SPECIAL REPORT

TD Economics

January 9, 2014

# U.S. HOUSING RECOVERY: JOBLESS NO MORE

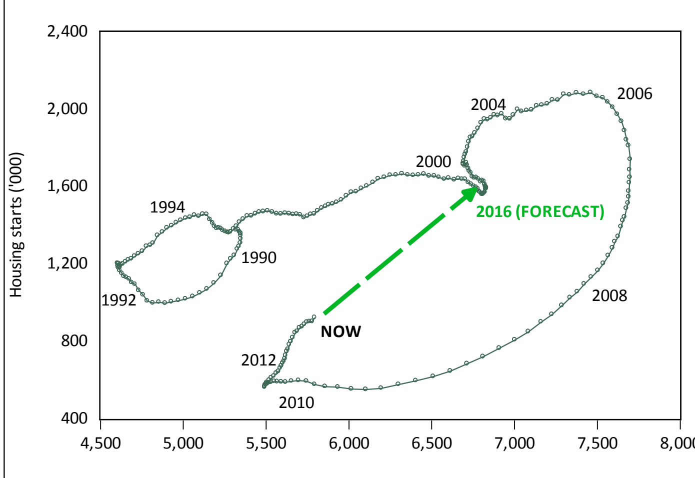
### Highlights

- The rebound in residential construction activity has been gradual so far. Moreover, the recovery has disappointed in terms of jobs, with only one-tenth, or 150,000 residential payrolls recovered so far.
- Lackluster job growth has been largely related to the spare capacity stemming from underutilization of labor, further exacerbated by the recovery to date being biased towards lower value rental units.
- But, spare capacity has been largely exhausted. Increased homebuilding will require additional hiring. Demographic demand will boost housing starts to 1.6 million annualized over the medium-term. Moreover, future construction will be increasingly geared towards single-family building which requires more investment and workers per unit.
- Residential construction payrolls are expected to rise by nearly 600,000 through 2016. Related gains in non-residential and heavy construction will number some 400,000.
- The combined increase will not close the gap in construction payrolls resulting from the downturn. But, alongside the one million in spillovers to other sectors, continued housing recovery will prove supportive for the labor market, and help the U.S. economic growth shift into a higher gear.

The downturn in U.S. residential construction from its mid-2000s heyday was unprecedented in terms of its speed, depth, and persistence. The same cannot be said of the recovery, which has been relatively gradual. Moreover, the pickup in homebuilding that began some three years ago has largely disappointed in terms of employment, with just one tenth of residential construction jobs recovered so far.

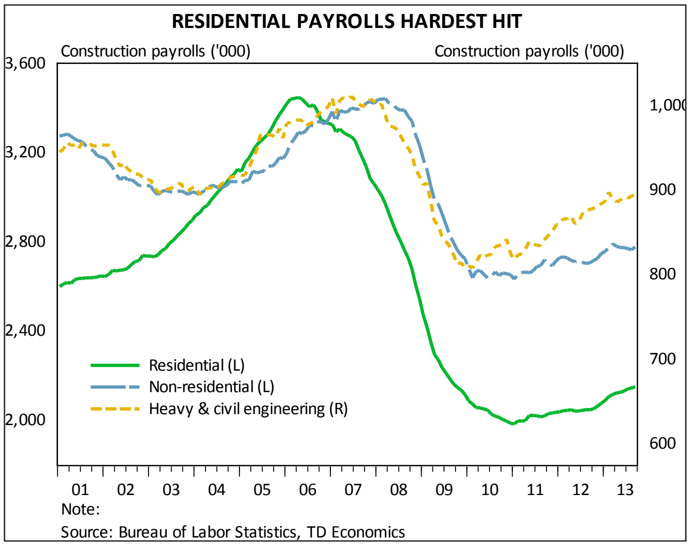
There are good reasons to be optimistic that the continuing housing recovery will cease to be a jobless one. First, the rise in homebuilding activity so far has been achieved by increases in labor utilization from very depressed levels. But, this can only go so far. Absent a groundbreaking shift in technology, additional output will require more workers. Second, activity itself will continue to advance. New home construction has rebounded by one-half in the past three years, but it has further to go in order to meet household formation needs. This should manifest more clearly as economic fundamentals improve. Third, as home prices continue to rebound, homebuilding will move away from lower value rental units towards the for-sale market, requiring greater investment and more workers. Together with a pickup in non-residential and infrastructure building activity, the construction sector should add nearly one million jobs between 2014 and 2016 – triple the pace of the previous three years – with spillovers generating another million positions in other sectors of the economy.

