

# The Earnings of New Hires in Manufacturing

## Executive Summary

Manufacturing jobs, including new manufacturing jobs, continue to deserve their reputation as good jobs.<sup>1</sup> We use a relatively new data source, the Quarterly Workforce Indicators (QWI), to analyze the earnings of new hires relative to incumbent workers in both manufacturing and non-manufacturing. We find that new hires in the manufacturing sector earn more than new hires in other industries and have done particularly well since the recession began.

- New hires in manufacturing enjoy an earnings premium relative to other new hires. This premium peaked during the recession but has returned to near its pre-recession average. At the end of 2011, the manufacturing earnings premium for new hires stood at about 38 percent.
- At the end of 2011, the ratio of new hire earnings to incumbent earnings was about 8 percentage points higher in manufacturing than in other industries.
- Over time, the earnings of new hires relative to incumbents have been consistently higher in manufacturing. From 2000 to 2011, the earnings of new hires were about 70 percent of incumbents' earnings in manufacturing, compared to an average of 60 percent in other industries.
- Since the recession began, real average earnings for new hires in manufacturing grew 3.5 percent, while earnings of incumbents in manufacturing grew about 2.4 percent. Over the same time, real earnings for hires in other industries were flat, and earnings for incumbents in other industries declined.

## Overview

Jobs in the manufacturing sector are generally considered “good jobs”—a source of above-average wages and benefits, full-time hours, and stable employment for millions of Americans. During the recent recession, the decline in the number of manufacturing jobs accelerated, as payroll employment in manufacturing fell by over 16 percent between the fourth quarter of 2007 and the first quarter of 2010. However, since the beginning of 2010, payroll employment in manufacturing has experienced its first extended period of growth since the 1990s. Our analysis explores whether these new manufacturing jobs are still good jobs, addressing whether new hires in manufacturing continue to enjoy a wage premium over other new hires and whether new hires in manufacturing earn less, relative to incumbent co-workers, than in the past.

By  
Regina Powers  
and David S.  
Langdon, Office  
of the Chief  
Economist

ESA  
Issue Brief  
#02-13

August  
2013



---

We analyze the earnings of new hires and incumbent workers in both manufacturing and non-manufacturing, employing a relatively new data source, the Quarterly Workforce Indicators (QWI).<sup>2</sup> We find that new hires in the manufacturing sector earn more than new hires in other industries and have done particularly well since the recession began. Also, the earnings of new hires in manufacturing relative to incumbents have been relatively consistent over the last ten years. Therefore, our analysis suggests that manufacturing jobs continue to deserve their reputation as good jobs.

## The Quarterly Workforce Indicators Data

The QWI are a product of the U.S. Census Bureau within the Economics and Statistics Administration of the Department of Commerce. They are derived from state administrative records, namely state unemployment insurance systems, and link an individual worker with an employer to provide job histories over time. Earnings histories are developed from quarterly reports of worker earnings provided by the employer under the state unemployment insurance systems. The QWI are aggregated at various levels of geographic, industry, and demographic detail to provide information about employment, job creation, worker turnover, and earnings.

The QWI include counts and average monthly earnings for “stable” employees and “stable” new hires. Stable employees are those who are employed for at least a full quarter; stable new hires are those who worked for at least a full quarter for an employer but who did not work for that employer in any of the four quarters prior to employment.<sup>3</sup> We define incumbent workers as stable employees who are not stable new hires. We use the QWI counts and average earnings information for new hires and for all employed to derive the number of incumbent employees and their average earnings. We then separate incumbents and new hires according to whether their employers are in the manufacturing sector. This allows us to examine the earnings of new hires in manufacturing over time, relative to incumbents and relative to new hires in other industries.

We report results for the last quarter of 2011 using data for all 50 states providing QWI data.<sup>4</sup> However, to examine trends over time while avoiding spurious results based on increasing state participation in the QWI over time, we limit our analysis to the 34 states for which data on new hires are available from the first quarter of 2000 through the fourth quarter of 2011.<sup>5</sup> In order to adjust for seasonal variation, we calculate moving 4-quarter averages.

