Without a doubt, the 1990s was the decade of the American worker. Between 1990 and 1999, labor productivity—that is, output per hour of all persons working—in the nonfarm business sector grew at an average rate of 1.9 percent per year. That was half of a percentage point higher than the average growth rate in the 1980s.

What could cause such an increase? Either improvements in technology or changes in the production process that would enable workers to get more done in the same amount of time or the same amount done in less time. In either case, the end result is the same: more output per hour from workers, which is good for everyone.

Why? Because higher productivity in a particular sector of the economy—or in the economy as a whole—means resources that can then be put to use elsewhere are freed up, which drives economic growth and leads to higher wages and income. The U.S. economy excelled at this task in the 1990s.

More-Productive Workers or More Jobs?

What change might have caused the increase in productivity growth in the 1990s? This question is easier asked than answered. The data do show, however, that while productivity was growing around 1.9 percent a year during the decade, employment at private nonfarm businesses was also growing an average of 1.9 percent a year.

One might mistakenly believe, then, that productivity was rising each year only because more workers (mixed with more capital) were on the job, and not because technological changes enabled workers to become better at what they were doing. In other words, it was simply more jobs, not more-productive workers, driving the growth.

This conclusion is wrong for a fundamental reason related to the difference between increases in production and increases in productivity. If a firm hires more workers and, consequently, produces more output, production has increased, but not necessarily productivity. Increases in productivity occur only when the current work force is able to produce more output in the same amount of time, not just when more workers show up at the plant (along with additional capital) and then produce more output. Thus, for productivity growth to have increased half of a percentage point between the 1980s and 1990s, an improvement in either technology or the production process must have occurred. In other words, a change must have ensued that enabled workers to become better at what they do.¹

Another way to see this is to look at employment and productivity growth rates across the two decades. In the 1980s, private, nonfarm employment grew an average of 2 percent each year—marginally faster than in the 1990s—while productivity was growing only 1.4 percent a year on average—half of a percentage point slower than in the 1990s. With employment growth remaining basically unchanged between the decades, and average productivity growth jumping half of a percentage point, it's logical to conclude that a change ensued that enabled workers to become better at what they do. So is this the end of the story? Not exactly.

Stellar Performer

Economists know that actually measuring productivity is extremely difficult, especially when the economy is broken into its major sectors—manufacturing and nonmanufacturing. Of the two, manufacturing is the easier sector to work with because firms in this sector produce concrete, physical output that can be counted. The task should be simple then: 1) count all the output, and 2) count the number of hours the workers spent producing the output.

Productivity at nonmanufacturing firms, on the other hand, is more difficult to gauge because these firms do not produce physical, concrete output that can be counted. For example, how should the output of a nurse, a teacher or—here's a scary thought—an economist be measured? The best that analysts can do is to try to value the amount of time these workers spend producing their services and then use this figure as an estimate of the value of their output. Although not exactly precise, it beats guessing. Because of this measurement
Therefore, the numbers the BLS reports slightly exaggerated because the bureau for manufacturing productivity are producing the manufacturing output. In other words, including all of the workers other two.

In the 1990s, the manufacturing sector was the stellar performer in terms of productivity growth. Between 1990 and 1999, this sector’s labor productivity grew at an average rate of 4 percent a year—clearly outperforming the rate for the nonfarm business economy as a whole, as the accompanying chart shows. What the chart does not show, however, is that manufacturing’s productivity growth rate in the 1980s averaged only 2.6 percent per year, which itself is certainly nothing to sneeze at. The more important point, though, is the jump in the rate from 2.6 percent to 4 percent between the 1980s and 1990s.

In this case, there is no confusing higher productivity with higher production. Output was increasing, not because more workers were on the job, but because the workers were becoming more productive. In the 1990s, employment at manufacturing firms, as also illustrated by the chart, was actually lower by the end of the decade than at the beginning. In fact, while manufacturing productivity growth was increasing 4 percent a year during the 1990s, employment at these firms was falling an average of 0.5 percent each year. Fewer and fewer workers were producing more and more goods.

**Statistics Can Mislead**

Case closed? Not really, even though manufacturing is the “easy” sector to measure productivity in. The problem is that counting the output and hours—especially the hours—at manufacturing firms is not always as straightforward as it seems. When the BLS collects the information about the number of hours people are working at manufacturing firms, it counts only the hours of those who are actually on the payroll at the firms. If these were the only people working for manufacturers, then there would be no discrepancy. But they’re not. Manufacturing companies, like many other firms, hire temporary workers who do not appear on their books, but instead on the books of the temporary employment agencies supplying them (which are classified as non-manufacturing firms). In other words, more people than the BLS is counting are producing the manufacturing output. Therefore, the numbers the BLS reports for manufacturing productivity are slightly exaggerated because the bureau is undercounting the true number of people working at these plants.

How exaggerated are the data? Economists Marcello Estevão and Saul Lach tackled just this question in two recent studies. To answer the question, Estevão and Lach first had to determine how many manufacturing workers were in fact employed by temporary agencies. They estimated that manufacturing firms actually employed around 890,000 uncounted temporary agency workers, which adds to the reported 18.5 million manufacturing workers. While not a tremendous amount overall, the 890,000 figure is far from insignificant. When Estevão and Lach then recalculated the productivity numbers and included these uncounted workers, they found that the official manufacturing productivity growth figures were overstated by about half of a percentage point per year. In other words, including all of the workers lowered average manufacturing productivity growth in the 1990s from 4 percent to about 3.5 percent per year.

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**The Increasingly Productive American Worker**

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<tr>
<th>U.S. Productivity in the 1990s</th>
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<tr>
<td>Index (1990=100)</td>
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**Manufacturing Productivity**

**Nonfarm Business Productivity**

**Manufacturing Employment**

**Manufacturing Productivity**

**Nonfarm Business Productivity**

**Manufacturing Employment**

**Source:** Bureau of Labor Statistics

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**Continuing to Crank It Out**

Productivity growth in the manufacturing sector still outpaced the average rate for the economy in the 1990s, although the gap between the two is narrower than at first believed. The discrepancy in the manufacturing productivity growth data, however, does not occur in the nonfarm business productivity numbers because temporary workers are included in these data. In any case, the bottom line is that workers actually produced more with less during the last decade.

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ENDNOTES

1. Saying that workers are better at what they do needs not imply that they are more skilled or educated. It could mean that the capital they work with is more advanced, which subsequently makes the workers more productive.

FOR FURTHER READING