HOUSING RECOVERY TO ADD 1 MILLION JOBS BY 2016




Note: Presented as 6-month moving averages.
Source: Bureau of Labor Statistics, Census Bureau, TD Economics

Michael Dolega, Senior Economist




## Boom to bust

Homebuilding reached a recent peak in early-2006. The housing market, largely unaffected by the 2000 recession, shielded the U.S. economy from a deeper downturn following the dot-com bust. Motivated by strong demand and sharp home price gains – values doubled between 1999 and 2005 – builders ramped up speculative construction and hired en masse. Employment and construction increased by one-third between 2000 and 2005 – with starts exceeding 2 million units for the first time since the multi-family building boom of the 1970s. Demand for homes also soared with accommodative lending conditions (easing Federal Reserve, financial innovation, and lax lending standards), a relatively healthy labor market, and expectation of future home price gain supporting sales. By 2005, new single-family homes sold at double their long-run average, lifting the homeownership rate from 64% in the mid-90s to 69% by 2005. Still, the feverish pace of homebuilding outstripped the robust demand, with inventories of unsold homes gradually rising.

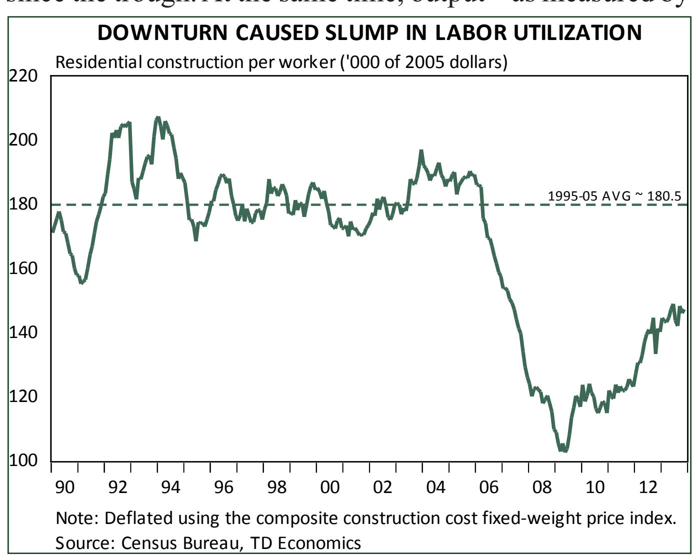
As inflation worries set in, the Fed turned from accommodative to a rapid tightening cycle, raising the federal funds target rate for seventeen consecutive meetings, beginning in June 2004. By the middle of 2006, the fed funds target rose by 425 basis points to 5.25%, increasingly pressuring home prices. As home values turned downward, builders slashed construction. The pace of homebuilding dropped by one-half before the recession even began in 2008. It halved again over the subsequent four quarters, averaging just over half-million annualized units for nearly three years.

## Unemployed or underworked

The downturn in housing resulted in widespread unemployment amongst construction workers. The jobless rate tripled to over 20% as 2.3 million construction positions were lost. Residential construction was hardest hit, shedding nearly 1.5 million jobs (see chart) – or two of every five. The fall in employment was stark, but not as severe as the drop in construction activity. New home construction fell by three-quarters, while overall residential construction activity – supported by the less-cyclical maintenance and improvements – declined by two-thirds.

