

## Stuck in the Great Recession's Income Slump: Sluggish Job Earnings Impede an Economic Expansion

SEPTEMBER 07, 2012

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*Fannie Mae Housing Insights, Volume 2, Issue 4*

### Introduction

More than three years have elapsed since the official end of the Great Recession, yet the U.S. economy continues to struggle. Economic growth remains stubbornly below long-term trend, job creation has faltered, and the housing sector is only slowly emerging from its depression.

Weak income growth is another characteristic of the anemic recovery. Real (inflation-adjusted) income fell sharply during the downturn and remains well below the pre-recession peak.<sup>1</sup> Because income growth is important for economic recovery and because earnings from employment constitute the principal component of income, this issue of *Housing Insights* examines

changes in average and aggregate earnings<sup>2</sup> during the last five business cycles.<sup>3</sup> It also uses a decomposition method to disentangle the effects of employment changes within industries (the "employment effect") and average earnings growth within industries (the "earnings effect") on aggregate wage trends.

Given the massive job losses during the Great Recession followed by a slow and choppy improvement in the current recovery, significant slack in the labor market would be expected to suppress wage gains more so than in previous business cycles. Surprisingly, this analysis finds that real *average* earnings started to grow even during the Great Recession, surpassing the level at the onset of the recession and remaining above that level after three years of recovery. By contrast, real average earnings during the same period in the previous four recoveries remained below, or at best stayed about the same as, levels observed at the start of each associated recession. However, real *aggregate* earnings summed across all employees tell a very different story than average earnings per employee. Aggregate earnings declined sharply during the Great Recession and have yet to regain pre-recession levels three years into the recovery—the worst performance in the last five business cycles, with the exception of the early 2000s recession. In inflation-adjusted dollars, the loss in aggregate earnings due to job cuts (the employment effect) was at least twice as large during the Great Recession as in any of the preceding four economic downturns and substantially dominated the positive earnings effect stemming from rising average wages for workers who were fortunate enough to remain employed. Analysis by industry reveals that the employment effect in the construction industry was at least two-thirds greater during the Great Recession than in any of the four preceding downturns. Furthermore, whereas construction employment increased during the first three years of the four previous recoveries, it dropped during the same period following the Great Recession, exerting significant downward pressure on aggregate earnings. Given that earnings are a primary force behind economic growth and we believe that it will

<sup>1</sup> According to the Census Bureau's Current Population Survey, Annual Social and Economic Supplement, real median household income in 2010 was 6.4 percent less than in 2007, the year prior to the start of the Great Recession.

<sup>2</sup> Earnings include basic and incentive wages, but exclude benefits, irregular bonuses, retroactive items, and payroll taxes paid by employers. In this article, we use the terms "earnings" and "wages" interchangeably.

<sup>3</sup> This article treats a recession and the first three years of the subsequent recovery as a "business cycle." The recessions of January 1980 through July 1980 and of July 1981 through November 1982 are considered as one recession.

take years before housing activity rebounds to levels typically associated with robust construction employment gains, we believe it is likely that we will experience a gradual, sub-par economic expansion.

## Average and Aggregate Earnings Paint Very Different Pictures of the Great Recession

According to the Bureau of Labor Statistics' Current Employment Statistics (CES) program, real average weekly earnings in the private sector held up better during the Great Recession and subsequent recovery than in any of the preceding four business cycles.<sup>4</sup> Average weekly earnings increased during both the Great Recession and three years of recovery, and as a result are now 2.9 percent greater than at the outset of the downturn<sup>5</sup> (Exhibit 1, top chart). At the same point in time following the end of the four preceding recessions, real average earnings remained below or equal to their pre-recession levels.

Aggregate earnings, which sum earnings across all employees, paint a very different picture. Real aggregate earnings are still 0.9 percent below the pre-recession level (Exhibit 1, bottom chart). At the same stage of recovery, real aggregate earnings were 2 to 3 percent higher than at the beginning of the recessions of the 1970s, 1980s, and 1990s, and were essentially the same as the present level for the early 2000s recession. It is worth noting that real aggregate earnings declined even more severely in the 1970s recession than during the Great Recession, sliding 11.2 percent. However, the employment gains that followed the 1970s downturn were so strong that real aggregate earnings three years into recovery were 2.9 percent higher than at the beginning of the recession.

