

# Sizing Up Job Creation

*Are small businesses truly the engine of job growth?  
It depends on how you look at it*

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As the nation struggles to recover from the Great Recession, many policymakers view small businesses as the best hope for increased hiring and renewed prosperity. Again and again, in speeches and in media interviews, public officials have declared that small businesses are the major generators of new jobs, more so than large firms. By providing assistance to small firms, the thinking goes, government can help them grow and spark an economic resurgence.

“We know that small businesses are the engine of growth in the economy,” said Christina Romer, chair of the White House Council of Economic Advisers, on the TV program “Meet the Press” last year. “We absolutely want to do things to help them.” Romer was voicing support for the Obama administration’s plans to give small businesses greater access to credit. The president himself, in a 2009 speech, referred to small businesses as “job generators” and “the heart of the American economy.”

This conventional wisdom about the job-creating powers of small firms is nothing new, nor is it a partisan argument; Presidents Ronald Reagan, Bill Clinton and George W. Bush also praised small enterprise, quoting statistics on the large share of new jobs created by small businesses. For decades, public policy has favored small businesses with tax breaks, regulatory relief, low-interest loans from the U.S. Small Business Administration (SBA) and other support programs. Government has striven even harder to lend a hand to small firms during the eco-

nomics trauma of the past two years, focusing much of its aid on increasing the flow of capital to small firms.

Concerned that small businesses are having trouble borrowing in a tight credit market, federal lawmakers in 2009 authorized the use of economic stimulus funds to waive SBA fees and increase guarantees for bank loans to small businesses. In June of this year, the U.S. House passed a bill that would establish a \$30 billion federal capital fund for community banks to encourage them to lend to small businesses. The Federal Reserve System has also tried to help small businesses gain access to credit by supporting secondary lending markets through its Term Asset-Backed Securities Loan Facility and by encouraging banks to lend to credit-worthy small firms.

There’s no question that small businesses are an important source of jobs; firms with fewer than 50 workers employ roughly one-third of all Americans. And, in today’s difficult credit environment, small firms may need a leg up in obtaining the capital they need to expand and hire. “Making credit accessible to sound small businesses is crucial to our economic recovery and so should be front and center among our current policy challenges,” Federal Reserve Chairman Ben Bernanke said in July at a Federal Reserve forum on addressing the financing needs of small businesses.<sup>1</sup> The forum was the capstone of a nationwide series of meetings in which small-business owners, lenders,



\* **WARNING**

The workings of this engine are complicated, ambiguous and not fully understood.

government officials and other stakeholders shared ideas about the challenges facing small firms.

But aside from other merits small businesses may have—and regardless of whatever policies are promulgated to help them—the question remains: Are they actually the fountainhead of job creation, as advocacy and support for small businesses over the years imply? Economists have sharply debated the issue for 30 years. Some investigators conclude that small firms do indeed punch above their weight class in generating job gains. Others, looking at similar data, find scant evidence to support this conventional wisdom.

At first blush, settling the question seems straightforward, a matter of dividing businesses into small and large categories, then calculating which group creates more net (gains minus losses) jobs in proportion to its share of total employment. But in fact, the issue is far from simple. Ambiguity and statistical pitfalls abound; much depends on the methods researchers use to analyze data on job flows. Matters that economists struggle with in assessing the job-creating capacity of small firms include the reliability of long-run data on hiring and firing by businesses and how to allocate changes in employment based on firm size (different counting methods can produce strikingly divergent results).

This complexity often gets lost in translation

## In Brief

### Who creates jobs?

- Small businesses have long received government support on the assumption that they are the primary engine of job creation. However, the question of whether they actually generate more net job growth than large businesses is far from settled.
- Methodological issues, including different ways of allocating job gains and losses based on firm size, have frustrated economists in their attempts to either confirm or debunk the conventional wisdom.
- Some recent analysis suggests that *young* businesses generate a disproportionate fraction of new net jobs. Future research may shed more light on which types of businesses best stimulate job growth.

when public officials talk about jobs, said John Haltiwanger, an economist at the University of Maryland who has done extensive research on job creation. “Unfortunately, there remains persistent confusion about the role of small businesses in job growth,” he said in an e-mail. One example is a failure to distinguish between gross and net job creation (more on that later).

