The strength of the company lies in the connection between its national network of 530 free-standing animal hospitals and its clinical laboratory system, which provides diagnostic laboratory services for its hospitals throughout the country.

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<sup>16</sup> Ibid.

<sup>17</sup> Ibid.

### 4.3.2 Growing Industries

From 2004 to 2008, there were 15 industries at the 3-digit NAICS level that had an aggregate employment growth rate of more than 10 percent. Three high impact companies are featured here from the waste management and remediation services, oil and gas support activities, and business support services industries.

#### *4.3.2.1 Waste Management and Remediation Services (NAICS 562)*

This industry comprises establishments primarily engaged in the collection, treatment, and disposal of waste materials. This includes establishments engaged in local hauling of waste materials; operating materials recovery facilities (i.e., those that sort recyclable materials from the trash stream); providing remediation services (i.e., those that provide for the cleanup of contaminated buildings, mine sites, soil, or ground water); and providing septic pumping and other miscellaneous waste management services. According to the U.S. Census Bureau's Economic Census, in 2007 the waste and remediation services industry had 21,787 establishments generating \$75.2 billion in annual sales and employing 386,205 people with a total annual payroll of \$16.8 billion.<sup>18</sup>

High Impact Company: **Atlantic Response**    Years in Business: **14**

Location: **East Brunswick, NJ**

Website: **[www.atlanticresponse.com](http://www.atlanticresponse.com)**

Description: Atlantic Response was founded in 1997. The family-owned business offers spill cleanup and maintenance services throughout New Jersey and parts of New York, Delaware, and Pennsylvania. Its services include marine spill response, hazardous material spills, land oil spills, and industrial services.

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<sup>18</sup> Ibid.

#### *4.3.2.2 Support Activities for Oil and Gas Operations (NAICS 213112)*

This industry comprises establishments primarily engaged in performing support activities on a contract or fee basis for oil and gas operations. Services included are exploration and cleaning out, bailing, and swabbing wells. According to the U.S. Census Bureau's Economic Census, in 2007 this industry had 7,089 establishments generating \$46.2 billion in annual sales and employing 239,774 people with a total annual payroll of \$12.5 billion.<sup>19</sup>

High Impact Company: **Pense Brothers Drilling**      Years in Business: **49**

Location: **Fredericktown, MO**

Website: **[www.pensebros.com](http://www.pensebros.com)**

Description: Brothers Clifford and Ronald Pense founded the company in 1962. Today, they are part of one of the newest trends in natural gas drilling, the "mixed fleet" approach, which relies on multiple companies within the drilling process to create efficiencies. This approach drives significant savings for their clients.

#### *4.3.2.3 Other Business Support Services (NAICS 561499)*

This industry comprises establishments primarily engaged in providing business support services (except secretarial and other document preparation services). According to the U.S. Census Bureau's Economic Census, in 2007 this industry had 3,803 establishments generating \$8.2 billion in annual sales and employing 76,609 people with a total annual payroll of \$2.9 billion.<sup>20</sup>

High Impact Company: **Document Technologies**      Years in Business: **13**

Location: **Atlanta, GA**

Website: **[www.dtiglobal.com](http://www.dtiglobal.com)**

Description: Document Technologies provides litigation support and eDiscovery services to law firms and corporate legal departments in 22 U.S. markets. Its services help customers lower discovery and production-related costs, reduce risk, and improve discovery and document management practices. Through its digital solutions, customers gain access to information quickly and are able to make better strategic decisions.

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<sup>19</sup> Ibid.

<sup>20</sup> Ibid.

### 4.3.3 Declining Industries

Throughout the U.S. economy from 2004 to 2008, there were 35 declining industries at the 3-digit NAICS level. Not surprisingly, nearly half were manufacturing industries. Featured here are three high impact companies that managed to achieve success in three declining industries: telecommunications, aircraft parts manufacturing, and navigational instruments manufacturing.

#### *4.3.3.1 VoIP Service Providers (NAICS 517110)*

This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies. Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including VoIP services; wired (cable) audio and video programming distribution; and wired broadband Internet services. By exception, establishments providing satellite television distribution services using facilities and infrastructure that they operate are included in this industry. According to the U.S. Census Bureau's Economic Census, in 2007 this industry had 33,548 establishments generating \$290.8 billion in annual sales and employing 885,429 people with a total annual payroll of \$54.2 billion.<sup>21</sup>

High Impact Company: **Telesphere**

Years in Business: **11**

Location: **Scottsdale, AZ**

Website: **[www.telesphere.com](http://www.telesphere.com)**

Description: Founded in 2000, Telesphere is a nationwide cloud communication service provider. The company currently serves clients in 44 states, providing them with a complete end-to-end solution that includes fully hosted, managed, and integrated landline phone, mobile phone, and computer communications.

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<sup>21</sup> Ibid.

#### *4.3.3.2 Other Aircraft Parts and Auxiliary Equipment Manufacturing (NAICS 336413)*

This industry comprises establishment primarily engaged in manufacturing aircraft parts or auxiliary equipment. Auxiliary equipment includes such items as armament racks, inflight refueling equipment, and external fuel tanks. According to the U.S. Census Bureau's Economic Census, in 2007 this industry had 890 establishments generating \$30.1 billion in annual sales and employing 112,052 people with a total annual payroll of \$6.6 billion.<sup>22</sup>

High Impact Company: **Cable Technology**

Years in Business: **14**

Location: **Great Falls, MT**

Website: **www.cablemt.com**

Description: Established in 1997, Cable Technology is a HUBZone-certified manufacturer of high quality, proprietary wire, coaxial, and cable-related assemblies for the aerospace and military industries.

#### *4.3.3.3 Navigational, Measuring, and Control Instruments Manufacturing (NAICS 33451)*

This industry comprises establishments primarily engaged in manufacturing navigational, measuring, electromedical, and control instruments. Examples of products made by these establishments include aeronautical instruments and navigation and guidance systems. According to the U.S. Census Bureau's Economic Census, in 2007 this industry had 5,360 establishments generating \$128.2 billion in annual sales and employing 407,741 people with a total annual payroll of \$29.0 billion.<sup>23</sup>

High Impact Company: **Garmin**

Years in Business: **22**

Location: **Olathe, KS**

Website: **www.garmin.com**

Description: What began as a brainstorming session around a card table in 1989 has evolved into a global enterprise. Garmin produces navigation and communication devices that span a wide range of interest, from automotive and aviation to marine and outdoor recreation.

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<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

#### 4.4 High Impact Company Characteristics

This section looks at some of the characteristics of high impact companies, such as age, size, and industry, and compares them to all other companies over time. Findings related to age are presented first, followed by those related to company size, industry, productivity, credit risk, and the gender of the company’s owner. The final part of this section looks at a particular group of high impact companies that have distinguished themselves by achieving extraordinary growth over an unusually long period of time.

##### 4.4.1 Age

The age distribution of high impact companies by employee-size segment is presented in Table 9a for each period of analysis. Data for all other companies are presented in Table 9b, allowing for comparisons to be made between company classes over time.

