



NCCI Holdings, Inc.

Gauging the Economy

January 2011

Gauging Current Conditions: The Economic Outlook and Its Impact on Workers Compensation

The gauges below are updated quarterly to reflect the current economic outlook for factors that typically impact workers compensation. Each gauge also provides some context for the outlook, relative to a historical average of the previous five years.

Employment Growth

Continued weakness in employment growth suggests that downward pressure on exposure and claim frequency will likely continue until the labor market is poised for full recovery.

Despite tepid job growth prospects and lingering fears about the labor market, the economy continues to move along in the right direction, albeit at a snail's pace. According to the most recent data available from the Bureau of Labor Statistics, private sector employment rose by 113,000 in December 2010 compared to 79,000 in November. But the government sector continues to suffer, as 10,000 jobs were cut in December compared to 8,000 jobs slashed in November.

The greatest challenge facing the economy at this point is how to avoid a situation where millions of workers remain unemployed or underemployed for years. This can be highlighted by the fact that, although the economy has been adding private sector jobs for the past 12 months, the unemployment rate has remained stubbornly high (see Implications section for more information).

Despite strong corporate profits and signs of broader economic recovery gaining further momentum, private sector hiring remains weak, and, as a result, any reasonable job market recovery is not expected until the middle of 2011. The workers compensation industry's underwriting performance is directly linked to the labor market recovery. So, it is anticipated that any rebound in workers compensation premiums or claim frequency will remain subdued in the near term.

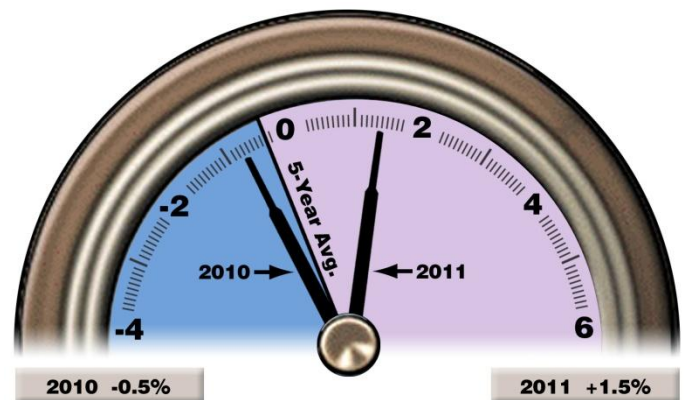


Exhibit 1— Private Sector Employment Is Slowly Improving

Wage Growth

Continued slack in the labor market points to weak growth in weekly wages. This implies that the growth in indemnity severity (cost per claim) will also be limited, at least in the short run.

The growth rate of average weekly wages (AWW) fell steadily from 2006 to 2009. In fact, for the first time since 2000, the AWW fell by 0.6% in 2009. The preliminary estimate by the Labor Department indicates that AWW grew by 1% in the first quarter 2010 compared to the first quarter of 2009.

Average weekly wages actually reflect the combined effects of changes in two key components: hourly wages and hours worked per week per worker. Past experience suggests that hourly wages will likely continue to increase, although the increases are expected to be modest during this weak labor market recovery. The outlook for changes in hours worked per week likely will increase from its relatively low level, and this, in turn, will increase AWW by more than the rise in the hourly wage.

It now seems more likely that the projected increases in production in 2011 will be met in part by increases in average hours worked per week. Our projection of 2.6% growth in AWW for 2011 is based on conservative assumptions of 1% growth in average weekly hours worked (the increase from a preliminary estimate of just over 34 hours in 2010 to near 34.5 hours in 2011) and 1.6% rise in hourly wage rate to keep pace with expected inflation.

Medical Inflation

Despite fear of general price deflation by some economists, medical price increases are expected to remain relatively strong and will continue to keep an upward pressure on medical severity.

According to Moody's Economy.com, medical care inflation is forecast to increase to 4.2% in 2011, from its projected average increase of 3.5% in 2010. In comparison, the average headline inflation rate of the overall economy is expected to be around 1.6% in 2010 and 1.5% in 2011. Medical price inflation will likely outpace the general rate of inflation in the economy in the foreseeable future. This suggests that there will be continued pressure on medical severity (cost per claim) many years into the future. Medical severity will be further impacted by the enhanced utilization of medical services mainly due to the aging of the workforce.



Exhibit 2—Wage Growth Expected to Slowly Increase

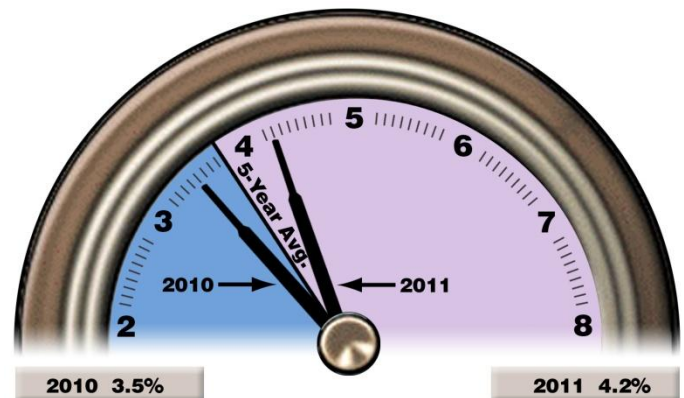


Exhibit 3—Medical Care Price Inflation Will Continue

Interest Rates

Investment income will likely be constrained due to the continued Federal Reserve policy of keeping short-term interest rates at historically low levels as well as attempts to drive long-term interest rates down through its bond buying program.