To trace the origins of the ongoing debate about the role of small businesses in job creation, you have to go back to the 1970s, when a researcher at the Massachusetts Institute of Technology (MIT) overturned the then-conventional wisdom that *large* firms were mainly responsible for new job growth.

### Does (firm) size matter?

David Birch was one of the first economic researchers to provide hard evidence for the idea that small businesses are the wellspring of job growth. In a groundbreaking study at MIT, he analyzed data on over 5 million business establishments compiled by the Dun & Bradstreet (D&B) credit rating company, looking for patterns in job growth by firm size and age. He relied on longitudinal data—records that follow the same firms over a number of years—to analyze employment trends. Previously, labor economists had studied aggregate statistics to gauge employment growth, simply counting annual increases or decreases in jobs in each size class.

Birch’s findings were startling; in contrast to the aggregate studies, which had consistently found that big firms account for most net employment growth, his analysis identified small firms as the economy’s primary generators of new jobs. “The results tell a clear story,” Birch wrote in a seminal 1979 report. “On the average about 60 percent of all jobs in the U.S. are generated by firms with 20 or fewer employees.”<sup>2</sup> Birch also estimated that firms with 100 or fewer employees created 82 percent of all net new jobs from 1969 to 1976. In contrast, large firms with over 500 workers accounted for less than 15 percent of net job growth.

Birch’s conclusions, restated in subsequent papers and a popular 1987 book he wrote, lent credence to government policies that treated small

businesses as vital job generators. Congress created the SBA in 1953 to aid small businesses by providing them with ready access to credit. Since the 1970s, a raft of federal and state laws has granted small businesses tax incentives; exemptions from environmental rules, insurance requirements and other regulations; and other forms of government support.

Even as Birch's findings gained wide currency in policy circles, some economists took him to task, questioning his results and the economic impact of small-business jobs creation. A 1982 study reexamined the D&B data and found that small businesses accounted for much lower percentages of net job growth—roughly proportional to their share of the labor force—than those reported by Birch. A 1990 critique argued that even if more net new jobs emanate from small firms than large ones, they're less desirable because they pay lower wages and don't last as long as positions at large firms.

One of the strongest retorts to Birch came in a widely cited study by Haltiwanger, University of Chicago economist Steven Davis and Scott Schuh, an economist for the Federal Reserve Board at the time. In a 1993 paper and later book, the economists criticized Birch's methods, impugned the quality of his data and drew a different conclusion about the role of small businesses in creating jobs.

Davis, Haltiwanger and Schuh claimed that Birch had fallen victim to a "regression fallacy" that exaggerates the impact of small firms on job growth due to transitory movements among size classes. Adopting different statistical methods in an attempt to correct for the fallacy, they conducted their own longitudinal study of employment at U.S. manufacturing plants—and found little difference between the net job growth rates of small and large firms. "In a nutshell, net job creation behavior in the U.S. manufacturing sector exhibits no strong or simple relationship to employer size," the researchers wrote.<sup>3</sup>

Argument over the job-creating potency of small businesses has continued, with considerable attention devoted to methodological matters such as longitudinal links, class-size boundaries and the regression fallacy (also called regression-to-the-mean bias).

A 2008 study<sup>4</sup> funded by the Kauffman Foundation, an organization devoted to entrepreneurship, supports the small-business job engine hypothesis. Analyzing longitudinal data for virtually every employer in the country, the researchers found that "net job creation is in fact tilted towards smaller businesses," said study co-author David Neumark, an economics professor at the University of California, Irvine, in a telephone interview.

Another recent paper that examined the question through multiple lenses, including U.S. Census data and employment figures from Denmark, France and Brazil, concluded that the balance of job creation shifts between large and small firms according to the business cycle; small businesses are powerful job generators during recessions and in the early stages of recovery. However, in an expanding economy, large firms take over the lead in creating new net jobs.<sup>5</sup> (Whether that pattern applies to the current economic recovery has yet to be determined.)