## Aggregate Earnings Growth Is Being Suppressed by a Slow Jobs Recovery

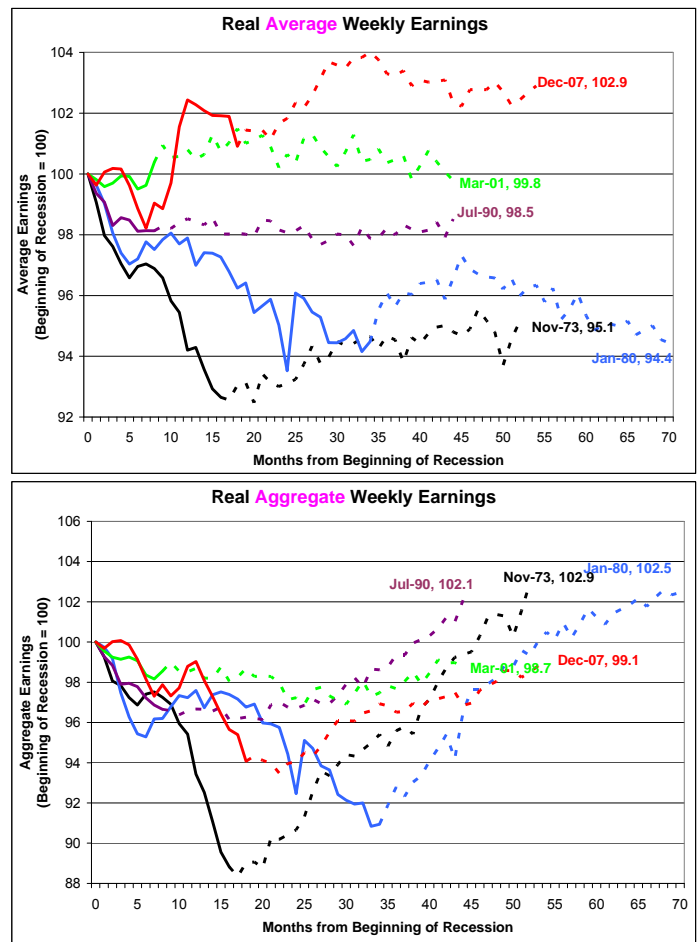
Why have aggregate earnings been so slow to recover from the Great Recession? Given that average earnings currently exceed pre-recession levels, the obvious answer is that net job losses have

<sup>4</sup> As discussed in the appendix, the CES data used in this article include only private production and nonsupervisory workers.

<sup>5</sup> Average weekly earnings increased in all industries except manufacturing and retail trade.

more than counteracted per-employee wage gains. And, indeed, private employment remains 3.5 million less than at the onset of the Great Recession.

**Exhibit 1. Average earnings have recovered from the Great Recession, but aggregate earnings continue to languish.** (Earnings from beginning of recession through three years of recovery.)



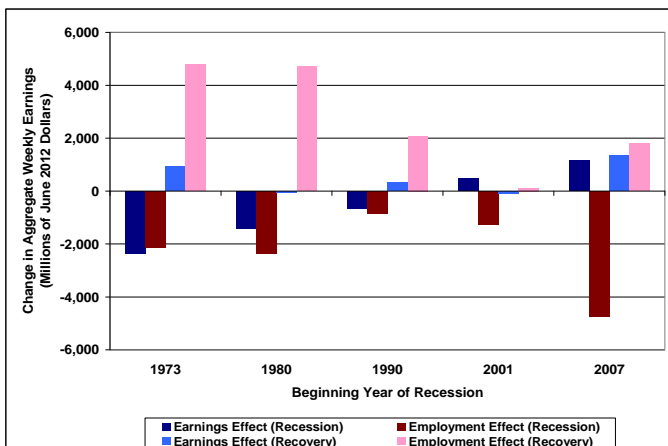
Source: U.S. Bureau of Labor Statistics, Current Employment Statistics program. Solid portion of each line indicates recession; dotted portion represents the first three years of recovery. The dates show the beginning month of the recession.