The average age of high impact companies in the 1-19 segment is about 17 years and is decreasing over time, though at a gradual pace. By contrast, the average age in the 500-plus segment is about double at 35 years, and is increasing at an appreciably higher rate. The average age of firms in the 20-499 segment is about halfway between the 1-19 and 500-plus segments at 25 years. This segment’s age has remained relatively constant over the four periods of analysis.

Age	1994-1998			1998-2002			2002-2006			2004-2008		
	1-19	20-499	500+	1-19	20-499	500+	1-19	20-499	500+	1-19	20-499	500+
0-4	2.83	0.67	0.56	4.13	0.90	1.35	5.55	0.89	0.38	4.68	0.25	0.24
5-7	16.72	7.94	4.89	22.42	9.89	9.73	23.26	10.19	6.2	24.28	7.04	4.63
8-10	16.81	11.49	7.94	15.46	11.56	7.70	17.3	13.04	10.63	16.97	12.78	8.55
11-14	17.85	16.82	14.60	15.08	13.92	9.98	14.34	13.82	10.76	15.73	15.20	10.45
15-19	15.22	16.19	13.95	13.75	16.09	15.57	11.95	14.41	13.04	11.56	13.60	12.23
20-24	10.51	11.49	9.22	9.61	11.68	11.68	8.59	12.44	9.75	8.20	12.53	11.76
25-29	6.75	9.13	9.30	6.24	8.43	6.77	6.09	8.62	7.72	5.75	9.45	9.86
30-39	6.62	9.96	11.39	6.54	10.72	10.58	6.74	10.97	10.89	6.75	12.34	10.45
40-49	3.32	6.12	6.82	2.98	5.75	5.33	2.67	5.47	6.96	2.61	5.90	7.24
50-69	2.42	6.31	10.67	2.40	6.30	8.63	2.27	5.46	9.49	2.24	6.08	9.26
70-99	0.95	3.90	10.67	0.94	3.40	7.02	0.86	3.2	7.85	0.84	3.38	8.08
100-plus	-	-	-	0.45	1.36	5.67	0.39	1.48	6.33	0.39	1.45	7.24
<b>Avg. Age</b>	<b>17.40</b>	<b>24.30</b>	<b>32.00</b>	<b>17.00</b>	<b>25.20</b>	<b>33.50</b>	<b>16.40</b>	<b>24.70</b>	<b>35.70</b>	<b>16.30</b>	<b>25.90</b>	<b>37.50</b>

Source: Corporate Research Board, LRDHIC Database (2008).

Note: Numbers may not sum to 100 due to rounding. The average age is higher than it would otherwise be due to the conditions of the analysis, which required that all companies have existed for at least 4 years.

These findings are surprising insofar as they appear to contradict results in the literature that suggest new firms grow faster than older ones (Evans 1987). And what about startups? The low count in the 0-4 age category, where startups are found, is a function of definitional and database-related issues. First, the definition of high impact companies requires a firm to be in existence at least four years to qualify for analysis, thus only four-year old high impact companies are present in this category. Second, the time required to capture a startup and add it to any business database can be several years. As such, no startups are present in these tables.

Table 9b presents statistics for all other companies for the same periods and employee-size segments. The most apparent observation about these firms is that they are, on average, older than high impact companies across all employee-size segments, and the difference in age increases with firm size. The average age of all other companies in the 1-19 segment is 22 years, which is 5 years older than high impact companies in the same segment. The average age of all other firms in the 20-499 segment is 33 years, which is 8 years older than high impact companies in the same segment. And the average age of all other firms in the 500-plus segment is 51 years, which is 16 years older than high impact companies in the same segment.

Age	1994-1998			1998-2002			2002-2006			2004-2008		
	1-19	20-499	500+	1-19	20-499	500+	1-19	20-499	500+	1-19	20-499	500+
0-4	1.62	0.49	0.54	2.52	0.52	0.56	2.32	0.41	0.33	1.52	0.20	0.15
5-7	9.90	4.29	3.67	14.27	5.18	4.16	11.3	4.97	3.56	10.50	3.49	2.17
8-10	12.08	6.61	5.81	11.71	6.83	4.47	14.31	7.85	5.74	12.52	7.40	4.94
11-14	16.14	11.21	10.20	13.86	9.86	6.18	14.48	10.42	6.58	16.57	11.32	7.55
15-19	16.14	12.96	9.57	14.96	13.57	9.57	14.29	12.32	7.74	14.59	12.38	7.26
20-24	12.79	11.91	6.08	11.76	11.55	7.10	11.63	12.07	9.39	11.73	12.16	9.35
25-29	8.93	10.46	6.95	8.54	9.93	5.47	9.09	9.99	6.24	9.03	10.11	7.42
30-39	9.77	13.85	11.19	9.74	14.39	12.01	10.76	15.00	11.28	11.57	15.69	11.12
40-49	5.64	9.45	8.75	5.10	8.78	8.69	4.74	8.44	8.94	4.88	8.75	9.47
50-69	4.62	10.37	11.56	4.39	9.91	12.36	4.24	9.63	12.34	4.37	9.75	12.62
70-99	2.35	8.39	25.69	1.77	6.12	13.93	1.56	5.63	12.66	1.52	5.56	12.41
100-plus	-	-	-	1.38	3.37	15.49	1.26	3.26	15.20	1.19	3.19	15.55
<b>Avg. Age</b>	<b>22.10</b>	<b>32.00</b>	<b>44.30</b>	<b>22.40</b>	<b>33.40</b>	<b>52.80</b>	<b>22.40</b>	<b>32.90</b>	<b>52.10</b>	<b>22.80</b>	<b>33.30</b>	<b>53.10</b>

Source: Corporate Research Board, LRDHIC Database (2008).

Note: Numbers may not sum to 100 due to rounding. The average age is higher than it would otherwise be due to the conditions of the analysis, which required that all companies have existed for at least 4 years.

#### 4.4.2 Size

As noted earlier, nearly all high impact companies are small as measured by the number of employees in a company. About 94 percent of high impact companies have 1-19 employees, approximately five and a half percent have 20-499 employees, and the remaining half percent has 500 or more. The tables in this section provide a detailed account of the size distribution of high impact companies. Table 10a presents data for the first two periods of analysis, 1994-1998 and 1998-2002. Table 10b presents data for the second two periods of analysis, 2002-2006 and 2004-2008. In both tables, size distributions are shown by employee-size segment at the beginning and end of the related period of analysis. Data for all other companies are presented in Tables 10c and 10d.

To assist in reading the tables, an example may prove helpful. Assume a high impact company for the period 1994-1998 had one employee in 1994 and 25 employees in 1998. The company would be found among the 82.66 percent of high impact companies in the 1-19 employee-size segment that had 0-4 employees at the beginning of the period. The same company would be among the 8.78 percent of high impact companies in the 1-19 segment that had 25-49 employees at the end of the period. The company remains in the 1-19 employee-size segment even though at the end of the period it has more than 19 employees because, as noted above in section 4, a base-year approach is used to credit change statistics. According to this approach, the employee-size segment that gets credit for the 24 new jobs created by the high impact company is the segment to which the company belonged at the beginning of the period, alternatively referred to as the base year.