During its Federal Open Market Committee meeting in November, the Fed renewed its commitment to keeping the target range of the federal funds rate at 0% to 0.25% for an extended period of time. At the same time, the Fed also announced a second round of bond buying, termed Quantitative Easing (QE2), to further reduce long-term interest rates and the credit spread with the goal of boosting investment and consumer spending. The Fed plans to buy \$600 billion worth of longer-term Treasury securities (at a rate of about \$75 billion per month) through the end of the second quarter of 2011. The central bank also announced that it will reinvest an additional \$250 to \$300 billion into Treasuries from proceeds of its earlier investments.

The Fed's rationale in implementing QE2 is that the buying up of government debt will hold long-term interest rates at lower levels. This will encourage investors to buy stocks and corporate bonds, which will help stimulate the economy. A further possible impetus will come from a weakening of the dollar, thus helping US exports.

The success of the intended Fed actions is far from certain. The policy has a large number of critics, who contend that, at best, it will be ineffective in bringing change in the real economy, and at worst, it may stoke an inflationary spiral and an asset price bubble.

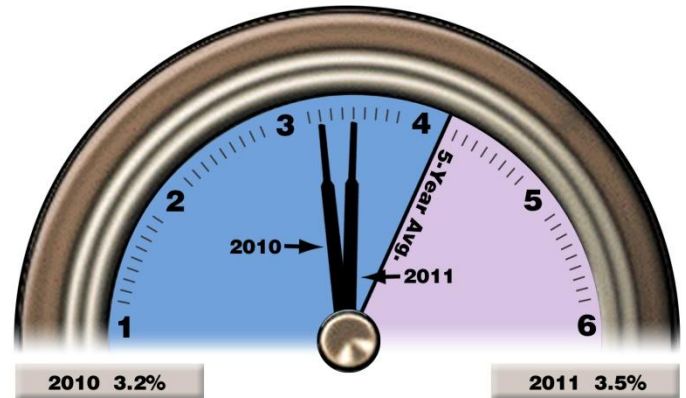


Exhibit 4—Interest Rates May Increase Slightly by 2011

Behind the Gauges:

Labor Market Conditions and Outlook

The following set of charts and the accompanying "Implications" article focus on labor market conditions and their ramifications for the P&C industry.

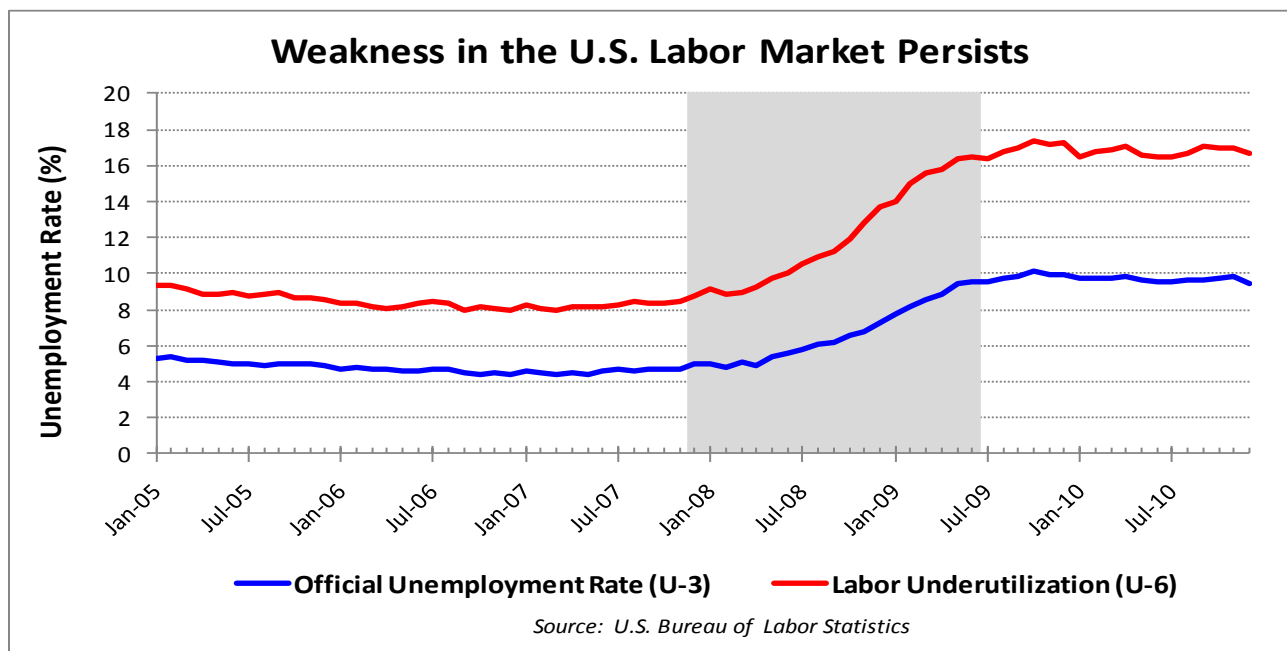
Joblessness

According to the latest Fed forecast, the average unemployment rate is projected to drop from 9.6% in 2010 to a still relatively high 7.2% by the end of 2013. From a workers compensation point of view, the industry underwriting performance is directly linked to the health of the labor market. The longer the labor market picture remains bleak, the longer it will take for the recovery in workers compensation to take a firm hold.