The widespread prevalence of self-employment within construction mitigated the declines in employment. Nearly one in four construction workers are their own boss.[1] Many contractors continued to work amid the downturn rather than becoming unemployed. Declines were further cushioned by firms holding on to more workers than needed – a practice known as 'labor hoarding' – motivated by workforce adjustment costs and fears of skill shortages in the event of eventual recovery. Taken together, these features resulted in fewer job cuts, but led to severe underutilization of labor and capital, and lower labor productivity. Labor utilization in residential construction – defined here as annualized real gross-output per employee – fell from $180,000 in the early-2000s below $110,000 in the aftermath of the recession (see chart). Other measures of labor utilization, such as housing starts or houses under construction per worker, also fell by approximately one half.[2] Labor productivity declined, albeit less drastically, cushioned by cuts in hours worked and other inputs such as land and materials.

The rebalancing in labor utilization is the primary reason for the relatively muted job growth during the housing recovery so far. To date, homebuilding has rebounded by 60% since the trough. At the same time, output – as measured by



residential construction put in place – increased at half that pace. But, with existing workers picking up much of the additional work – either by increasing hours or rebounding productivity – much less hiring has been needed. Jobs in residential construction rose by just 7.5%, or 150,000. Had spare capacity not been present, the additional activity so far would have instead generated twice that number.

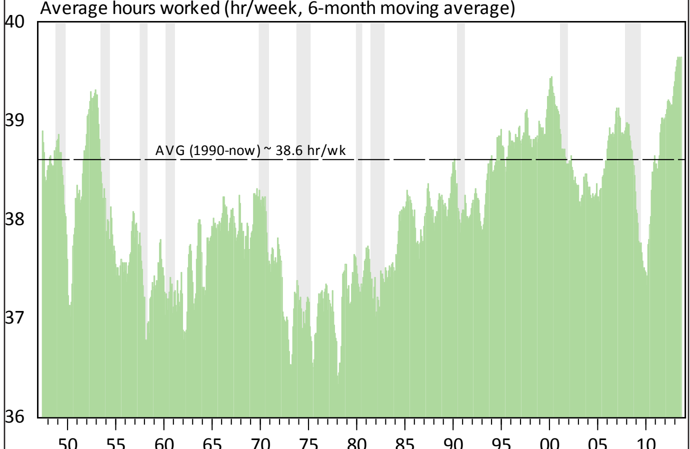
Spare capacity has been largely exhausted. The rebound in labor utilization *per worker* is not yet complete. About two-thirds of the gap has been addressed so far. But, average weekly hours for construction workers have rebounded sharply from their recessionary lows and are now at record highs going back to the 1950s (see chart). This may not be sustainable as conditions normalize. To offset a return in average hours worked to more typical levels, businesses would need to hire more than 100,000 additional workers, offsetting much of the remaining *per worker* deficiency in utilization. Any remaining spare capacity will be worked in, but the process will likely be more gradual than before. As housing starts continue to rebound, spare capacity will be exhausted altogether and the standard production-function arithmetic will once again bind.[3]

### Household formation will drive starts

And continue to rebound they will. Housing completions, and therefore starts, will need to increase by more than two-thirds still – to nearly 1.6 million – just to meet future demographic requirements. More will be needed to address the existing pent-up demand resulting from depressed household formation during, and in the aftermath of the recession. Household formation tends to be stifled during economic downturns, but bounces back as conditions normalize.

**CONSTRUCTION AVERAGE HOURS AT ALL TIME HIGH**

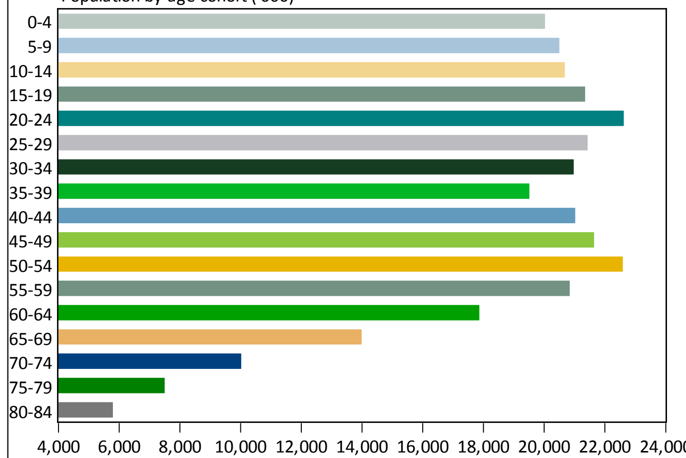
Average hours worked (hr/week, 6-month moving average)