Even though one might expect the size of high impact companies to change substantially over a given period of analysis (since size is measured by a company's number of employees and one of the criteria of high impact companies is growth in employees), the change presented in Tables 10a and 10b is nevertheless remarkable. For each employee-size segment across all periods of analysis, high impact companies experienced on average at least 100 percent increase in size. The 1-19 segment

consistently experienced the greatest increase with a low of about 300 percent and a high of nearly 450 percent. The larger segments, 20-499 and 500-plus, also grew quite impressively, despite starting off with a larger employee base. The 20-499 segment grew on average between 175 percent on the low end to 220 percent on the high end, and the 500-plus segment grew consistently between 115 and 150 percent.

**Table 10a. Size of High Impact Companies, by Segment and Period of Analysis (1994-2002)**

Firm Size (employees)	1994-1998						1998-2002					
	1-19		20-499		500-plus		1-19		20-499		500-plus	
	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End
0-4	82.66	30.97	-	-	-	-	81.01	20.78	-	-	-	-
5-9	11.12	27.13	-	-	-	-	12.18	32.35	-	-	-	-
10-24	6.22	30.34	19.82	-	-	-	6.81	32.46	21.48	-	-	-
25-49	-	8.78	40.42	20.78	-	-	-	10.07	39.70	19.56	-	-
50-99	-	2.13	21.57	35.74	-	-	-	3.09	21.07	35.51	-	-
100-249	-	0.50	13.67	27.60	-	-	-	0.99	13.31	28.00	-	-
250-499	-	0.09	4.51	9.72	-	-	-	0.15	4.44	10.20	-	-
500-999	-	0.03	-	4.31	44.05	12.85	-	0.06	-	4.48	41.71	12.10
1,000-2,499	-	0.02	-	1.50	31.36	36.55	-	0.03	-	1.72	31.30	35.87
2,500-4,999	-	-	-	0.25	13.17	22.59	-	0.01	-	0.37	13.54	21.74
5,000-9,999	-	-	-	0.05	5.99	12.93	-	-	-	0.10	6.68	14.13
10,000-24,999	-	-	-	0.04	3.67	9.26	-	-	-	0.04	4.31	10.58
25,000-49,999	-	-	-	-	1.20	3.27	-	-	-	-	1.52	2.88
50,000-plus	-	-	-	-	0.56	2.55	-	-	-	0.01	0.93	2.71
<b>Average Size</b>	<b>3.30</b>	<b>13.00</b>	<b>66.80</b>	<b>185.70</b>	<b>2,915.50</b>	<b>7,305.80</b>	<b>3.40</b>	<b>16.30</b>	<b>65.80</b>	<b>209.80</b>	<b>3,648.00</b>	<b>8,041.00</b>

Source: Corporate Research Board, LRDHIC Database (2008).

Note: Numbers may not sum to 100 due to rounding.

**Table 10b. Size of High Impact Companies, by Segment and Period of Analysis (2002-2008)**

Firm Size (employees)	2002-2006						2004-2008					
	1-19		20-499		500-plus		1-19		20-499		500-plus	
	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End
0-4	87.21	25.55	-	-	-	-	87.83	26.99	-	-	-	-
5-9	8.22	34.38	-	-	-	-	7.64	35.41	-	-	-	-
10-24	4.56	27.66	22.24	-	-	-	4.53	25.83	22.20	-	-	-
25-49	-	8.62	41.60	20.76	-	-	-	7.97	42.41	20.99	-	-
50-99	-	2.99	20.52	36.76	-	-	-	2.90	20.44	37.07	-	-
100-249	-	0.62	11.80	27.54	-	-	-	0.66	11.38	27.56	-	-
250-499	-	0.11	3.85	9.01	-	-	-	0.13	3.57	8.84	-	-
500-999	-	0.04	-	3.82	38.59	12.74	-	0.04	-	3.75	38.00	12.59
1,000-2,499	-	0.02	-	1.62	32.41	32.03	-	0.03	-	1.35	30.05	33.37
2,500-4,999	-	0.01	-	0.24	14.88	23.96	-	0.01	-	0.26	14.49	19.71
5,000-9,999	-	-	-	0.15	7.57	15.64	-	0.01	-	0.12	9.38	15.44
10,000-24,999	-	-	-	0.09	5.42	10.21	-	-	-	0.07	5.34	10.93
25,000-49,999	-	-	-	0.01	0.76	3.40	-	-	-	0.01	1.19	4.28
50,000-plus	-	-	-	-	0.38	2.02	-	-	-	-	1.54	3.68
<b>Average Size</b>	<b>2.70</b>	<b>14.00</b>	<b>61.70</b>	<b>182.90</b>	<b>3,233.80</b>	<b>6,975.10</b>	<b>2.70</b>	<b>14.40</b>	<b>60.60</b>	<b>172.90</b>	<b>4,466.30</b>	<b>10,122.5</b>

Source: Corporate Research Board, LRDHIC Database (2008).

Note: Numbers may not sum to 100 due to rounding.

The contrast is stark when compared to the size change of all other companies for the same periods of analysis. Data for all other companies are presented in Tables 10c and 10d. Table 10c presents data for the first two periods of analysis, 1994-1998 and 1998-2002. Table 10d on the next page presents data for the second two periods of analysis, 2002-2006 and 2004-2008.

**Table 10c. Size of All Other Companies, by Segment and Period of Analysis (1994-2002)**

Firm Size (employees)	1994-1998						1998-2002					
	1-19		20-499		500-plus		1-19		20-499		500-plus	
	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End
0-4	70.56	70.93	-	3.20	-	3.34	74.13	73.52	-	1.85	-	1.91
5-9	19.56	18.53	-	2.09	-	1.71	16.79	16.79	-	1.54	-	1.13
10-24	9.88	9.78	21.46	20.88	-	2.68	9.08	9.09	22.53	22.10	-	2.04
25-49	-	0.61	42.33	36.91	-	2.90	-	0.45	42.46	38.66	-	1.98
50-99	-	0.11	20.94	20.92	-	3.34	-	0.10	20.45	20.52	-	2.15
100-249	-	0.03	11.56	11.93	-	5.90	-	0.03	11.11	11.47	-	4.10
250-499	-	0.01	3.70	3.50	-	6.91	-	0.01	3.45	3.39	-	6.38
500-999	-	-	-	0.50	41.65	30.24	-	-	-	0.41	44.89	35.57
1,000-2,499	-	-	-	0.05	30.28	25.92	-	-	-	0.05	29.89	26.04
2,500-4,999	-	-	-	0.01	11.49	8.54	-	-	-	0.01	10.96	9.37
5,000-9,999	-	-	-	-	6.59	4.35	-	-	-	-	6.29	4.74
10,000-24,999	-	-	-	-	5.43	2.63	-	-	-	-	4.30	2.80
25,000-49,999	-	-	-	-	2.02	0.87	-	-	-	-	1.72	1.02
50,000-plus	-	-	-	-	2.53	0.68	-	-	-	-	1.94	0.77
<b>Average Size</b>	<b>4.40</b>	<b>4.60</b>	<b>61.40</b>	<b>63.40</b>	<b>7,340.10</b>	<b>2,793.60</b>	<b>3.90</b>	<b>4.10</b>	<b>59.50</b>	<b>62.70</b>	<b>5,501.80</b>	<b>3,051.00</b>

Source: Corporate Research Board, LRDHIC Database (2008).