One of the hallmarks of the current recession has been a persistently high unemployment rate. For the economic recovery to evolve into a self-sustaining expansionary phase, businesses need to start hiring again in order to fuel consumer spending, thereby further boosting production and powering the virtuous cycle. So far, that has not happened on a sustained basis. On the positive side, initial claims for unemployment insurance—a good proxy for layoffs—have been slowly declining since their peak in early 2009. However, the disconcerting fact remains that there are more than 9 million people who are still on some form of unemployment insurance.

According to the latest figures from the Labor Department, the unemployment rate remains very high but unexpectedly fell from 9.8% in November to 9.4% in December, which is the lowest level since May 2009. However, about half of the December's decline in the unemployment rate can be attributed to the departure of 260,000 workers from the labor force. As a result of workers leaving the workforce, the labor force participation rate fell to 64.3%, which is the lowest level since April 1984. Moreover, once the number of people who are underemployed is taken into account, an alternative measure of the unemployment rate is close to 17%. This broader measure of labor underutilization (as measured by U-6) gives a better picture of the troubles of the labor market, as more than 26 million people are either unemployed or underemployed.

The economy needs to grow by roughly 100,000 jobs per month to prevent the current unemployment rate from rising and to account for the growth in population and labor force. To make any significant reduction in the unemployment rate, the economy needs to generate at least 200,000 jobs per month over the next couple of years. However, we are currently far below that level. The economy is expected to pick up momentum going forward, but there is still a long way to recover 8.5 million jobs lost since the last recession.

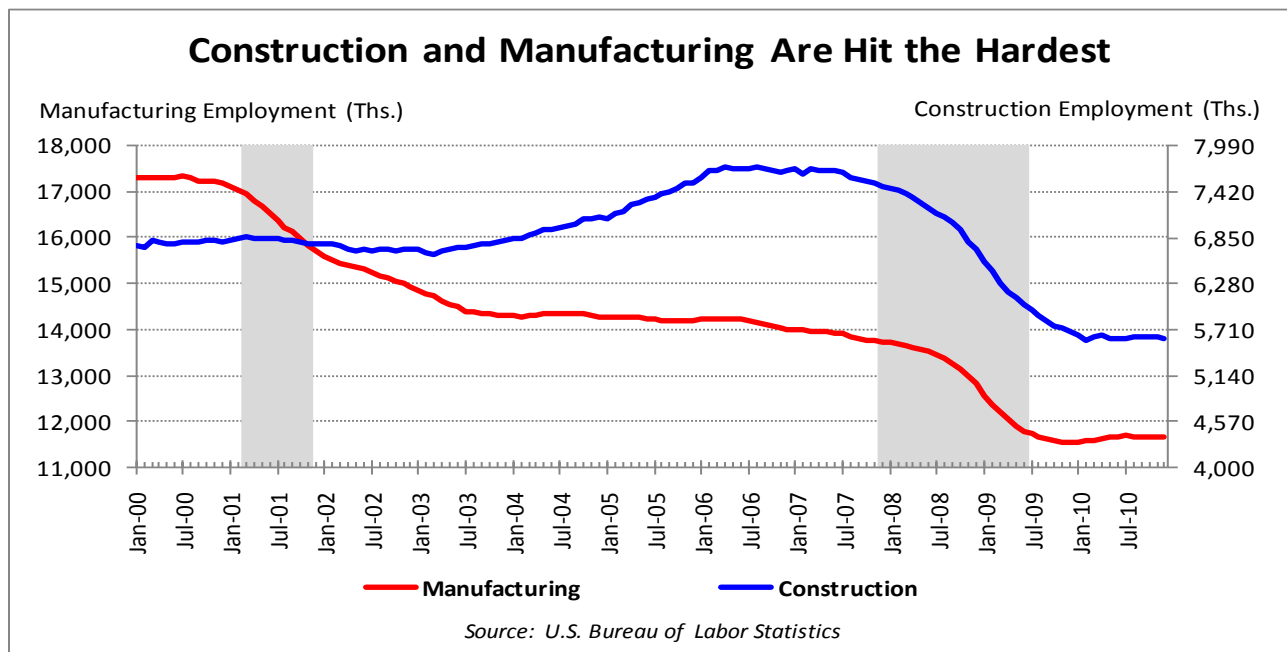


Construction and Manufacturing Employment

Construction and manufacturing are crucial sectors from the workers compensation line of business perspective. Manufacturing and contracting account for roughly 20% of WC payroll but contribute about 40% to WC premiums across all NCCI's states.¹

Two of the hardest hit sectors of the economy during the recession were construction and manufacturing. From its peak in August 2006, construction employment is down by more than 2 million workers—a decline of over 27% in employment in that sector. At its peak, more than 7.7 million workers were employed in the construction sector. According to the Moody's Economy.com latest forecast, construction employment may see some gains in the coming years as the economy recovers slowly, but it may take another 20 years before construction employment reaches the prerecession peak.

Since July 2000, the manufacturing sector has lost more than 5.6 million jobs—a decline of about 33%. However, unlike construction, manufacturing's share of employment has declined steadily over the past 50 years. The onslaught of the recession exacerbated the employment situation in manufacturing. Although manufacturing employment is expected to recover somewhat in the next few years, its long-term trend is one of declining trajectory. Most of the manufacturing jobs that have been lost are unlikely to return because new hubs of traditional manufacturing are being found across developing and emerging economies such as China, India, and Brazil. The weak job outlook for construction and manufacturing means there will be little, if any, upward pressure on workers compensation exposure or claim frequency in those industries.