However, such simple analysis fails to precisely quantify the relative effects of employment and average earnings on aggregate earnings, and yields no insight into how different sectors of the economy have affected aggregate wage trends. To address this shortcoming, this section uses a decomposition technique to break up aggregate wage growth into two components: the "earnings effect," which captures industry-specific wage changes, and the

“employment effect,” which captures industry-specific employment changes.<sup>6</sup>

The decomposition analysis reveals that real aggregate weekly earnings decreased by \$3.572 billion (June 2012 dollars) during the Great Recession (i.e., from December 2007 through June 2009). This was the net result of \$4.727 billion in wage losses due to the employment effect—at least twice as large as recorded in any of the preceding four recessions—and \$1.156 billion in wage gains from the earnings effect (Exhibit 2). In other words, the sharp decline in aggregate earnings during the Great Recession (the solid red line in the bottom chart of Exhibit 1) was completely attributable to job losses that were only partially offset by continued average wage increases for people who did not lose their jobs. Job losses during the Great Recession were 6.8 percent of total employment at the onset of the downturn, compared with losses of 1.5 to 3.7 percent in previous recessions.

**Exhibit 2. As the earnings effect has improved in recent downturns, job loss has come to dominate aggregate wage declines during recessions.**



Source: U.S. Bureau of Labor Statistics, *Current Employment Statistics program*.

In the three years since the Great Recession ended in June 2009, real aggregate weekly earnings have only partially recovered from the decline suffered during the downturn, increasing by \$3.155 billion. Of this amount, the earnings effect accounted for a gain of \$1.344 billion (43 percent of the change), while the employment effect accounted for an increase of \$1.811 billion (57 percent of the change). When

<sup>6</sup> For a description of the decomposition methodology, see the appendix.

considered over the entire course of the current cycle (from December 2007 through June 2012), the employment effect is responsible for a loss of nearly 3 billion dollars in earnings and has accounted for a far larger hit to aggregate earnings than during the four previous business cycles.

An interesting characteristic of wage trends across business cycles is that the earnings effect has become progressively more benign during economic downturns, as average wages within industries have held up far better during more recent recessions. During the 1970s recession, decreases in average wages accounted for a loss of more than 2 billion dollars in aggregate weekly wages, slightly exceeding the wage decline from job losses (see the two bars to the far left of Exhibit 2). However, the earnings effect improved monotonically across the next four cycles and by the time of the Great Recession had *added* more than 1 billion dollars in aggregate wages during the downturn.

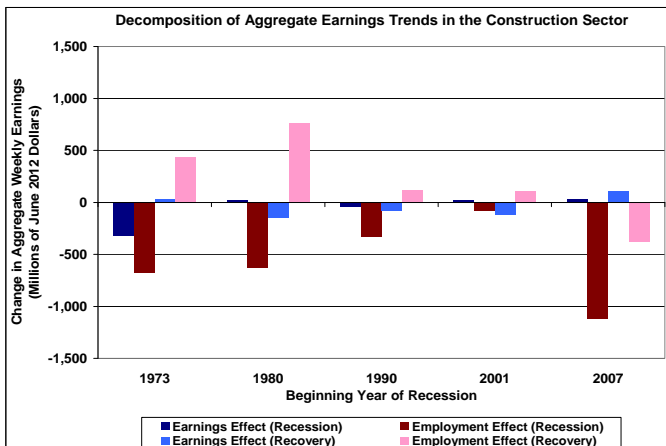
## Construction Jobs Are a Major Drag on the Earnings Recovery

One benefit of the decomposition technique used here is that it allows analysis of how job and average wage changes within different sectors of the economy contribute to aggregate earnings trends. When industrial sectors are examined individually, construction stands out as having suffered the greatest loss in aggregate earnings from the beginning of the Great Recession to June 2012. Furthermore, it was the loss of construction jobs, not any substantial change in average construction wages, that caused the large decline in aggregate earnings within this sector during the current business cycle.