Note: Numbers may not sum to 100 due to rounding.

**Table 10d. Size of All Other Companies, by Segment and Period of Analysis (2002-2008)**

Firm Size (employees)	2002-2006						2004-2008					
	1-19		20-499		500-plus		1-19		20-499		500-plus	
	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End
0-4	79.06	79.18	-	3.63	-	2.97	79.88	79.68	-	2.44	-	2.72
5-9	13.55	13.42	-	1.64	-	1.12	13.07	13.15	-	1.20	-	0.69
10-24	7.39	7.13	22.91	23.44	-	1.76	7.06	6.95	23.46	23.49	-	1.56
25-49	-	0.21	42.57	38.89	-	1.90	-	0.16	43.10	40.29	-	1.53
50-99	-	0.04	20.47	19.03	-	2.16	-	0.04	20.13	19.46	-	1.99
100-249	-	0.01	10.83	10.12	-	3.33	-	0.01	10.22	9.95	-	3.46
250-499	-	-	3.22	2.97	-	4.70	-	-	3.10	2.91	-	4.26
500-999	-	-	-	0.23	46.98	37.68	-	-	-	0.21	46.62	38.94
1,000-2,499	-	-	-	0.03	28.17	26.00	-	-	-	0.03	29.05	26.77
2,500-4,999	-	-	-	0.01	10.41	8.96	-	-	-	0.01	10.21	8.93
5,000-9,999	-	-	-	-	6.18	4.68	-	-	-	-	6.11	4.43
10,000-24,999	-	-	-	-	4.52	2.70	-	-	-	-	4.52	2.77
25,000-49,999	-	-	-	-	2.03	1.22	-	-	-	-	1.80	1.18
50,000-plus	-	-	-	-	1.71	0.81	-	-	-	-	1.69	0.78
<b>Average Size</b>	<b>3.30</b>	<b>3.50</b>	<b>58.02</b>	<b>56.80</b>	<b>5,199.90</b>	<b>3,153.10</b>	<b>3.20</b>	<b>3.40</b>	<b>56.90</b>	<b>57.10</b>	<b>4,884.20</b>	<b>3,068.50</b>

Source: Corporate Research Board, LRDHIC Database (2008).

Note: Numbers may not sum to 100 due to rounding.

As can be seen by the change in average size in each table (see bottom row), non-high impact companies experienced little change in size, and that which occurred was limited primarily to the smallest companies—those within the 1-19 employee-size segment. On average, these companies grew by about four to six percent, which is in stark contrast to the 300-450 percent growth experienced by high growth companies in the same segment.

Almost equally striking are the differences between the 20-499 and the 500-plus segments. Non-high impact companies in the 20-499 segment did grow in the first two periods of analysis, though it was on average about four and a half percent across the two periods. In the third period, they declined and in the final period they exhibited almost no growth. By contrast, high impact companies in the same segment grew on average between 175 and 220 percent. In the 500-plus segment, all other companies experienced a decline in each period of analysis, ranging on average from about 37 to nearly 62 percent. As underscored in the previous study and confirmed here, large non-high impact firms shed the bulk of the economy's jobs in a relatively short period of time.

#### 4.4.3 Industry

Table 11 on the following page shows the percentage of high impact companies by 2-digit SIC industry for each period of analysis. One might expect a disproportionate share of high impact companies to be found in high-tech industries where technological change has been rapid. But perhaps the most remarkable pattern is how evenly distributed high impact companies are across all sectors of the economy. No industry dominates consistently in its share of high impact companies, and no industry other than museums and membership organizations (SIC 84 and 86) contains a disproportionately low share of high impact companies.

<b>SIC</b>	<b>Description</b>	<b>1994-1998</b>	<b>1998-2002</b>	<b>2002-2006</b>	<b>2004-2008</b>
1	Agriculture-Crops	1.53	1.18	1.72	1.14
2	Agriculture-Animals	1.21	1.34	1.86	1.26
7	Agriculture Services	4.90	2.50	3.42	3.03
8	Forestry	4.34	2.60	2.79	2.19
9	Fishing, Hunting	3.40	1.98	2.69	1.84
10	Metal Mining	4.51	1.43	3.66	3.51
12	Coal, Lignite Mining	3.07	2.16	2.47	1.40
13	Oil, Gas Extraction	4.11	3.17	3.83	3.61
14	Non-Metallic Mining	4.98	3.93	2.94	2.70
15	General Contractors	4.01	2.27	2.12	1.81
16	Heavy Construction	6.13	4.52	4.60	4.19
17	Special Trade Contractors	4.94	3.08	2.93	2.70
20	Food, Kindred Products	4.96	3.40	3.36	3.03
21	Tobacco Products	1.45	2.35	2.80	1.47
22	Textile Mill Products	4.02	2.89	2.45	2.10
23	Apparel, Textiles	4.24	2.49	2.18	1.99
24	Lumber, Wood Products	4.99	2.69	2.63	2.44
25	Furniture, Fixtures	5.98	3.70	2.97	3.00
26	Paper Products	5.52	3.13	3.15	2.86
27	Printing, Publishing	3.79	2.13	2.21	1.85
28	Chemical Products	5.23	4.02	3.91	3.36
29	Petroleum, Coal Products	4.74	3.20	3.71	3.46
30	Rubber, Plastics	7.18	4.04	3.36	2.98
31	Leather Products	3.94	1.99	2.57	1.99
32	Stone, Clay, Glass	5.21	3.19	2.59	2.35
33	Primary Metal Industries	6.39	3.44	3.65	3.32
34	Fabricated Metals	6.39	3.84	3.25	3.30
35	Machinery not Electric	6.91	3.29	3.00	3.11
36	Electric, Electronic	7.03	4.39	3.51	3.32
37	Transportation Equipment	6.90	3.86	3.58	3.07
38	Instruments, Related	6.06	4.29	3.98	3.69
39	Miscellaneous Manufacturing	3.93	1.75	2.12	2.04
40	Railroad Transport	1.83	1.31	1.66	1.52
41	Transit	2.95	2.35	2.15	1.56
42	Trucking, Warehouse	4.11	2.52	2.56	2.19
44	Water Transportation	4.82	2.79	3.19	2.59
45	Air Transportation	3.91	3.60	3.46	2.81
46	Pipelines, not Gas	0.63	0.95	2.91	3.15
47	Transportation Services	4.04	1.91	1.79	1.68
48	Communications	1.97	1.70	1.67	1.48
49	Utility Services	4.79	3.45	3.68	3.00
50	Durable Wholesale	4.37	2.89	2.77	2.35
51	Non-Durable Wholesale	4.10	2.62	2.48	2.01
52	Building, Garden	3.73	2.49	2.67	2.15
53	General Merchandise Retail	2.06	1.38	1.40	1.08