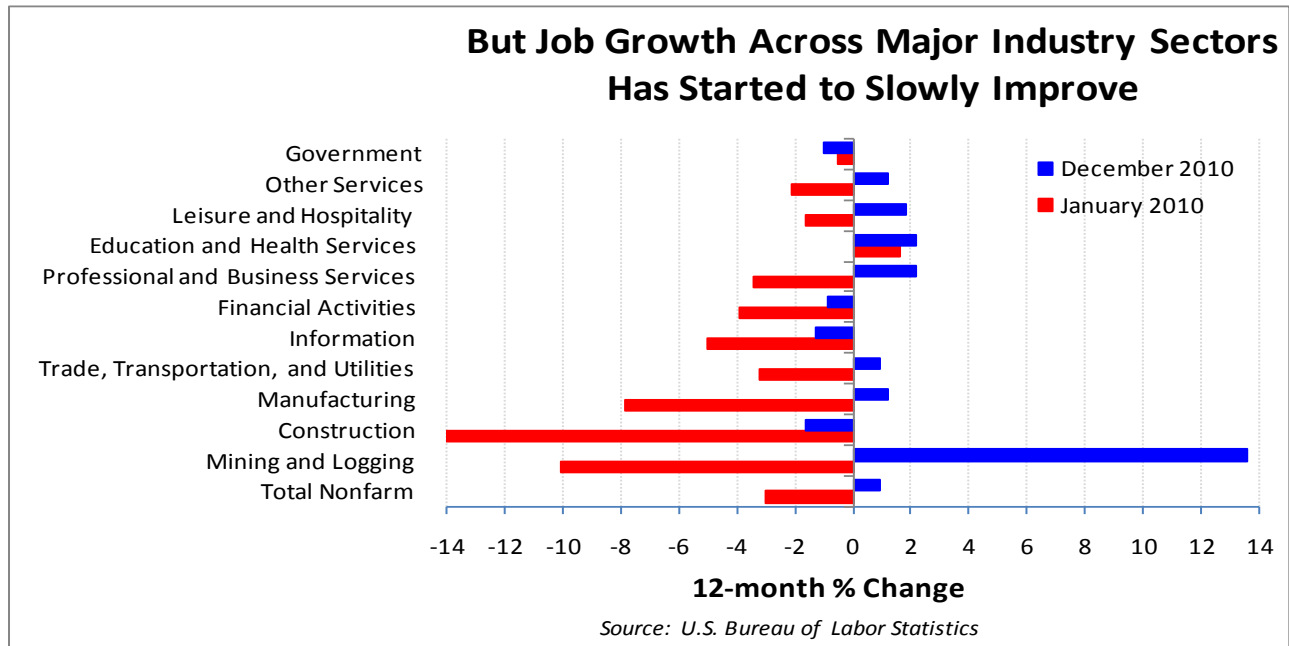


Employment Growth Across Industries

Most sectors of the economy have started to show improvement compared to their levels a year ago. Based on the latest monthly data from the Labor Department, early in 2010 all but one of the major sectors of the economy (Education and Health Services) were still declining from their levels a year ago. The picture is markedly different 11 months later when only four of the major sectors are still posting declines on a year-over-year basis. Except for the government sector, the declines in other sectors of the economy continue to decelerate at a decent pace—lifting hopes that labor market turnaround has started to gain some momentum.

The employment picture in the government sector (especially at the state and local levels) is not expected to improve over the next couple of years. Most local governments and state budgets are still suffering because their major source of tax revenue is property taxes, which are still declining due to the one- to two-year lag between current market values and values used by tax collectors. Although other sources of tax revenue, such as sales tax, have started to recover from the sharp declines during the recession, the progress has been painfully slow. This headwind of strained budgets for most local governments generally receives limited attention, but it is one of the key factors that is limiting the speed of recovery.

By most accounts, the outlook for government workers remains murky because the federal government is looking to cut spending and reduce the deficit over the next several years.



Demographics and Technology Are Key to Long-Term Outlook

A number of factors can affect employment growth over time—population and industry growth, technological changes, and changes in consumer demand and preferences among others. According to the latest data from the US Census Bureau, the nation's population was 308.7 million in 2010. Currently, the population growth stands at approximately 0.9% annually. That means that over the next decade, more than 25 million additional people will be part of the population base. All these people will need housing, goods, and services to cater to their needs. Many of them also will need jobs.