### Statistically speaking

"There are three kinds of lies: lies, damned lies, and statistics," Mark Twain famously said, long before anyone kept data on job growth by size of business. Labor statistics don't lie in the sense that Twain implied; they distill the activities of myriad firms and workers into a form that allows economists to see patterns that might otherwise remain hidden. But statistics on jobs created by different-sized firms tend to induce head-scratching, both by members of the public and by economists.

On a basic level, figures quoted by public officials can give a skewed picture of how jobs are created, and by whom. For example, the SBA defines a small business as a firm with fewer than 500 employees. But that definition encompasses 99.7 percent of U.S. employers and roughly half of all workers in the private sector. Many people would consider a company with 300 or 400 employees fairly big—hardly a mom and pop operation. And most economists studying job creation use a lower cutoff for small businesses—20, 50 or 100 employees. SBA tables that included a medium-sized category for larger firms with fewer than 500 workers

would clarify the contribution of small firms to overall job growth.

In addition, figures used to measure job creation can obscure the vast amount of job creation and destruction that goes on in the economy; that “churn,” as economists call it, means that it’s important to distinguish between “gross” and “net” job creation. *Gross* job creation data count the number of new hires by firms in a given period, before “separations”—layoffs, retirements and voluntary quits—are subtracted. *Net* job creation is the number of jobs that remain after separations are accounted for—how much the workforce either grew or shrank overall. An oft-quoted SBA statistic states that small businesses have accounted for almost two-thirds of net new jobs over the past 15 years.

In public statements, officials often use one term when they should use the other, omitting the crucial qualifier “net,” for example, when referring to small-business employment growth. And net figures give no inkling of the total number of jobs created by firms across the size spectrum. As Davis, Haltiwanger and Schuh noted in their 1993 paper, “a common confusion between net and gross job creation distorts the overall job creation picture and hides the enormous number of new jobs created by large employers.”<sup>6</sup>

In 2007, before the recession took hold, U.S. firms (of all sizes) increased their net hires by 1.5 million over the previous year, according to Bureau of Labor Statistics (BLS) data. The gross number of jobs created during that period was 13.4 million, while at the same time, 11.9 million jobs were eliminated.

### Let us count the ways

On a more abstruse level, trouble with statistics goes a long way toward explaining why economists who have studied job creation for years can come to starkly opposing conclusions about the contribution of small businesses to net employment growth.

The great conundrum for economists trying to prove or disprove the conventional wisdom about small-business job creation is how to accurately measure net job growth by class size; compared

with large employers, do small firms generate more jobs than they destroy, proportional to their share of the workforce? Answering this question has proven difficult because of imperfect data on job flows and statistical effects that change the outcome depending on the method used to count job gains and losses.

The source of statistics on job creation can be critical. Researchers have used a variety of longitudinal databases, including refined versions of D&B files, BLS data and Census Bureau records. Each database tracking employment over time at firms or establishments (individual firm locations such as stores or branches) has its strengths, but also weaknesses that may influence the results.

Birch was criticized for using D&B data that didn’t square with Census or BLS figures and underreported firm births. Davis, Haltiwanger and Schuh mined Census data on employment at U.S. manufacturing plants, but Haltiwanger now acknowledges that their analysis was “not definitive” because the manufacturing data are arguably not representative of job creation in the economy as a whole. More recent databases developed by the Census Bureau, BLS and private firms are more comprehensive, but have their own limitations. For example, the BLS’s Business Employment Dynamics (BED) program tracks firms and establishments only back to 1992.

A particularly vexing problem for researchers lies in the arithmetic of allocating changes in employment to different firm-class sizes. Typically, economists measure job growth (or loss) on an annual basis, counting the number of new hires or layoffs at businesses compared with staffing levels in the previous year. Job gains and losses are tabulated according to various class sizes—say, for example, to firms with fewer than 10 workers, those with 10 to 19 workers, those with 20 to 50 and so on, up to large corporations with over 1,000 employees.