Note:
Source: Bureau of Labor Statistics

**MILLENNIALS WILL DRIVE HOUSEHOLD FORMATION**

Population by age cohort ('000)




Note: Population estimates as of 2012
Source: Census Bureau

Recessionary conditions – higher unemployment, restricted access to credit, and (often) slumping home prices – tend to delay would-be new households from forming. This often results from young adults staying at the parents' home, but could also be related to an increased share of people seeking roommates, or moving in with relatives for economic reasons. During the recent recession, this was especially apparent amongst younger adults. Between 2006 and 2012, the population of 24-35 year olds grew by 3 million. Typically, these people would form more than 1 million additional households. Instead, over the same period, the number of households headed by individuals in that age group fell by 270 thousand. The pattern among many other cohorts was similar, albeit less stark, resulting in approximately a 2.6 million shortfall of households due to recessionary conditions.[4]

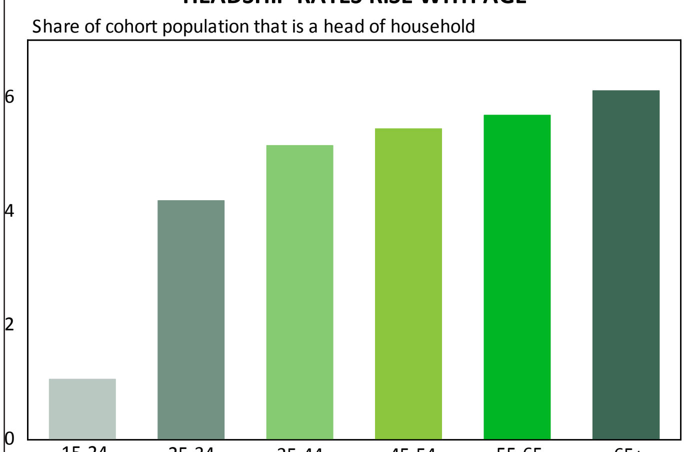
Improvements in labor and credit markets will increasingly motivate these individuals to establish households in the near future. This may lead to a rebound in cohort-specific headship rates.[5] In the least, it should stem any further declines in these rates which took place during the downturn. One way or another, the aggregate headship rate should unambiguously rise. This trend is related to the large Baby-Boomer and Millennial generations drifting across age cohorts of increasing headship rates. In fact, the next several years will see the most populous cohort of the biggest generation in U.S. history – Millennials aged 20-24 in 2012 – entering prime age for household formation (see chart). According to American Community Survey data, these headship rates tend to nearly quadruple, rising from 11% among 15-24 year olds to 42% for those in the 25-34 age bracket (see chart). As such, despite slowing population growth, household formation will accelerate. Growth in the number of households will reach 1.2% in 2015 before easing slightly to 1.0% by the early 2020s, outpacing population growth which will trend closer to 0.7% for the foreseeable future.[6]

Depending on the degree of reversal in pent-up household formation, anywhere between 13 and 15.5 million new households will be formed over the coming decade. Housing completions will need to exceed that level further to offset demolitions related to ageing, fire, or natural disasters, and allow for additional vacation homes. Historical demolition permit data from jurisdictions that publish them suggest that approximately 0.13% of total housing stock is demolished annually. This equates to another 170 thousand homes per year that will need to be replaced. Arguably, this rate may be higher after recessionary conditions rendered many properties severely under-maintained or abandoned. Allowing for the stock of vacation homes to increase in line with population adds another 40 thousand to the tally. All told, about 1.6 million new units per year will need to be built on average over the next decade to keep up with demographic demand.