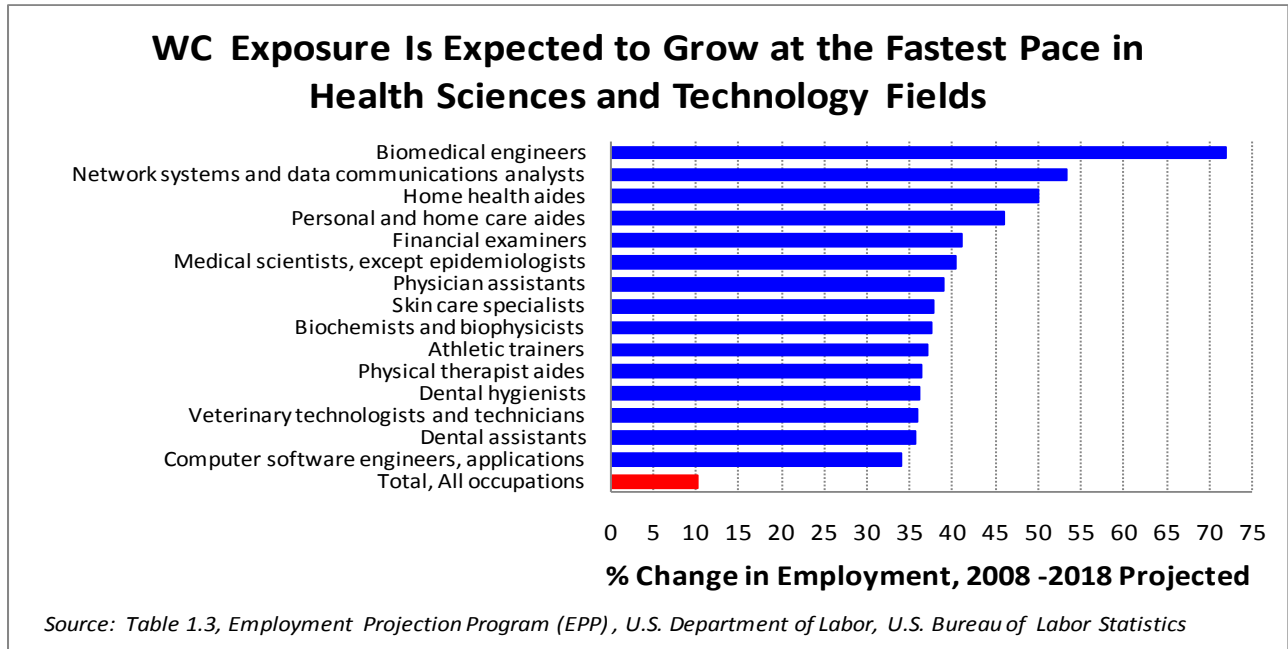
Among key demographic factors, the aging of the workforce is expected to become an important issue for the workers compensation market over the coming decades. Older people are expected to represent a larger share of the workforce due to aging of population as well as the increase in labor force participation rate by the older people. As people are expected to live longer (and retire later in life), the question is, what kind of occupations and industries will serve the needs of the aging baby boomers? Another significant question is, what role will technology play in shaping the long-term outlook of workers compensation? The next section attempts to answer some of these questions by using the latest employment projections from the Labor Department.

What Occupations Will Be Growing the Fastest?

According to the latest biannual employment projections from the Labor Department, the fastest growing occupations over the next decade (2008–2018) will be in the health sciences and technology fields. Each of the 30 fastest growing occupations is projected to grow by more than 29% from 2008 to 2018. Biomedical engineering is projected to be the fastest growing occupation with an impressive 72% growth rate. The importance of the health sciences field is likely to grow over time as the aging population is expected to consume more healthcare services.

The 32% projected growth in jobs over the 2008–2018 decade for computer software engineers is much greater than the projected average for all occupations (10%). The demand for computer networking is the primary driver behind the growth projections for computer software engineers. Paradoxically, the jobs of computer programmers are expected to shrink slowly, decreasing by 3% from 2008 to 2018. This decline is a result of several factors, such as advances in programming tools and languages, increasing ability of people to write their own programs, and most importantly, the growing trend toward offshore outsourcing across the world.

The occupations with projected high growth are also likely to be high wage as well. According to the BLS, very high (VH) earning occupations are ones in which the median wage is higher than that earned by 75% of all workers. Occupations in which the median wage is above the national median for all workers are classified as having high (H) earnings. On this basis, the majority of the fastest growing occupations are considered high paying jobs. In fact, out of the top 30 fastest growing occupations, roughly 67% (VH = 43.3%, H = 23.3%) are considered high wage occupations.

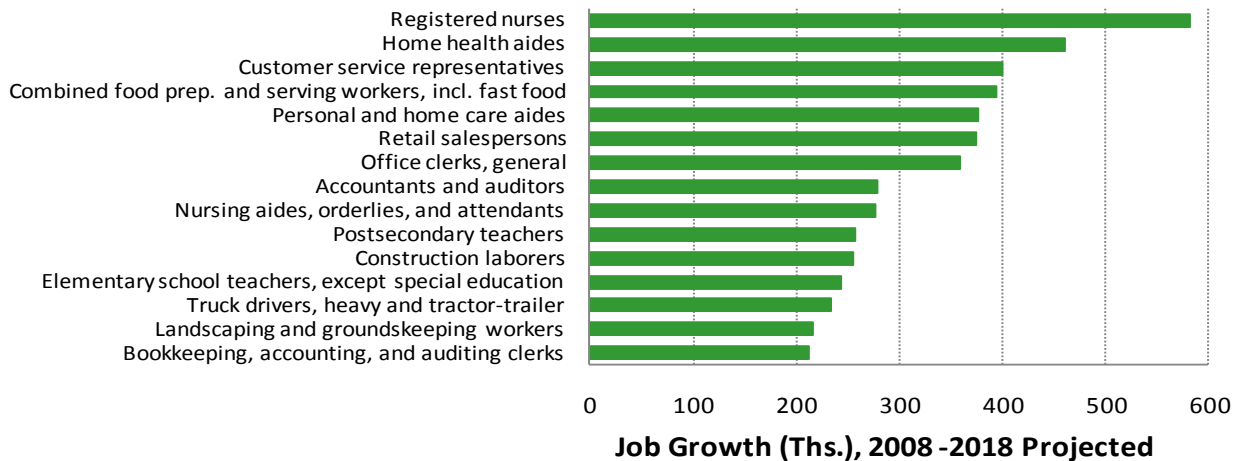


What Occupations Will Add the Most Jobs?