*Table continued on following page.*

<b>SIC</b>	<b>Description</b>	<b>1994-1998</b>	<b>1998-2002</b>	<b>2002-2006</b>	<b>2004-2008</b>
54	Food Stores	3.63	2.41	2.46	1.81
55	Automotive Dealers	4.01	2.32	2.42	1.87
56	Apparel Stores	2.06	1.50	1.53	1.20
57	Home Furnishing Retail	2.99	2.03	2.19	1.74
58	Eating, Drinking	1.94	1.38	1.26	0.89
59	Miscellaneous Retail	2.97	1.81	2.06	1.59
60	Banking	3.16	2.76	3.12	2.44
61	Non-Bank Credit	2.30	2.57	3.07	2.41
62	Securities Brokers	3.41	2.52	2.22	2.13
63	Insurance Carriers	3.33	2.26	3.17	2.24
64	Insurance Agents	4.31	2.65	3.43	2.47
65	Real Estate	4.04	2.53	2.27	1.91
67	Holding Investments	4.17	0.98	0.88	0.85
70	Hotels and Lodging	3.14	2.29	2.16	1.54
72	Personal Services	4.33	1.78	2.18	1.69
73	Business Services	3.54	1.69	2.01	2.13
75	Auto Repair Services	3.97	2.03	2.27	1.79
76	Misc Repair Services	2.78	1.84	1.70	1.15
78	Motion Pictures	3.33	1.52	1.46	1.19
79	Recreation Services	3.82	2.09	2.59	2.19
80	Health Services	5.39	2.64	3.67	2.44
81	Legal Services	5.11	3.22	2.98	2.12
82	Educational Services	1.23	0.96	1.84	1.39
83	Social Services	6.30	3.69	4.35	4.66
84	Museums, Gardens	0.00	0.00	0.00	0.00
86	Member Organizations	0.33	0.15	0.20	0.19
87	Engineering, Management	4.46	2.45	2.98	2.69
89	Miscellaneous Services	1.38	0.34	0.92	1.59

Source: Corporate Research Board, LRDHIC Database (2008).

Note: The figures presented in this table are computed on the basis of all non-high impact companies contained in Corporate Research Board's database rather than on the basis of all firms contained in the SUSB Database presented in Table 3. Because the former contains several million records not contained in the latter, the share of high impact companies in relation to the former is less than in the latter.

Though no particular industry dominates over time, there are two patterns that emerge which upon first impression may appear inconsistent with this observation. First, it is clear that some industries do possess a greater share of high impact companies at different points in time. For instance, about seven percent of companies in SIC 30 and 36 were high impact companies during the 1994-1998 period. However, in subsequent periods the share of high impact companies in these industries decreased, settling at a level more consistent with shares in all other industries. Second, manufacturing does

maintain a slightly higher proportion of high impact companies across all periods of analysis, particularly in high-tech industries, such as SIC 36 and 38. However, this is due, in part, to a smaller base of companies in these industries. Manufacturing remains at about the same absolute number of companies and employment it has had for nearly a century, yet all other industries, particularly services, have grown considerably over the same time.

A final comment is needed regarding the seemingly continuous decline in the share of high impact companies across all industries over time. This observation is less a result of an absolute decline in the number of high impact companies and more a function of a relative decline to all other companies. As seen in Table 2, the universe of high impact companies is relatively stable over time. The decline observed in Table 6 has more to do with the fact that the total number of all other companies has been growing over time.

#### 4.4.4 Productivity

Table 12a on the following page presents data on the productivity—that is, the revenue generated per employee—of high impact companies by 1-digit SIC industry for each employee-size segment and period of analysis. Table 12b, also on the following page, presents data for all other companies.

A pattern that emerges irrespective of firm ‘impact’ status is enhanced productivity by firm size. For high impact firms and all other firms, revenue per employee increases with firm size. Perhaps not surprisingly, however, high impact companies are more productive than all other firms. Across all industries, employee-size segments, and periods of analysis, high impact companies generate more revenue with the same share of human capital inputs. This observation is consistent with Schumpeter’s “creative destruction” theory in which younger, efficient companies drive out older, inefficient ones, resulting in higher productivity in younger firms. (High impact companies are on average younger than non-high impact firms).

Of the three employee-size segments, the 20-499 segment appears to be the most productive relative to its non-high impact counterparts, as well as to high impact companies in the 1-19 and 500-plus segments. For the period 1994-1998, for instance, high impact companies in the 20-499 segment were about 40 percent more productive than all other companies in the same employee-size segment. During the same period, high impact companies in the 1-19 and 500-plus segment were respectively about 10 and nine percent more productive than all other firms in corresponding segments.

**Table 12a. Industrial Productivity of High Impact Companies, by Segment and Period of Analysis**  
(Revenue per Employee, in Dollars)

Industry	1994-1998			1998-2002			2002-2006			2004-2008		
	1-19	20-499	500+	1-19	20-499	500+	1-19	20-499	500+	1-19	20-499	500+
Agriculture/Forest/Mining	63,261	190,960	159,502	68,201	246,583	407,686	90,296	637,717	832,423	76,136	467,104	1,146,641
Construction	119,666	199,275	230,306	144,676	159,947	295,062	125,695	210,304	862,301	127,130	226,094	271,751
Manufacturing	110,088	152,111	189,864	117,459	164,352	239,157	124,650	185,090	332,381	125,478	205,941	383,849
High-Tech Manufacturing	141,864	182,385	277,861	137,892	181,061	321,520	120,804	247,600	233,813	161,540	258,818	256,798
Communication/Utilities	170,285	173,002	278,806	150,986	304,959	616,504	138,257	420,215	447,272	135,299	606,389	388,647
Distribution/Wholesale	246,372	363,533	467,522	247,555	388,998	535,783	210,523	409,630	335,306	192,236	418,582	356,458
Retail	118,617	234,587	142,693	142,752	261,964	167,608	113,105	242,743	270,135	118,476	273,013	212,104
Eating/Drinking Retail	28,384	28,851	32,729	29,694	42,453	40,055	27,833	29,396	52,820	26,955	29,541	46,320
Finance/Ins/Real Estate	110,054	247,777	288,713	142,788	242,752	323,609	125,605	396,144	388,101	122,880	301,162	626,156
Services	42,013	58,352	65,247	43,978	51,531	66,536	43,369	84,323	64,560	41,676	83,088	85,897
Professional Services	76,313	74,147	71,295	82,616	114,214	110,006	76,327	113,110	104,370	75,289	101,305	68,184
<b>Total</b>	<b>101,690</b>	<b>156,440</b>	<b>177,123</b>	<b>110,745</b>	<b>168,396</b>	<b>254,923</b>	<b>99,439</b>	<b>224,786</b>	<b>286,082</b>	<b>99,745</b>	<b>225,729</b>	<b>276,634</b>

Source: Corporate Research Board, LRDHIC Database (2008).