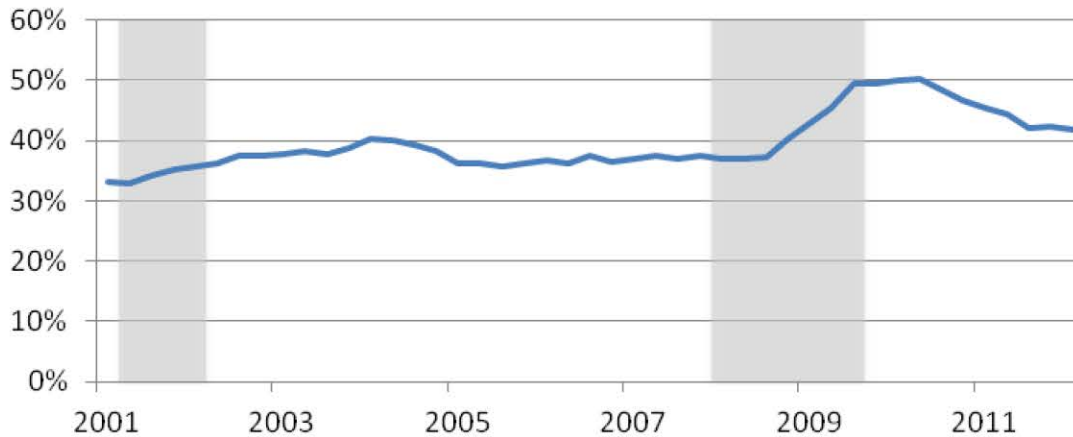
## Earnings of New Hires

At the end of 2011, across all participating states, the average monthly earnings of new hires was 38 percent higher in manufacturing than in other industries. For the workforce as a whole, including both new hires and incumbents, earnings were 25 percent higher in manufacturing than in other industries. Note that this earnings premium results from differences in hourly earnings as well as differences in hours of work per month and is therefore higher than the premium previously estimated by ESA based on hourly earnings and compensation only.<sup>6</sup>

Analysis of states participating since 2000 shows that the earnings of new hires in manufacturing have fared well compared to the earnings of new hires in other industries. Figure 1 illustrates the earnings premium, that is, the average percentage earnings gap enjoyed by new hires in manufacturing compared to new hires in other industries. Prior to the recession, earnings of new hires in manufacturing were about 37 percent higher than new hire earnings in other industries. The premium for new hires in manufacturing began to increase in 2008, peaking at just over 50 percent in 2010. The premium has declined during the recovery but remains above its pre-recession level.

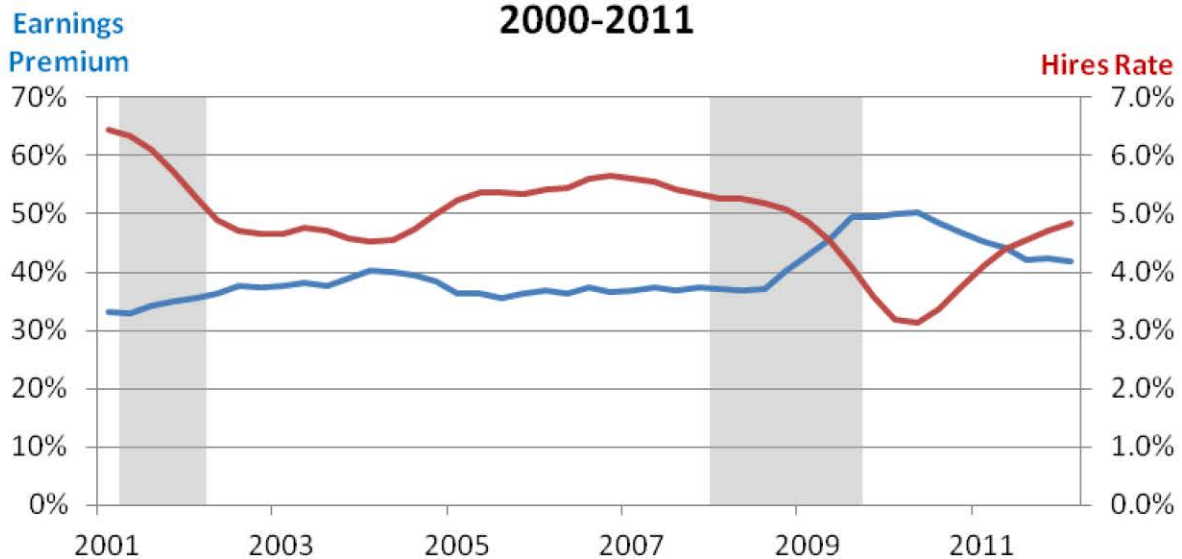
Figure 2, which shows the manufacturing earnings premium for new hires along with the rate of new hires in manufacturing, highlights the recent counter-cyclical behavior of the earnings of new hires in manufacturing. The rate of new hires in manufacturing is defined as the number of stable new hires as a share of all stable employees in the manufacturing sector. As this rate de-

### Figure 1: Earnings Premium for New Hires in Manufacturing 2000-2011



Source: ESA calculations of Quarterly Workforce Indicators for stable new hires.  
 Note: Data are 4-quarter moving averages for a 34-state cohort for Q4 2000-Q4 2011.  
 Shaded areas indicate recession periods.