The 30 occupations with the projected largest numeric increase are dominated by service occupations, such as healthcare support, personal care, and office and administrative support. Each of the 30 occupations with the greatest absolute job growth is projected to add at least 134,900 new jobs over the 2008–2018 decade. The largest numerical growth is projected for registered nursing, which is expected to add about 582,000 new jobs (a 22% growth rate). The second highest addition of jobs is projected for home health aides, with 460,900 new jobs (50% growth) over the projection horizon.

Many of the occupations that are projected to add the most new jobs are also considered high paying professions. Out of top 30 occupations adding the most jobs, about 50% (VH = 23%, H = 27%) are considered high wage occupations.

Health and Services Occupations Will Continue to Drive WC Exposure and Revenue Growth



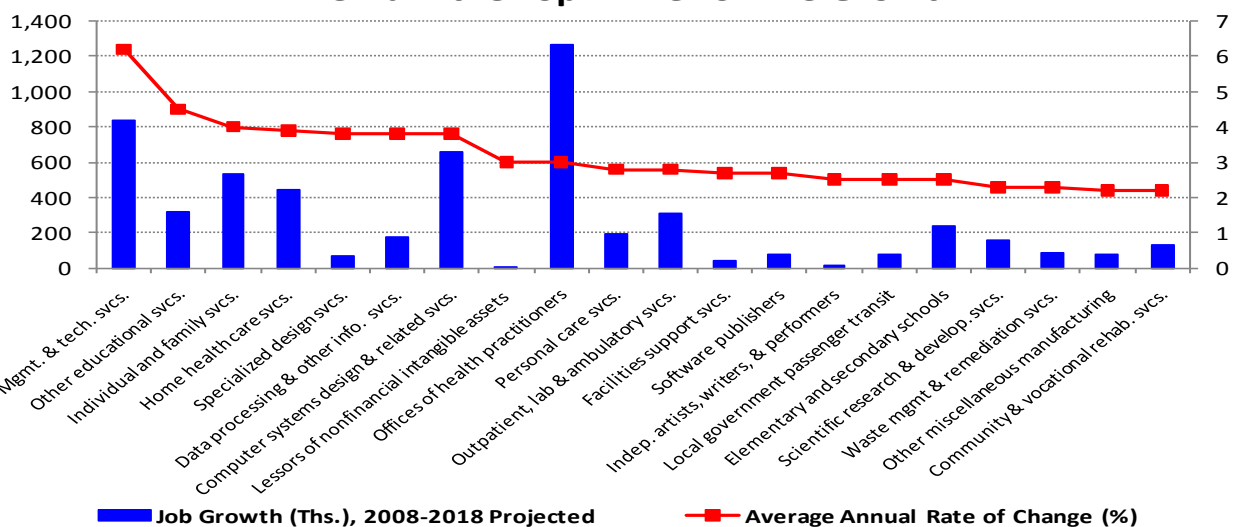
Source: Table 1.4, Employment Projection Program (EPP), U.S. Department of Labor, U.S. Bureau of Labor Statistics

What Industries Are Expected to Grow the Fastest?

Looking at the projections by industry reveals that in terms of average annualized growth between 2008 and 2018, management, scientific, and technical consulting services will be the fastest growing industry with 6.2% growth rate, followed by other educational services (4.5%) and individual and family services (4%). Individual and family services is composed of services for the elderly and disabled, which is expected to grow from about 585,000 jobs in 2008 to over 1 million by 2018, an increase of 74% (or 5.7% per year). The demand for the industry is expected to rise due to several factors, such as aging of the population and the growing awareness of mental and disability issues. As health insurance providers are expected to cover more mental and behavioral health treatment options, and a growing number of elderly individuals seeking social services, demand for workers in these industries is projected to increase.

The industry and occupational analysis shows that the health sciences and education sectors will remain important sources of WC exposure and premium growth over the coming decade.

Educational, Health, and Services-Providing Industries Will Remain the Top Driver of WC Growth