During the Great Recession, real aggregate weekly earnings for the construction sector decreased by \$1.092 billion, with the employment effect accounting for all of the loss and the earnings effect providing a small boost to aggregate earnings (Exhibit 3). Only in manufacturing and professional and business services did job losses detract more from aggregate wages during the downturn. But unlike those sectors, the construction sector has continued to experience falling aggregate wages from job losses during the recovery. From June 2009 to June 2012, construction job losses have subtracted nearly \$400 million from aggregate weekly earnings, while

manufacturing and professional and business services have contributed to the overall aggregate earnings increase. Information services is the only other sector in which ongoing job losses during recovery have continued to detract significantly from aggregate wage growth, and in this sector the employment effect is much smaller (-\$96 million per week). The current recovery is the only recovery during the last five business cycles for which construction employment has not provided a boost to aggregate earnings (see the series of pink bars in Exhibit 3).

**Exhibit 3. Construction job losses have been a major drag on aggregate wages during both the Great Recession and subsequent recovery.**



Source: U.S. Bureau of Labor Statistics, Current Employment Statistics program.

The large employment-driven earnings decline in the construction sector is one symptom of economic rebalancing in the aftermath of the housing bubble. The construction sector’s share of private employment increased from 4.8 percent in 1992 to 6.4 percent at the peak of the market in mid-2006, but has fallen by nearly 2 percentage points since. Although the construction sector’s share of employment increased substantially during the boom, the share did not exceed the previous peaks of nearly 7 percent reached in the early 1960s and 1970s.

**Construction Jobs Also Are a Major Drag on the Overall Economic Expansion**

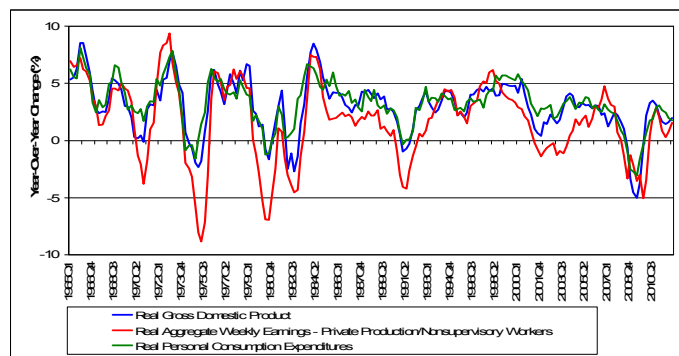
The preceding analysis demonstrates that real aggregate earnings, unlike average earnings, have failed to recoup losses incurred during the Great Recession. It also shows that job loss, as opposed to average wage decline, is the principle culprit underlying the weak aggregate earnings recovery. What’s more, the analysis identifies construction job losses, in particular, as a primary force behind this business cycle’s comparatively weak aggregate earnings performance.

But why is it important to understand the dynamics underlying aggregate earnings trends? The answer is threefold: earnings from employment is the most important component of income; income, in turn, is the principal determinant of consumer expenditures on goods and services; and consumer expenditures, in the end, account for more than two-thirds of all economic activity in the United States. The link between earnings and economic growth is demonstrated in Exhibit 4, which shows the association between year-over-year changes in real aggregate earnings, real gross domestic product (GDP), and real personal consumption expenditures (PCE) over the last five decades. In the period between the first quarters of 1965 and 2012, the simple correlation between earnings and GDP was 0.84 and that between earnings and PCE was 0.78<sup>7</sup>.

<sup>7</sup> The correlation coefficient between two variables ranges from -1 to 1. The values of -1 and 1 indicate perfect negative and positive correlation, respectively, while a value of 0 means no correlation. The closer the coefficient is to -1 or 1, the stronger the correlation between the variables.



#### Exhibit 4. Changes in aggregate earnings are highly correlated with GDP and PCE growth.



Sources: U.S. Bureau of Labor Statistics, Current Employment Statistics program; U.S. Bureau of Economic Analysis, National Income and Product Accounts.

Aside from influencing consumer expenditures on a variety of goods and services including housing, aggregate earnings are linked to the residential sector in another way. As shown previously, the decline in construction employment has been a principal factor underlying weak aggregate earnings trends during the Great Recession and subsequent recovery. Furthermore, declining homebuilding activity has been a major force behind falling construction employment, with the residential subsector accounting for 53 percent of the total construction employment decline since December 2007<sup>8</sup>.