**Table 12b. Industrial Productivity of All Other Companies, by Segment and Period of Analysis**  
(Revenue per Employee, in Dollars)

Industry	1994-1998			1998-2002			2002-2006			2004-2008		
	1-19	20-499	500+	1-19	20-499	500+	1-19	20-499	500+	1-19	20-499	500+
Agriculture/Forest/Mining	70,556	111,179	455,757	67,556	79,248	419,929	65,961	96,816	712,840	73,077	107,887	840,025
Construction	109,846	153,937	196,926	117,275	158,409	228,623	107,255	149,299	226,547	110,328	150,562	301,512
Manufacturing	92,728	119,540	230,444	93,776	123,052	223,765	90,278	131,763	299,925	90,845	124,549	311,310
High-Tech Manufacturing	120,996	121,763	196,965	125,700	133,755	199,144	118,552	146,213	263,381	118,906	155,616	295,517
Communication/Utilities	158,279	162,402	239,795	166,682	167,381	259,133	131,806	175,954	343,362	141,227	184,598	379,340
Distribution/Wholesale	226,412	269,776	285,932	225,429	262,393	251,320	190,581	259,461	378,686	193,160	271,071	412,439
Retail	99,983	206,568	129,583	100,803	210,192	172,644	96,164	213,054	186,133	93,648	201,671	198,614
Eating/Drinking Retail	28,239	26,593	35,477	28,645	26,448	33,468	28,909	27,776	36,953	29,486	26,476	37,464
Finance/Ins/Real Estate	115,789	189,815	338,076	121,797	204,664	351,986	113,928	181,577	376,204	115,803	184,197	415,854
Services	39,880	49,345	63,745	42,329	54,457	66,536	42,189	52,709	61,738	42,328	54,859	67,676
Professional Services	70,621	63,826	71,308	75,377	70,988	92,090	72,244	73,186	95,923	73,885	79,291	99,726
<b>Total</b>	<b>92,867</b>	<b>113,744</b>	<b>163,316</b>	<b>93,656</b>	<b>117,306</b>	<b>170,733</b>	<b>85,691</b>	<b>116,145</b>	<b>203,892</b>	<b>86,683</b>	<b>117,541</b>	<b>220,041</b>

Source: Corporate Research Board, LRDHIC Database (2008).

The same patterns underlie the aggregate figures, though there are instances—23 out of 144—where non-high impact firms are found to be more productive than their high impact counterparts. The majority of these occurrences are found in the 500-plus segment and are concentrated in three industries: Agriculture/Forest/Mining, Eating/Drinking Retail, and Finance/Insurance/Real Estate.

#### 4.4.5 Credit Risk

What is the credit condition of high impact companies? Does credit status vary by company size? How do they compare to all other companies? For the first time, we know the answer to these questions. Tables 13 and 14 on the following page present data on the credit condition of high impact companies relative to all other companies by employee-size segment and credit risk for the most recent study period. Credit risk categories are based on Dun and Bradstreet's credit risk assessment, which analyzes the likelihood of a company paying in a severely delinquent manner (90+ days past terms) over the next 12 months. Scores are calculated using statistical credit models and the most recent payment information in Dun and Bradstreet's commercial database.

Due to the high cost of credit data, samples were drawn to conduct an analysis. The goal was to test for a statistically significant difference in credit scores between high impact companies and all other companies while accounting for the variation among company sizes and the interaction between company size and high impact status. The standard Analysis of Variance is run on the sample data. An  $F$  statistic is computed for each factor to determine its significance and a  $p$ -value is reported. A random sample of 25 was taken for each cell since computations showed that a sample size of 13 for each cell is sufficient to minimize the probability of false positives while maximizing the probability of detecting a significant difference.<sup>24</sup>

The results presented in Tables 13 and 14 show the factor of interest (high impact versus non-high impact, company size, and interaction), the relevant statistics to compute the  $F$  statistic, and the corresponding  $p$ -value. A low  $p$ -value indicates a high

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<sup>24</sup> For a more technical account of the sampling techniques used, see Appendix A. Credit Risk Sampling Method.

confidence that a factor has significant explanatory power. The industry standard is that any  $p$ -value below .05 indicates a significant factor.

Table 13 shows the Analysis of Variance results generated from the sample data. The inner terms are statistics that are necessary for the computation of the  $p$ -value found in the last column. The  $p$ -value associated with the Impact factor is 0.24, which is not below 0.05, the industry standard, and therefore implies that Impact status is not a significant predictor of credit score. The  $p$ -value associated with the Size factor is 0.02, which is lower than 0.05. We can therefore conclude that Size is a significant predictor of credit risk—a finding consistent with existing small business finance research.

<b>Table 13. Analysis of Variance, Full Model</b>					
Source	Df	Sum Sq	Mean Sq	F-value	P-value
Impact	1	0.54	0.54	1.3748	0.24292
Size	2	3.053	1.52667	3.8868	0.02270
Impact:Size	2	0.520	0.26000	0.6620	0.51741
Residuals	144	57.08	0.39096		

Source: Corporate Research Board (2008).

Table 14 shows the Analysis of Variance of a reduced model, where only Impact status is used to predict credit scores. Again we see a  $p$ -value of 0.25, implying that Impact is not a significant predictor of credit. Without Size as an explanatory factor, a lower proportion of variance is explained by Impact, therefore leading to a slightly higher  $p$ -value than that found in Table 13.

<b>Table 14. Analysis of Variance, Reduced Model</b>					
Source	Df	Sum Sq	Mean Sq	F-value	P-value
Impact	1	0.54	0.54	1.329	0.2508
Residuals	148	60.133	0.40631		

Source: Corporate Research Board (2008).

#### 4.4.6 Owner Gender

Table 15 on the following page presents the ownership rate of high impact and non-high impact companies by gender for the period 2004-2008. Of the high impact companies

existing during the 2004-2008 period, 11.7 percent (43,109) were woman-owned. Of all other companies existing during the same period, 12.8 percent (1.3 million) were woman-owned. These findings indicate that the share of woman-owned high impact companies is virtually the same as that of woman-owned non-high impact firms. Thus the success rate for woman-owned firms achieving high impact status shows negligible difference from their counterparts owned by men. Women created high impact companies at virtually the same rate as men.

**Table 15. High Impact Company Ownership, by Segment and Gender (2004-2008)**

Segment	High Impact Companies				All Other Companies			
	Woman-Owned		Man-Owned		Woman-Owned		Man-Owned	
	Absolute	Percent	Absolute	Percent	Absolute	Percent	Absolute	Percent
1-19	36,069	12.4	255,965	87.6	1,210,832	13.2	7,975,531	86.8
20-499	6,962	9.4	67,216	90.6	47,493	7.8	563,826	92.2
500-plus	78	3.8	1,972	96.2	418	2.3	17,476	97.7

Source: Corporate Research Board, LRDHIC Database (2008).

Note: Numbers may not sum to 100 due to rounding.

A strikingly different story emerges when looking at firm ownership by gender and size. For high impact companies in the 1-19 employee-size segment, women owned 12.4 percent (36,069) of firms. In the 20-499 segment, women owned 9.4 percent (6,962) of companies. For firms in the 500-plus segment, women owned only 3.8 percent (78). The larger the high impact company, the lower the likelihood it will be woman-owned. This same pattern is observed for all other companies. Women owned 13.2 percent (1.2 million) of non-high impact companies in the 1-19 segment but only owned 2.3 percent (418) of all other companies in the 500-plus segment.

The rate of women-owned firms by size is very similar whether looking at high impact or non-high impact companies. Women-owned firms generally succeed at the same rate as men-owned firms, but women ownership diminishes with increased size, regardless of growth. It seems that as firm size increases, the ‘glass ceiling’ phenomenon takes a stronger hold.