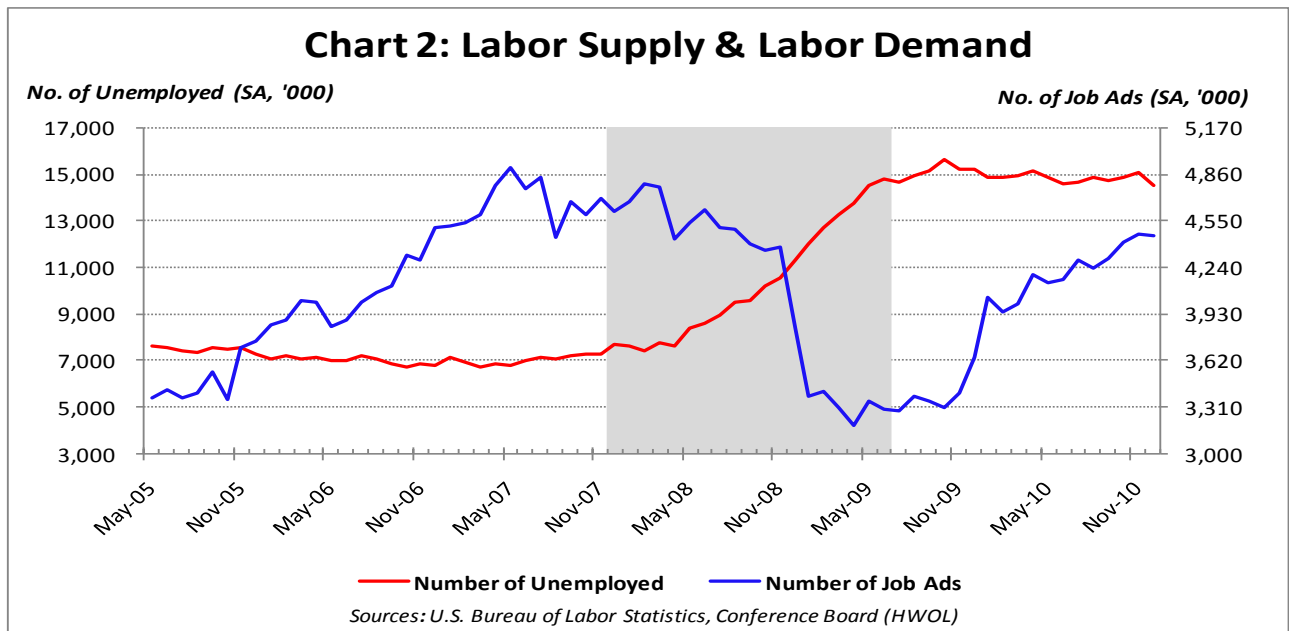
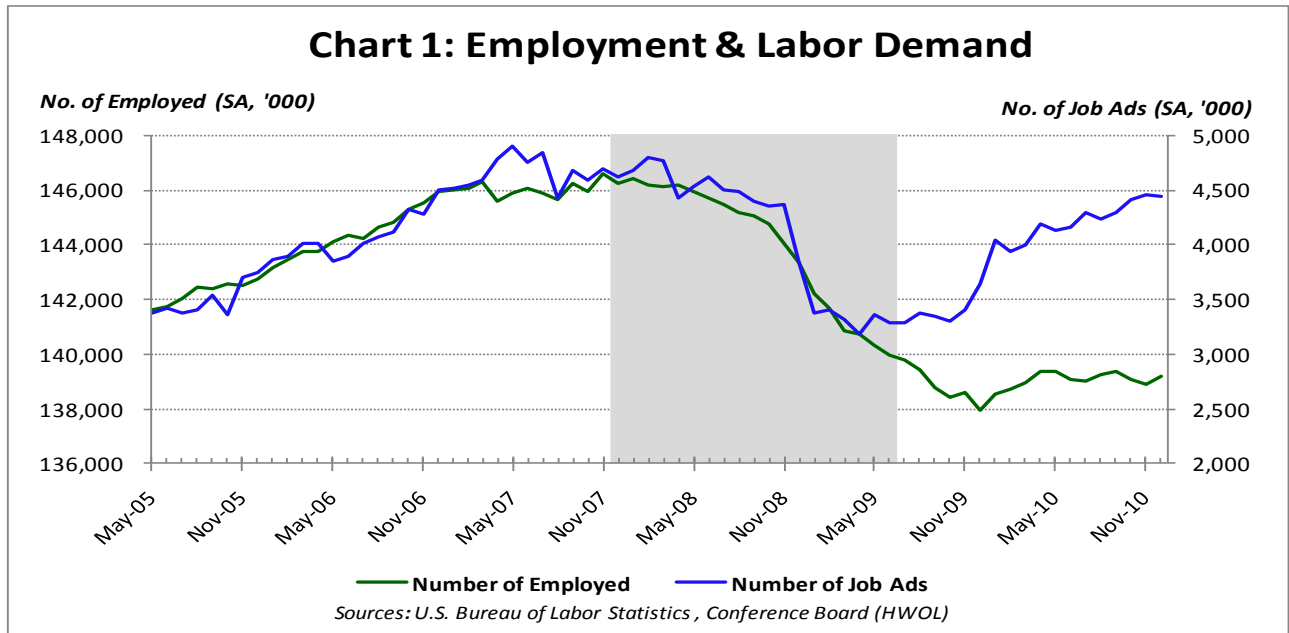


Source: Table 2.3, Employment Projection Program (EPP), U.S. Department of Labor, U.S. Bureau of Labor Statistics

Implications:

Is High Unemployment a Structural Issue for the Labor Market? Some Evidence From the Beveridge Curve

One of the defining features of the recent recession and subsequent recovery has been the persistently high unemployment rate. The unemployment rate has remained above 9% for 20 consecutive months, which is the longest time period on record since 1949. The puzzling question has emerged: why has the increase in labor demand, as reflected by the increasing number of job vacancies, not been accompanied by a similar rise in hiring or a decline in the unemployment rate (Chart 1 and Chart 2)? The answer to that question is key to understanding the recovery in workers compensation. If languishing employment is a result of permanent structural changes in the economy, then the recovery in the labor market will take much longer than anticipated. However, if weak employment growth is more of a cyclical phenomenon, then we should expect meaningful employment growth over the coming years.