### Home ownership will rebound

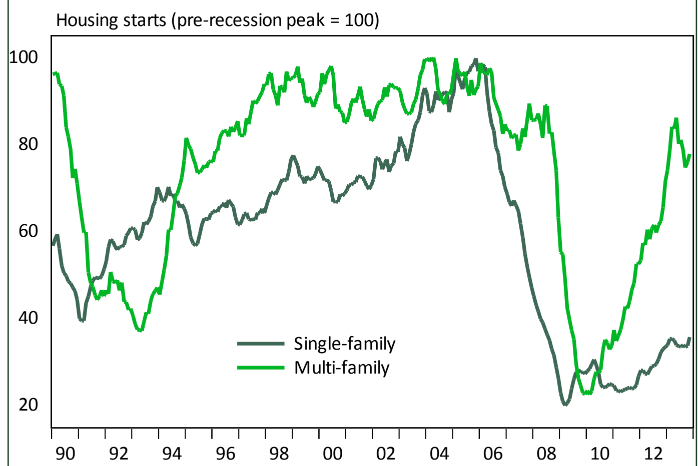
This will require the pace of housing starts to rise by over 600 thousand annualized units. The process will be a gradual one. Housing starts averaged about 920 thousand last year. We expect them to rise to 1.1 and 1.35 million this year and next, respectively. Starts should approach 1.6 million by the end of 2016, stabilizing just north of that level thereafter – still well shy of the 2.1 million reached in

HEADSHIP RATES RISE WITH AGE




Note: Based on 2012 American Community Survey
Source: Census Bureau, TD Economics

HOUSING RECOVERY BIASED TOWARDS MULTIPLES

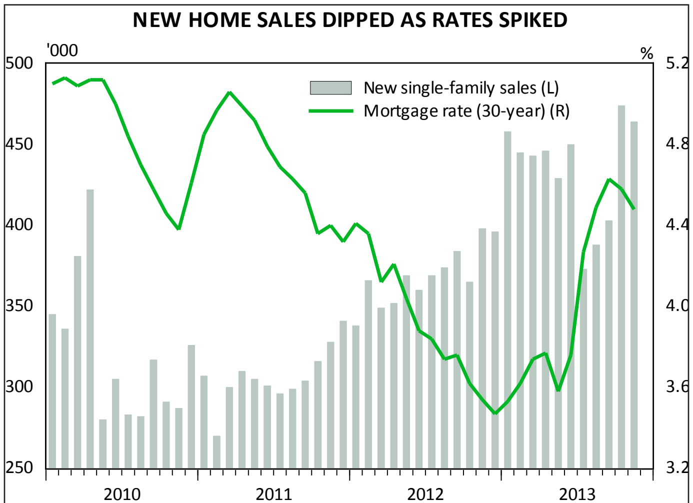



Note: Single- and multi-family starts presented as 3 and 6-month moving avg.
Source: Census Bureau, TD Economics

mid-2000s. However, whereas the recovery thus far has been disproportionately driven by multiple-family construction (see chart), future gains should increasingly come from the single-family segment.

Multi-family construction has been remarkably stable between the 1990/91 and 2008/09 recessions. Building averaged some 325 thousand units per year between 1994 and 2008, and did not experience the surge seen in the single-family segment. The boom showed up only in builder intentions. As prices surged, these became increasingly skewed towards the for-sale market resulting in larger and pricier units built. Condos typically make up one-fifth of multi-family construction, but in the mid-2000s their share approached one-half. This segment of the market has been decimated since, with just 25 thousand units – or less than one in ten multis – being built for-sale. Rental unit building, on the other hand, has fully rebounded to its pre-recession levels, having tripled from its 2010 trough to 270 thousand.

The recent bias towards apartment construction is entirely justified given the economic environment of the recovery so far. Falling home prices together with high unemployment, sagging incomes, and restricted access to credit boosted demand for rental units. While apartments are an important facet of the housing market, each unit typically contributes less to the economy than either condominiums or single-family homes. This is due to the smaller square-footage and more frugal finishes. Consequently, man-hour requirements are lesser, leading to more subdued hiring. Had the housing rebound been more even – with single-family homes maintaining their pre-recession share – construction employment would have been some 40,000 higher.