There’s nothing complicated about this process. But the math gets tricky when businesses change size classes as they add or lose jobs, moving up or down the scale from one year to the next. If a firm is initially classified as “small,” then hires more workers and moves up to a larger size class during

## Supersize Me

How base-year sizing increases apparent net job growth by small firms

Small firms = 1–49 workers, Large firms = over 50 workers

	Firm 1	Firm 2	Firm 3
Year 1	10	40	56
Year 2	14	67	44
<b>Net change</b>	<b>4</b>	<b>27</b>	<b>-12</b>

Net job creation of small firms = **31**  
 Net job creation of large firms = **-12**

Small firms appear to produce more net job growth than large firms when changes in employment are allocated according to a firm's size in the *base* year (Year 1). When Firm 2 hires more workers and shifts into the large-firm category, all of its job gains count as job growth by small firms. When Firm 3 shrinks and becomes a small firm, all of its job losses count as losses by large firms. So small firms account for 31 new jobs (= 4 + 27) using this method. Large firms lose 12 jobs.

If *end*-year sizing were used (job gains or losses allocated according to the firm's size in Year 2), large firms would appear to grow faster than small firms: a loss of 8 net jobs (4 - 12) by small firms versus 27 new jobs by large firms.

the next 12 months, should the additional jobs be credited to the small-firm category or to the large one? Conversely, if a large firm shrinks and becomes small, are those losses laid at the door of a big firm or a small firm?

One counting method attributes employment changes to whatever size class the firm occupied in the initial or "base" year, before the firm grew or shrank. Another approach allocates the jobs gained or lost by a given firm into different firm-size categories according to the size of the firm in the current or "end" year.

One accounting method isn't more "correct" than the other, but the choice makes a significant difference to the researcher's ultimate findings. Birch in his D&B study used base-year sizing. This is also the method used by the SBA to compute

annual job creation and destruction in many of its statistical reports and tables. In and of itself, base-year sizing increases the apparent contribution of small firms to job growth, because an increase in employment that lifts a small firm into the large category is credited to the small size class. Year-over-year job losses by large firms are debited to that size class (see accompanying table for a more detailed explanation).

### The regression fallacy

This effect is magnified by another, subtler statistical phenomenon that causes consternation for researchers on a variety of phenomena, including job creation. This is the regression-to-the-mean bias that Davis, Haltiwanger and Schuh claimed

skewed Birch's results, a type of distortion that renowned economist Milton Friedman called the "most common fallacy in the statistical analysis of economic data."<sup>7</sup> When base-year accounting is used, the regression fallacy systematically allocates job growth to smaller size classes while allocating job losses to larger size classes. The result: consistently higher employment growth rates for small firms.

Think of the regression bias as random "noise" caused by measurement errors or momentary fluctuations in employment at individual firms. Suppose that in the year the researchers designated as the "base year," a manufacturer that has been large for a decade becomes "small" because of a temporary shock—a product recall, for example—that forces it to lay off workers. The next year the company hires back those workers and "regresses"—or returns—to its customary long-run size. But because the firm was small in the base year of the study, the restored jobs are counted as job gains by firms in the small category.

The fallacy works in reverse for a small manufacturer that enjoys a surge in sales and is temporarily classified as large; when in the following year it reverts to its regular size, the drop in head count goes into the large-firm column as a job loss.

Many economists and some employment databases have tried to address the regression fallacy—and the inherent tendency of base-year sizing to inflate job creation by small businesses—by using various statistical techniques that smooth the distribution of job gains and losses among size categories. For example, "dynamic sizing," used by the BLS to compute BED figures, divides up quarterly changes in employment by a given firm, assigning incremental gains or losses during the quarter as closely as possible to the firm-size class in which they actually occurred.

However, these attempted statistical fixes haven't eliminated concern that statistical effects cloud our understanding of the relationship between firm size and job creation.

### Still looking for answers

Small businesses are struggling in the wake of the recession, not hiring as readily as they did in past recoveries. A U.S. Treasury department analysis of

unpublished BLS figures shows that between July of 2009 and last February, firms with fewer than 50 employees lost over 150,000 net jobs in an average month, while firms with at least 250 employees slightly increased their hiring. Possible explanations for this lingering joblessness at small enterprises include slack demand for goods and services, an uncertain economic outlook and restricted access to credit—factors that may disproportionately affect small firms.