### Figure 2: Manufacturing New Hires Rate and Earnings Premium 2000-2011

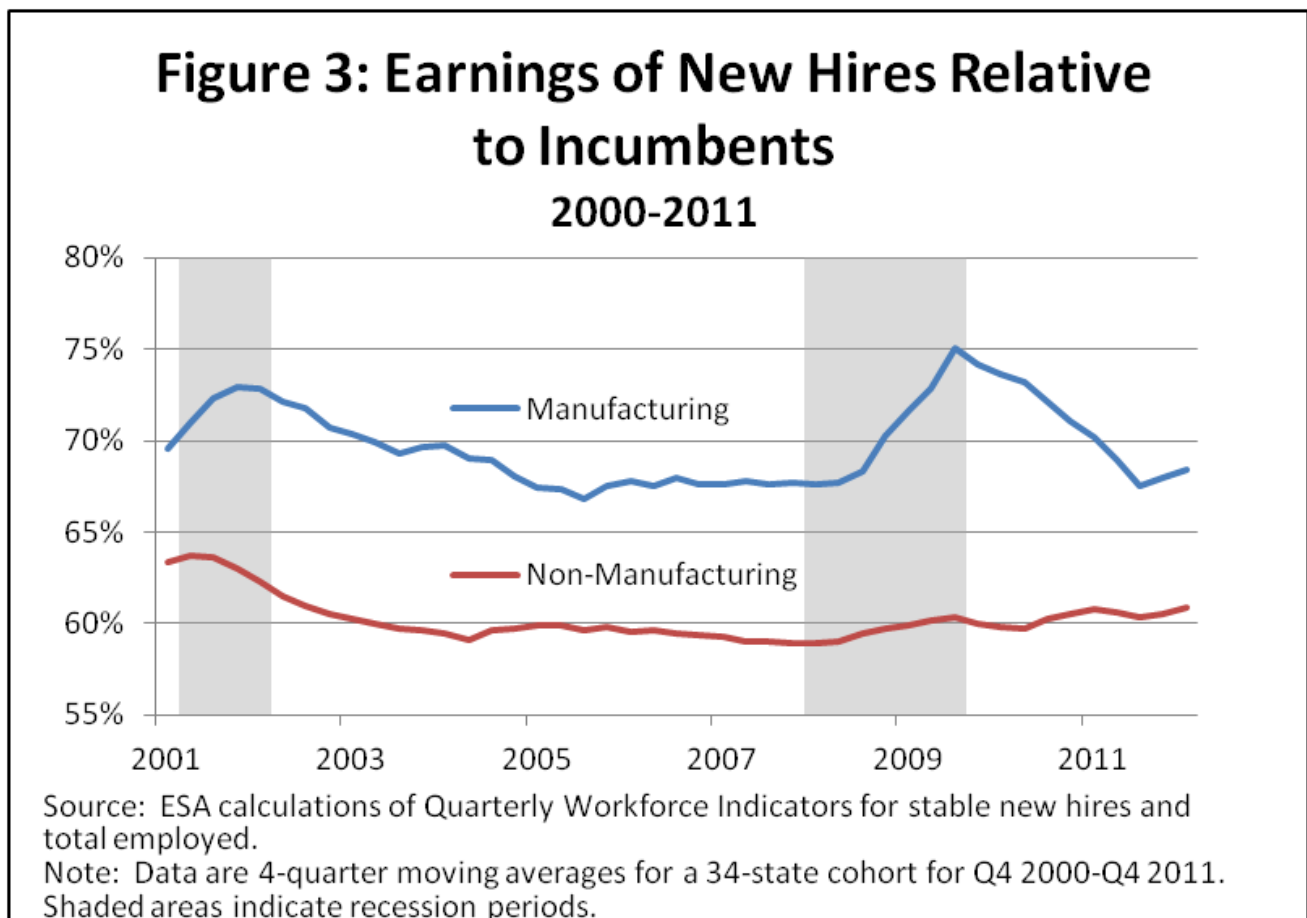


Source: ESA calculations of Quarterly Workforce Indicators for stable new hires.  
 Note: Data are 4-quarter moving averages for a 34-state cohort for Q4 2000-Q4 2011.  
 Shaded areas indicate recession periods.