#### 4.4.7 Exceptional Performers

In the previous report, authors asked what happens to high impact companies after their high performance years? To answer this question, they identified high impact companies in the 1998-2002 period and tracked their performance over the subsequent four-year period of analysis (2002-2006). They found that 7,217 firms continued to perform as high impact companies. Given their exceptional performance from 1998 to 2006, this section takes a look at the disposition of these back-to-back high impact companies as of the 2004-2008 study period.

Of the 7,217 back-to-back high impact companies, 6,419 had 1-19 employees at the start of the 1998-2002 period, 703 had 20-499 employees, and 95 had 500 or more employees. Table 16 looks at the disposition of these companies by employee-size segment and firm age at the end of the 2004-2008 period. Of the 6,419 back-to-back high impact companies, 3,132 (or about 50 percent) were 13-19 years old at the end of the 2004-2008 period. Nearly 50 companies were acquired during the 2004-2008 period and 162 died during the same period.

<b>Firm Age</b>	<b>1-19</b>	<b>20-499</b>	<b>500-plus</b>
1-3	0	0	0
4-7	0	0	0
8-12	510	6	0
13-19	3,132	227	18
20-29	1,515	254	26
30-59	804	142	31
60-99	122	25	8
100+	15	6	4
Acquisitions	48	29	7
Deaths	162	13	1
Incomplete Age Data	111	1	0
<b>Total</b>	<b>6,419</b>	<b>703</b>	<b>95</b>

Source: Corporate Research Board, LRDHIC (2008).

Of the 703 back-to-back high impact companies that had 20-499 employees at the start of the 1998-2002 period, 254 (or about 35 percent) were 20-29 years old at the end of the 2004-2008 period. And of the 500-plus companies, about 30 percent were 30-59

years old at the end of the most recent study period. Across all employee-size segments, about 80-90 percent of back-to-back high impact companies were 13-59 years old at the end of the 2004-2008 period.

Table 17 shows the disposition of back-to-back high impact companies by employee-size segment and firm size at the end of the 2004-2008 period. Of the 6,419 companies with 1-19 employees at the start of the 1998-2002 period, 82 had 1-4 employees at the end of the 2004-2008 period. Another 2,315 had 5-19 employees. Most of the remaining firms had more than 19 employees, with the largest share employing 20-99 employees at the end of the most recent study period. Across all employee-size segments, 37 percent of back-to-back high impact companies with 1-19 employees at the start of the 1998-2002 period still had 1-19 employees at the end of the 2004-2008 period. By contrast, about 70 percent of back-to-back companies with 20-499 employees and 90 percent of companies with 500 or more employees still had 20-499 and 500 or more employees, respectively, at the end of the same period.

<b>Firm Employee Size</b>	<b>1-19</b>	<b>20-499</b>	<b>500-plus</b>
1-4	82	12	0
5-19	2,315	2	0
20-99	3,257	109	0
100-499	513	379	0
500-999	24	72	2
1,000-4,999	13	74	34
5,000-19,999	4	11	38
20,000+	0	2	13
Acquisitions	48	29	7
Deaths	162	13	1
Incomplete Size Data	1	0	0
<b>Total</b>	<b>6,419</b>	<b>703</b>	<b>95</b>

Source: Corporate Research Board, LRDHIC (2008).

The disposition of back-to-back high impact companies by employee-size segment and industry is shown in Table 18 on the following page. Across all employee-size segments, the Professional Services industry contains the largest share of companies. Of the companies that had 1-19 employees at the start of the 1998-2002 period, about 24

percent were in the Professional Services industry. About 25 percent of companies with 20-499 employees and 17 percent of companies with 500 or more employees were in the same industry. The Construction industry contained the second largest share of back-to-back companies with 1-19 and 20-499 employees, though not with 500 or more employees. It was the Finance, Insurance, and Real Estate industry that contained the second largest share of companies with 500 or more employees.

**Table 18. Back-to-Back High Impact Companies, by Segment and Industry (2004-2008)**

Industry	1-19	20-499	500-plus
Agriculture/Forest/Mining	246	23	3
Construction	1,154	82	9
Manufacturing	546	72	4
High-Tech Manufacturing	112	62	11
Transport/Comm/Utilities	176	27	5
Distribution/Wholesale	649	69	4
Retail	513	26	11
Eating/Drinking Retail	73	12	6
Finance/Ins/Real Estate	501	75	12
Services	680	37	6
Professional Services	1,556	176	16
Acquisitions	48	29	7
Deaths	162	13	1
Incomplete Industry Data	3	0	0
<b>Total</b>	<b>6,419</b>	<b>703</b>	<b>95</b>

Source: Corporate Research Board, LRDHIC (2008).

## 5. CONCLUSION

Job creation is perhaps the single most pressing challenge confronting America today. As a testament to the scale and gravity of the issue, consider that the U.S. economy started 2010 with fewer jobs than it had in January 2000, yet the labor force has grown by about 11 million workers during that time.

Where will the jobs our country needs come from? If history is any guide, we know that the private sector will create about 85 percent of them. But which firms will meet the challenge? In which industries will they operate and where will they be located?

This report has provided answers to these questions by identifying those firms that may be best suited to accelerate job creation. We have learned that there is a small class of high impact companies which at any point in time represents about five to seven percent of all businesses in the U.S. economy, as measured by the SUSB database. These companies are vital to America's job generation process. Over the past 14 years they have created all net new jobs. Without their contributions, the U.S. economy would have lost about 16.3 million jobs over the same period.

We have also learned that high impact companies are materially different than other firms. They are, on average, five to 16 years younger than ordinary firms. They are more efficient, productive operators than their ordinary counterparts. In every industry, employee-size segment, and period of analysis, they generate more revenue on average with the same share of human capital inputs. Moreover, they grow at rates far beyond those of ordinary companies—in some instances several hundred percent faster. We have also learned that despite their rapid growth and volatility, they pose no greater credit risk than ordinary businesses. Finally, and perhaps most important, we have learned that high impact companies exhibit a unique ability to spot and exploit opportunities in any environment. As observed in Tables 7 and 11 on pages 30 and 45, high impact companies are found in all industries and locations regardless of whether the industries are stagnant, growing, or declining, or whether the locations are large metropolitan centers or small rural areas.

But what do these findings really tell us, and how might they help us develop more effective job-creation policies?

One key insight from this report is that policymakers may want to consider including performance benchmarks in government loan guarantee programs. Such benchmarks may be useful assessment tools for distinguishing companies with exceptional capacities and promise. As it stands today, a company's relative productivity and growth have no particular bearing on loan guarantee determinations. Perhaps they should. Perhaps a government guarantee should be weighted in relation to these and other benchmarks. A program could be structured so that the share of government guarantee increases to a ceiling in accordance with the number of benchmarks an applicant satisfies, though meeting some base-level benchmarks would be required of all applicants. Such practices would rest on the principle that the more benchmarks an applicant satisfies, the greater its chances of success and thus the higher the probability of loan repayment. A program of this sort, if established properly, might possess the added benefit of discouraging unqualified applicants and thereby reducing program transaction costs. It might also encourage optimal resource allocation since existing firms would be eligible for higher levels of government guarantees based on the number of benchmarks they satisfy at the time of application. In addition, program data could be continually collected and analyzed, which would enable administrators to fine-tune the program's cost-benefit ratio on an ongoing basis.