While we believe that homebuilding activity (single-family and multifamily starts) reached bottom in 2009, we believe its recovery will continue to be gradual and uneven. As the economy works off the imbalances of the housing bubble, we expect that it will likely take years before construction activity rebounds to a more “normal” level consistent with sustained rates of household formation, housing demolition, and demand for second homes.<sup>9</sup> In the meantime, we believe that weakness in construction

<sup>8</sup> Residential subsector includes all employees in construction of residential buildings and specialty trade contractors for residential construction.

<sup>9</sup> It is beyond the scope of this paper to assess the potential misallocation of resources during the housing boom and the implications for recovery of construction-sector employment and wages. As previously indicated, construction jobs captured an elevated share of total employment at the peak of the housing boom, but did not exceed shares observed during previous building booms. However, private residential construction spending, net of inflation, increased 70 percent from early 2001 to early 2006, compared with 34 percent growth of real GDP during the same period.

employment will continue to restrain the recovery in aggregate earnings and impede a robust economic expansion.

#### Appendix: Data, Definitions, and Methods

Income is a very broad concept that includes earnings from employment, interest, dividends, rental income, unemployment insurance compensation, and other government transfer payments. Earnings is the most important of these components, accounting for about two-thirds of total personal income.<sup>10</sup> Earnings include basic and incentive wages but exclude benefits, irregular bonuses, retroactive items, and payroll taxes paid by employees.

This issue of *Housing Insights* uses earnings data from the Bureau of Labor Statistics’ Current Employment Statistics (CES) program, which provides extensive information on employment and earnings by industry.<sup>11</sup> The CES collects data each month on employment, hours, and earnings from a sample of nonagricultural establishments that includes approximately one-third of all nonfarm payroll employees. The CES excludes proprietors, the self-employed, unpaid family or volunteer workers, farm workers, and domestic workers. The employment data used in this issue of *Housing Insights* are further constrained to include only private (i.e., non-government) production and nonsupervisory workers.

Data on earnings for all private employees only go back to 2006, whereas data on earnings for private production and nonsupervisory employees go back to 1964.<sup>12</sup> As a result, for the purpose of comparing different business cycles, we use earnings for private production and nonsupervisory employees. We further constrain our analysis to the period after 1972, when employment and earnings data for the set of industries used in this analysis first became available.

<sup>10</sup> Bureau of Economic Analysis, National Income and Product Accounts.

<sup>11</sup> The CES also is known as the “establishment survey” or the “payroll survey.”

<sup>12</sup> The production/nonsupervisory share of private nonfarm employment has been fairly stable since data collection began in 1947, oscillating between 81 percent and 84 percent. The production/nonsupervisory share of total private nonfarm earnings has remained between 66 percent and 68 percent since data became available in 2006.

A decomposition methodology is used to disentangle the effects of employment changes within industries (the “employment effect”) and average earnings growth within industries (the “earnings effect”) on aggregate wage trends. The decomposition methodology is as follows:

$$\begin{aligned}
 W_{nf,t} - W_{nf,0} &= \sum_i E_{it} * w_{it} - \sum_i E_{i0} * w_{i0} \\
 &= \sum_i E_{it} * w_{it} - \sum_i E_{it} * w_{i0} + \sum_i E_{it} * w_{i0} - \sum_i E_{i0} * w_{i0} \\
 &= \sum_i E_{it} * (w_{it} - w_{i0}) + \sum_i (E_{it} - E_{i0}) * w_{i0}
 \end{aligned}$$

Where:

- t is time.
- i is industry (nf stands for total nonfarm private production/nonsupervisory payrolls).
- W is real aggregate weekly earnings at times 0, t.
- w is real average weekly earnings at times 0, t.
- E<sub>i</sub> is nonfarm private payroll employment in a specific industry, i.
- $\sum_i E_{it} * (w_{it} - w_{i0})$  is the “earnings effect” (the effect of change in average earnings within industries on aggregate earnings growth).
- $\sum_i (E_{it} - E_{i0}) * w_{i0}$  is the “employment effect” (the effect of change in employment within industries on aggregate earnings growth).

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The authors thank Orawin Velz, Doug Duncan, and Gerry Flood for valuable comments in the creation of this issue of *Housing Insights*. Of course, all errors and omissions remain the responsibility of the authors.

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