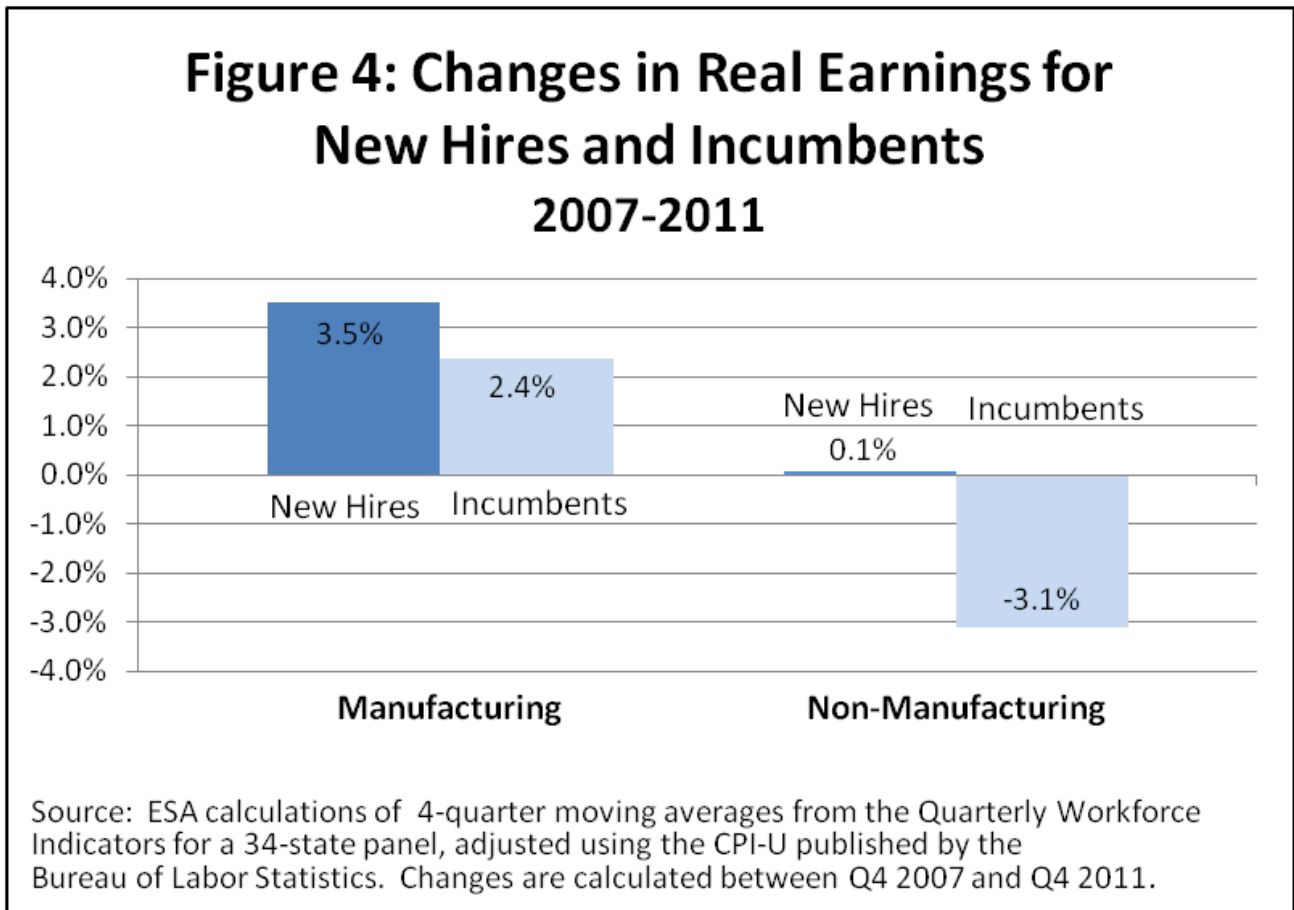
clined during the most recent recession, the earnings premium increased. One possible explanation for this pattern is that, as employers hired fewer workers during the recession, those workers who were hired were more skilled.<sup>7</sup> If this compositional shift toward more highly skilled hires was more pronounced in the manufacturing sector, then the relative earnings of hires in manufacturing would increase. Indeed, nominal average earnings of new manufacturing hires increased by 11 percent between Q4 2007 and Q2 2009, compared to a 2 percent increase over the same period for hires in other industries.