Note:
Source: Federal Housing Finance Agency

Robust demand for apartments should continue, but the turnaround in prices in recent quarters has begun to justify more for-sale building. In the multis segment, this should lead to increasing square footage and, consequently output per unit. Moreover, gradually improving labor and credit markets coupled with still-encouraging affordability have boosted new single-family home purchases. Sales of new homes are near their highest level in five years, despite a summertime setback caused by a run-up in mortgage costs (see chart). Interest rates are likely to rise with the improving economy, but the process should be more far more gradual going forward. Moreover, carrying costs remain low by historical standards. This should support the for-sale market, with future homebuilding increasingly geared to the single-family segment. Of the additional 650,000 housing starts needed to keep up with demographic demand, 500,000 will likely be single-family, with the remainder split more evenly between condos and apartments. According to our estimates of the residential construction production function – about one worker for every additional single-family home start, or one-half worker in the case of multi-family units – achieving this pace of homebuilding will require the hiring of another six hundred thousand workers.

## Homebuilding gains will spill over

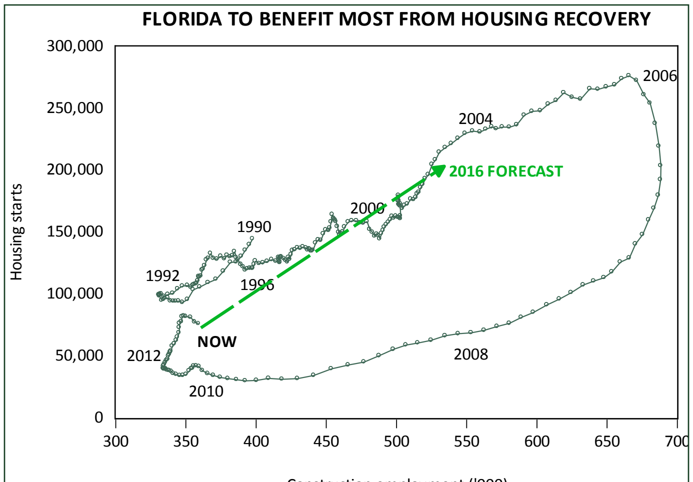
The job gains related to a rebound in housing will not end there. Job spillovers will come from increased demand from builders for materials and services. Additionally, rising demand for consumer goods and services from new homeowners will help create jobs. Many of these jobs will be related to additional non-residential building activity, with the rest concentrated among manufacturers, service providers, and natural resources & mining firms.

In terms of non-residential construction, additional building will be needed for new retail space, schools and health clinics. Typically, these projects tend to lag housing by several quarters. Moreover, new sub-divisions will require heavy construction development. Infrastructure such as new roads, power & communication lines, and water & sewer systems need to be put in place. Investment in these tends to be more contemporaneous, sometimes leading house building activity.

It is difficult to project the amount of new construction that will be needed to support the residential recovery. Development of condominiums or apartments in existing urban centers with vacant commercial space and spare infrastructure will necessarily require less new building. But, the construction that does take place tends to add more value per project. On the other hand, new sub-divisions will require substantially more non-residential and infrastructure investment. Regression analysis suggests that additional activity resulting in one residential construction job leads to approximately 0.57 and 0.16 of hiring in non-residential and heavy & civil engineering construction firms.

Admittedly, these estimates may appear somewhat optimistic, especially given the still elevated vacancy rates in commercial real estate. Movement away from traditional brick-and-mortar and towards e-commerce may result in even less additional retail space. But, this is a slow trend, and should instead manifest in additional warehouse capacity. Moreover, the increased demand amongst manufacturers, transport, and mining firms may lead to additional investment in facilities. Taken together with the severe infrastructure deficiencies across the U.S. and in light of improving state & local government finances, the estimate of 0.73 non-res and civil construction jobs per start, or about 420,000 positions given earlier projections, seems reasonable.

Secondly, spillovers will also manifest in direct jobs elsewhere in the economy. According to labor survey, rising construction employment leads to corresponding gains in other sectors. Estimates vary between types of construction, with the ratio of job creation in other sectors to total construction jobs is just above unity – some one million positions. About half of these will be in manufacturing – concentrated in wood, non-metallic minerals, machinery, fabricated metals – with the remainder generated in trade, transport, mining, and other service industries.[7]



Note: Presented as 6-month moving averages
Source: Bureau of Labor Statistics, Census Bureau, TD Economics