The report's findings also suggest that we consider developing less targeted programs or new programs that are not targeted at all. For example, many of the government's existing loan guarantee programs are capped at \$5 million or less. Those with higher caps are generally targeted to particular industries or large corporations. This policy may serve some audiences well, but it also creates a programmatic no-man's-land in which, according to the findings here, thousands of high impact companies operate.

Take, for example, Charleston, South Carolina-based Allied Reliability, an engineering services firm that enhances the productivity of manufacturing facilities. By all measures,

Allied Reliability is representative of America's high impact companies. Consider its story: In 1997, John Schultz and John Langhorne formed Allied Services Group. Mr. Schultz brought to the company more than seven years of experience and product knowledge as a reliability engineering manager at Eli Lilly. Mr. Langhorne brought to the company 23 years of operations management experience and knowledge. For the first two years, Mr. Schultz traveled the U.S. building awareness of the company while Mr. Langhorne implemented the operational components of the business. In 1999, the partners landed their first major contract with Cargill, one of the nation's largest producers and marketers of food, agricultural, financial, and industrial products and services. From 2000 to 2004, the company focused on hiring qualified employees and developing its service lines. By 2007, the company had more than 100 employees and rebranded itself as Allied Reliability to better reflect its growing service offerings. In true high impact company style, from 2008 to 2010 the company further expanded its operations both domestically and internationally during the worst economic climate since the Great Depression. Today, Allied Reliability has 300 employees in ten countries and its annualized revenue is growing at a staggering 30 percent.

Yet despite this remarkable track record, Allied Reliability has had difficulty securing loans to continue scaling its operations—a process essential to its future growth and success. This is in large measure due to where the company finds itself. It currently operates in a debt financing no-man's-land, too large for standard government guarantee programs yet too small for programs geared toward America's largest corporations. Moreover, it operates in an industry that is not targeted for special guarantee programs.

A government loan guarantee program would be particularly helpful to Allied Reliability—and nearly all other services firms experiencing significant growth. Unlike manufacturing companies, services companies do not typically own hard assets against which they can secure loans. And while a company's owners can often use personal assets, such as a home, to secure a loan, when a company is experiencing explosive

growth, its owners' assets will not suffice. It is in instances like these, where private investment has been inhibited, that policy can play a constructive role.

In light of this report's findings and the growing body of research consistent with them, it is time we consider developing new institutions and programs that work to advance the interests and capacities of high impact companies. For far too long, our thinking about job-creating firms has been guided by false dichotomies such as small vs. large, high-tech vs. low-tech, young vs. old. This has resulted in the development of sclerotic institutions and programs. But if we are serious about generating jobs, we must move beyond this debilitating way of thinking. It is time to acknowledge that the principal drivers of America's job creation do not fit neatly into our existing policy framework. They are an exceptional class of firms, and we will have to think in exceptional ways about how best to foster their growth.

To get our new institutions and programs right, we must continue to do our homework. This report is a step in that direction, but much remains to be done. In a 2009 interview, David Birch was asked, "If a young doctoral student came to you asking: What are the most important questions to study within the area of entrepreneurship? What would your answer be?" Birch, in his typical metaphorical style replied, "I always come back to the rock opera Jesus Christ Super Star, and my favorite line is when Christ is hanging there nailed to the cross, questioning his death and having a conversation with God, saying 'You're far too hot on what and how, and not so hot on why.' It is the 'why' that has come to interest me so much, and that is the essence of research."

This report, as noted at the outset, bears limitations. It is almost entirely quantitative and therefore answers questions related to the 'what,' 'where,' and 'how many' of research. As Birch suggest, our next phase of research should focus on the 'why.' A qualitative assessment of high impact companies is a necessary next step to broadening our understanding of this important class of firms, which in turn will contribute to our developing more effective policies as we seek to accelerate job creation in America.

It is clear that the current jobs situation requires immediate action. But it is equally clear that the situation demands long-term strategic solutions. The challenge we are confronting today did not occur overnight. It has been years in the making. It will behoove policymakers to accept that there is no quick fix to this problem and to begin investing the necessary resources today to create U.S. jobs tomorrow.

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## **APPENDIX A. CREDIT RISK SAMPLING METHOD**

The sample size of 13 per cell was determined using the power maximization technique. Credit scores are given an ordinal scale of 1 of 3 so a maximum value of standard deviation can be computed. If we assume that a difference of at least one standard deviation is enough to indicate a significant difference between the factor levels, we can compute the minimum non-centrality parameter of the  $F$  statistic under the alternative hypothesis as a function of the sample size  $n$ , which we can then use to compute the power of the test. Fixing the level of the test at  $\alpha = .01$ , we can achieve a power of .95 by taking at least 13 observations per cell. Any power value above .70 is considered strong by industry standards, so a power of .95 is more than satisfactory for these purposes.

**APPENDIX B. SBA REGIONS DEFINED**

<b>Table 19. SBA Regions Defined</b>	
<b>Region Name</b>	<b>State</b>
Region 1 – New England	Connecticut
Region 1 – New England	New Hampshire
Region 1 – New England	Massachusetts
Region 1 – New England	Maine
Region 1 – New England	Rhode Island
Region 1 – New England	Vermont
Region 2 – Northeast	New York
Region 2 – Northeast	New Jersey
Region 3 – Mid Atlantic	District of Columbia
Region 3 – Mid Atlantic	Delaware
Region 3 – Mid Atlantic	Maryland
Region 3 – Mid Atlantic	Pennsylvania
Region 3 – Mid Atlantic	Virginia
Region 3 – Mid Atlantic	West Virginia
Region 4 – Southeast	Alabama
Region 4 – Southeast	Florida
Region 4 – Southeast	Georgia
Region 4 – Southeast	Kentucky
Region 4 – Southeast	Mississippi
Region 4 – Southeast	North Carolina
Region 4 – Southeast	South Carolina
Region 4 – Southeast	Tennessee
Region 5 – Great Lakes	Illinois
Region 5 – Great Lakes	Indiana
Region 5 – Great Lakes	Ohio
Region 5 – Great Lakes	Michigan
Region 5 – Great Lakes	Minnesota
Region 5 – Great Lakes	Wisconsin
Region 6 – South Central	Arkansas
Region 6 – South Central	Louisiana
Region 6 – South Central	New Mexico
Region 6 – South Central	Oklahoma
Region 6 – South Central	Texas
Region 7 – Midwest	Iowa
Region 7 – Midwest	Kansas
Region 7 – Midwest	Missouri
Region 7 – Midwest	Nebraska
Region 8 – Rocky Mountain	Colorado
Region 8 – Rocky Mountain	Montana
Region 8 – Rocky Mountain	North Dakota
Region 8 – Rocky Mountain	South Dakota
Region 8 – Rocky Mountain	Utah
Region 8 – Rocky Mountain	Wyoming
Region 9 – Southwest	Arizona
Region 9 – Southwest	California
Region 9 – Southwest	Hawaii
Region 9 – Southwest	Nevada
Region 10 – Pacific Northwest	Alaska
Region 10 – Pacific Northwest	Idaho
Region 10 – Pacific Northwest	Oregon

Source: U.S. Small Business Administration (2010).