Comparing the earnings of new hires to those of incumbents provides some indication of how new hires have fared relative to their counterparts with more tenure. Data from all participating states show that, at the end of 2011, the average earnings of new hires in manufacturing were about 68 percent of the average earnings of incumbents in manufacturing. In contrast, for non-manufacturing, the earnings of new hires stood at about 60 percent of the average earnings of incumbents, an 8 percentage point gap.

Figure 3 shows the trend in earnings of new hires relative to incumbents in both manufacturing and non-manufacturing. Early in the 2000s, the relative earnings of new hires in manufacturing and non-manufacturing fell somewhat, and then leveled off in the middle of the past decade. Further, in the most recent recession, there was a spike in the relative earnings of new manufacturing hires, while the ratio for other sectors was flat. This spike for new hires in manufacturing lends support to the idea that there were compositional shifts toward higher-skill workers among new hires in manufacturing. Figure 3 also highlights that the relative earnings of new hires in the manufacturing sector have been consistently above those in non-manufacturing. Overall, between 2000 and 2011, the earnings of new hires in manufacturing averaged about 70 percent of the earnings of incumbent workers. For non-manufacturing industries, the average earnings of new hires were about 60 percent of incumbent workers' earnings.



New hires in manufacturing saw earnings, net of inflation, increase by 3.5 percent from the start of the recession, while incumbent earnings increased by about 2.4 percent. (See Figure 4.) In contrast, earnings of new hires in other industries were relatively flat, while the average earnings of incumbents in other sectors declined. Separate analysis for the recession and recovery periods (Q4 2007 to Q2 2009 and Q3 2009 to Q4 2011, respectively) shows that real earnings for new hires in manufacturing increased 9.4 percent during the recessionary period and declined 3.3 percent thereafter. Incumbents in manufacturing showed average real earnings declines of 1.4 percent during the recession, and gains of 4.9 percent thereafter. New hires and incumbents in non-manufacturing saw average real earnings gains of 0.2 percent and losses of 2.1 percent, respectively, during the recession and increases of 2.0 percent and 0.4 percent thereafter.



### Confirming Evidence from the Current Population Survey

To confirm our results on the earnings of newly hired workers, we conduct a separate analysis using data from the Current Population Survey (CPS) outgoing rotations files for 2011 and 2012. The results of this analysis confirm that new hires in manufacturing have higher relative earnings than new hires in other sectors.

Survey respondents in the CPS outgoing rotations files provide information about their industry of work and their weekly earnings. Moreover, under the survey design of the CPS, information about labor force status and the industry of work of these outgoing rotations respondents is also available for the preceding three months, thereby providing an alternative way to analyze earnings of new hires relative to incumbents. We exploit this additional information by matching respondents in the outgoing rotations files to their survey responses three months prior.

In order to approximate the identification of new hires in the QWI data, we attempt to identify respondents who are

---

new to the job. We define new hires as those who were employed during the month in which they participated in the CPS outgoing rotation but who were either not employed or were employed in a different industry three months prior. Using these data, we find that, for both 2011 and 2012, newly employed workers in manufacturing earn about 80 percent of what incumbent workers earn. In contrast, in other industries, newly employed workers earn about 70 percent of what incumbents earn. Thus, these ratios, though roughly in line with the results based on the QWI data, show somewhat higher relative earnings for new hires in both manufacturing and non-manufacturing.

There may be several reasons why the ratios calculated from the CPS data are not directly comparable to those calculated using the QWI data and why the QWI data may give a more accurate picture of the earnings of new hires relative to incumbents. First, our match rates for the CPS respondents' two monthly interviews hover around 80 percent, leaving some potential for bias resulting from necessarily including only individuals who respond in both survey months, particularly if we believe that earnings are positively correlated with the propensity to respond to surveys. In contrast, the QWI, which are based on administrative data, do not include the same potential for sample selection bias.