## South Atlantic and Mountain States Will Gain Most

Construction employment will rise by about one million, but the gains will not be evenly distributed. Florida will generate about 200,000 (see chart). Ditto for California. This is due to sheer size, depth of the housing downturns, and robust population growth projections. Florida is less populous than California, but the number of households added each year – expected at some 180,000 between 2014 and 2018 – will rival that of the Golden State, outpacing it in latter years. Rapid population growth has already pushed the Sunshine State ahead of New York to be the third most populous state in the country – after California and Texas. The Lone Star State should see housing-related construction jobs rise by about 70,000 over the next three years, while the hard-hit construction sectors in Arizona and Nevada are likely to add 92,000 and 32,000 jobs, respectively. Georgia and North Carolina's housing markets were not nearly as hard hit, but should generate a respectable 40,000 and 32,000 respectively, driven by strong in-migration.

In terms of relative gains, it will be Arizona, Nevada, and Florida that will see the biggest boost to employment. Construction job gains for the three hardest-hit states will amount to 73, 58, and 51 percent of current sectoral employment. Despite these sharp gains, construction employment across these states will still be far below its mid-2000 peak. Arizona should see gains to within 15% of peak, while Florida should regain four of every five construction jobs at peak. Nevada, which lost two of three construction jobs, will only manage to regain 60% of the previous level. By comparison, national construction employment should reach 87% of its peak level over the next three years.

## Bottom line

Let's now take a step back and summarize. Construction – as measured by the number of units started – has bounced back by 60% since the trough or an annualized 350,000 units. In normal times this would result in almost 300,000 additional residential construction jobs. But, hiring amongst homebuilders has been just half that figure due to rising hours worked, rebounding productivity, and a higher share of less expensive rental building. The first two factors are also prevalent in the non-residential segment, and to lesser extent heavy construction. Spare capacity has effectively halved the construction hiring thus far.

However, while labor productivity still has room to rebound, hours worked are at their record high and are bound to retract somewhat. These factors will in the future increasingly offset each other. Residential construction should rebound to its demographically driven 1.6 million annualized pace over the coming years. In contrast to the recent rental unit driven rebound, much of this will be in the single-family segment. The additional homebuilding will require another 600,000 workers to keep up. The gains will not happen overnight, but should fully show up over the next three years. By the end of 2016 non-residential and heavy construction should also add about 300,000 and 100,000, respectively. Additionally, spillovers from construction may generate one million elsewhere in the economy, with gains most pronounced in manufacturing, transport, trade, and natural resources & mining. All told, the two million housing-related job tally expected in the coming three years will be more than triple the tally in the previous three years. The housing recovery should begin to more robustly support the labor market, helping the U.S. economy shift into higher gear.

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**END NOTES**

1. See Georgellis, Yannis and Howard J. Wall. 2000. "Who Are the Self-Employed?" FRBSL Review November/December 2000 and Hipple, Steven F. 2010. "Self-employment in the United States." BLS Monthly Labor Review, September 2010.
2. Housing starts fell from 0.65 to 0.25 per employee, while houses under construction per worker declined from 0.38 to 0.22.
3. Estimates of labor requirement per unit of housing are based on a panel data regression of construction employment by state on the number of single-family housing starts, multi-family housing starts, and real non-residential construction put in place. Results suggest a ratio of 0.987 and 0.514 jobs per single- and multi-family housing start, respectively. The estimates were further corroborated by studies by the Bureau of Labor Statistics published in Bureau of Labor Statistics. 1972. "Labor and material Requirements for Construction of Private Single-family Houses," BLS Bulletin 1755 and Bureau of Labor Statistics. 1978. "Labor and material Requirements for Construction of Private Multifamily Houses," BLS Bulletin 1892.
4. Dunne, Timothy. 2012. "Household Formation and the Great Recession." FRB Cleveland Economic Commentary 2012.08.23.
5. Headship rates are defined as the share of population in a particular age cohort that is a head of a household. Headship rate typically increase with age and range from about 10.5% for 16-24 year olds to 61% for the 65 years and older according to the results of the Census Bureau's 2012 American Community Survey.
6. According to the most recent Census Bureau population projections published in December 2013.
7. Carliner, Michael. 1993. "Home Building Jobs." Housing Economics 1993-12.