In response, policymakers have redoubled their efforts to help small businesses. In September, the U.S. Senate was considering giving small businesses \$18 billion in capital-equipment write-offs and other tax breaks, in addition to \$30 billion in federal loan funds approved earlier by the House.

Yet there's no consensus among economists that this government assistance is going where it can do the most good to alleviate unemployment. After three decades of investigation, the question of whether small firms do indeed create proportionally more jobs than large firms resists resolution. Uncertainties about the reliability of employment data and thorny statistical problems such as the regression fallacy continue to bedevil researchers. Some economists have even suggested that while these statistical issues are real, they don't have a major quantitative impact on the final results.<sup>8</sup>

It's also quite possible that economists have been asking the wrong question about the agents of job creation all along. New research in the field points to *young* firms as the true dynamos of employment growth.

In the 1990s, Haltiwanger took a stand against the conventional wisdom that small businesses outperform big ones in job creation; today he believes that it's not a matter of small versus large, but young versus old. In a recent study, Haltiwanger teamed with researchers at the Census Bureau to analyze 13 years of Census data on U.S. business establishments, controlling for the effect of firm age on net job generation. They found no systematic link between net growth rates and firm size. But the contribution of firms less than 10 years old, particularly startups, to job creation was substantial. Startups less than a year old account for only 3 percent of U.S. employment but almost 20 percent of new gross jobs.<sup>9</sup>

Many new businesses fail, destroying jobs, the researchers note in a working paper. But young firms that survive add employees quickly, outpacing more mature businesses in net job growth. Of course, most new businesses are small, so “one might view this as a more nuanced view of the contribution of small businesses,” Haltiwanger said via e-mail. When presenting his findings to government officials, he often jokes that the SBA should be renamed the Young Business Administration.

Future research may shed more light on which types of businesses—small or large, young or old—stimulate job growth the most. The question takes on extra significance during recessions, when policymakers are looking for ways to jump-start economic recovery. As Bernanke and other Federal Reserve officials have noted in recent months, small businesses are central to job creation in this country. But for now, it seems, the conventional wisdom that small businesses are the *primary* source of job creation remains a matter for continuing debate. ■

## Endnotes

- <sup>1</sup> Bernanke, Ben S. 2010. Remarks at “Addressing the Financing Needs of Small Businesses,” a forum organized by the Board of Governors of the Federal Reserve System, July 12, Washington, D.C. <http://www.federalreserve.gov/newsevents/speech/bernanke20100712a.htm>
- <sup>2</sup> Birch, David L. 1979. *The Job Generation Process*, Unpublished report prepared by the MIT Program on Neighborhood and Regional Change for the Economic Development Administration, U.S. Department of Commerce, Washington, D.C., p. 29.
- <sup>3</sup> Davis, Steven J., John Haltiwanger, and Scott Schuh. 1993. “Small Business and Job Creation: Dissecting the Myth and Reassessing the Facts.” NBER Working Paper 4492, p. 10.
- <sup>4</sup> Neumark, David, Brandon Wall, and Junfu Zhang. 2008. “Do Small Businesses Create More Jobs? New Evidence for the United States from the National Establishment Time Series.” Institute for the Study of Labor (Bonn, Germany) Discussion Paper 3888, (forthcoming in *Review of Economics and Statistics*).
- <sup>5</sup> Moscarini, Giuseppe, and Fabien Postel-Vinay. 2009. “Large Employers Are More Cyclically Sensitive.” NBER Working Paper 14740.
- <sup>6</sup> Davis, et al., p. 2.
- <sup>7</sup> Friedman, Milton. 1992. “Do Old Fallacies Ever Die?” *Journal of Economic Literature*, 30(4), p. 2131.
- <sup>8</sup> Davidsson, Per, Leif Lindmark, and Christer Olofsson. 1998. “The Extent of Overestimation of Small Firm Job Creation—An Empirical Examination of the Regression Bias.” *Small Business Economics* 11, pp. 87–100.
- <sup>9</sup> Haltiwanger, John, Ron S. Jarmin, and Javier Miranda. 2010. “Who Creates Jobs? Small vs. Large vs. Young.” Working paper, pp. 33–34.