Second, the approach we use for matching the CPS respondents' two interviews does not allow for the same identification of stable hires and incumbent employees as in the QWI data. The CPS respondents we identify as new hires are persons employed in a different industry than they were three months prior. This approach captures some hires who subsequently work for less than a full quarter and would therefore be excluded from the QWI counts of stable hires. Likewise, the CPS respondents we identify as incumbents are persons employed in the same industry as they were three months prior. This approach could include as incumbents persons who worked for a full quarter subsequent to being hired; these persons would be considered stable hires, and therefore not incumbents, in the QWI. Given these limitations, the results for the QWI are more likely to

reflect the comparisons between permanent hires and incumbent workers that can help us assess new manufacturing jobs.

## Conclusion

Using the QWI data, a relatively new source of data on workers and their earnings, we see that, at least over the last couple of years, new hires in the manufacturing sector fare better than new hires in other industries. The QWI data suggest that both hiring of stable workers in manufacturing and the earnings of those new hires have been relatively strong in recent years, confirming the notion that new manufacturing jobs are, indeed, good jobs and continue to be so. Analysis using CPS data provide comparable results to those derived from the QWI data, providing additional confidence in the accuracy of our findings.

Further research is needed to explain whether compositional shifts in the quality of new hires drive the results shown here. In particular, additional analysis at a more detailed industry level can shed light on whether the trends in earnings are widespread among manufacturing industries, or instead reflect differential hiring rates and relative earnings within various manufacturing industries. Such research using the QWI can shed light on the particular manufacturing industries that generate good jobs and allow us to follow trends in those good jobs.

---

## Endnotes

<sup>1</sup> For a discussion of manufacturing jobs as good jobs, see Economics and Statistics Administration (ESA). (2012). *The benefits of manufacturing jobs*. Retrieved from <http://www.esa.doc.gov/Reports/benefits-manufacturing-jobs>

<sup>2</sup> Most published data are of limited usefulness in specifically examining the earnings of new hires to help answer these questions. For example, the Job Openings and Labor Turnover Survey, published by the Bureau of Labor Statistics, provides information about the number of monthly hires by sector or industry, but no information about the earnings of those hired workers. The Bureau of Labor Statistics also publishes the Current Employment Statistics data, but these provide information about average earnings based on all jobs in an industry, including both new hires and incumbent workers. The Current Population Survey published by the Census Bureau tracks survey participants over several months and provides information about the earnings and industry of employment for individuals, making it possible to identify those who are newly employed and to analyze their wages. However, these data suffer from certain limitations that are discussed below.

<sup>3</sup> To narrow our analysis to permanent workers, we use the QWI measure of “stable” new hires, that is, those who work for at least a full quarter after hire. These stable new hires are a subset of total hires; total hires would also include persons hired for less than a full quarter. Another QWI measure, “all stable hires,” includes both new hires and recalled workers who subsequently work for a full quarter. For the purpose of assessing new manufacturing jobs, we focus on new hires only.

<sup>4</sup> These states include the District of Columbia but not Massachusetts.

<sup>5</sup> These states are: California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Minnesota, Missouri, Montana, Nevada, New Jersey, New Mexico, North Carolina, North Dakota, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Virginia, Washington, West Virginia, and Wisconsin. In 2011, employment in these 34 states represented about 76 percent of all employment and 74 percent of manufacturing employment. Results using this 34-state panel are very similar to our results using all states participating in each year.

<sup>6</sup> Economics and Statistics Administration (ESA). (2012). *The benefits of manufacturing jobs*. Retrieved from <http://www.esa.doc.gov/Reports/benefits-manufacturing-jobs>

<sup>7</sup> This explanation suggests that the composition of new hires in manufacturing shifted toward higher-wage workers during the recession. For a discussion of this “composition bias” and a general review of the cyclical behavior of earnings, see Abraham, K., & Haltiwanger, J. (1995). Real wages and the business cycle. *Journal of Economic Literature*, 33, 1215-1264.

The authors are economists in the Office of the Chief Economist of the U.S. Department of Commerce’s Economics and Statistics Administration.

Technical inquiries:  
Office of the Chief Economist  
(202) 482-3523

Media inquiries:  
Office of Communications  
(202) 482-3331

U.S. Department of Commerce  
Economics and Statistics Administration  
1401 Constitution Ave., NW  
Washington, DC 20230  
[www.esa.doc.gov](http://www.esa.doc.gov)