One can easily glean from Chart 1 that, although the number of job ads has been showing an upward trend since mid-2009, the number of employed has remained relatively flat. And perplexingly, the two numbers actually have been diverging lately. Nationally, there are more than 10 million unemployed workers than advertised vacancies in December (Chart 2). Another way to look at the health of the labor market is to analyze government data on the nation's Labor Supply/Demand Ratio (Chart 3).

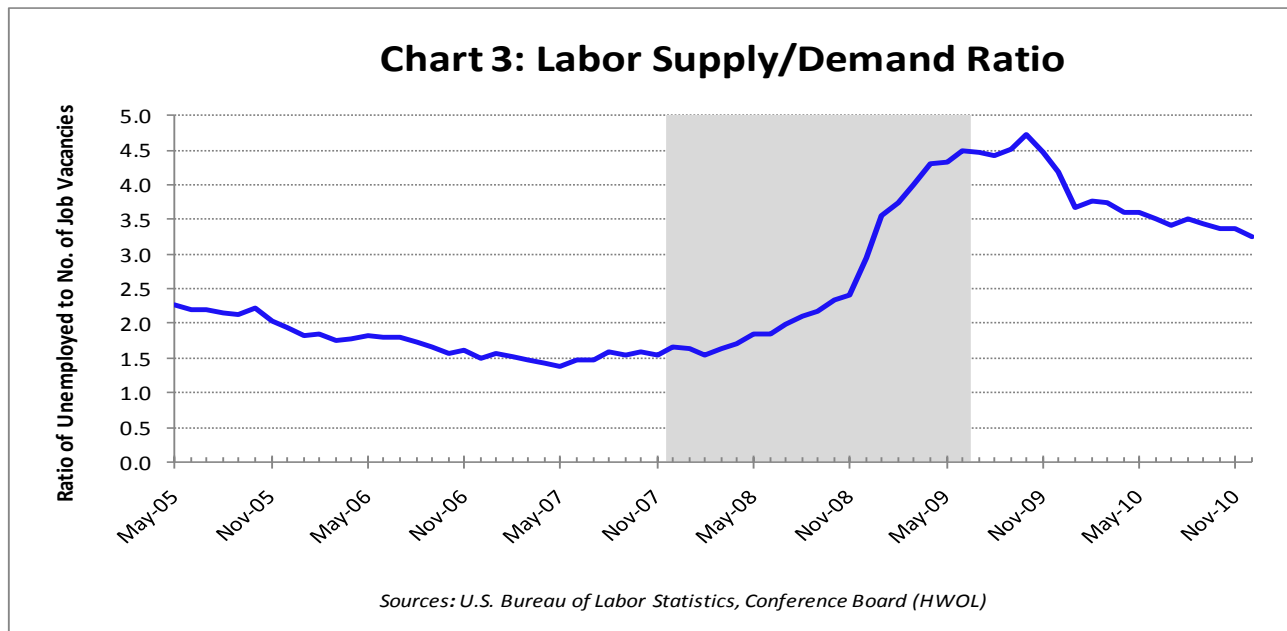


Chart 3 shows that, although the number of unemployed relative to advertised vacancies has come down from high of 4.73 in October 2009 to 3.26 in December 2010, it still remains very high compared to 1.38—the lowest level reached in May 2007—or the six-year average of 2.6 between 2005 and 2010. Furthermore, despite improvement in the number of job ad postings, the number of unemployed remains perniciously high, lending some credence to the argument that this time the market dynamics are different and the structure of the economy may have permanently changed as a result of the deep recession, which left millions of people unemployed for an extended time period. Narayana Kocherlkota,² the president of the Federal Reserve Bank of Minneapolis, recently attracted considerable attention by saying in an August 2010 speech

“What does this change in the relationship between job openings and unemployment connote? In a word, mismatch. Firms have jobs, but can’t find appropriate workers. The workers want to work, but can’t find appropriate jobs . . . Whatever the source, though, it is hard to see how the Fed can do much to cure this problem. Monetary stimulus has provided conditions so that manufacturing plants want to hire new workers. But the Fed does not have a means to transform construction workers into manufacturing workers . . . Most of the existing unemployment represents mismatch that is not readily amenable to monetary policy.”

The argument has some merit and has caused quite a stir because of its serious implications for the labor market recovery as well as effectiveness of monetary policy in combating the high unemployment rate. However, the evidence of structural shift in the labor market is not very clear at this point. One of the key arguments against such a scenario is if structural issues are the leading factors for high unemployment, then inflationary pressure leading to rising wages and prices in sectors of the economy with structural shortages would be expected. Salary offers should increase as result of mismatch because too few qualified workers are available relative to employer demand. However, this does not appear to be the case, at least based on current evidence. To the contrary, inflation is so low that the Fed is more worried about a potential destabilizing deflationary spiral than an inflationary spiral at this point in the recovery. There are a number of recent studies^{3,4,5,6} pointing to an alternative explanation of the phenomenon of high unemployment being consistent with increasing labor demand.

One of the most serious implications of a structural shift is that the long-term unemployment may become permanently high as a result of a so-called hysteresis⁷ effect in the labor market. According to the economic theory, the workers who lose their jobs due to a temporary shock and then remain unemployed for an extended period may become permanently unemployed because they miss out on the job training and skill acquisition that normally takes place in a well functioning labor market. This explanation has been cited by a number of prominent economists⁸ in explaining the differences in long-run unemployment rates between Europe and the United States. As long-term unemployed workers lose their edge, they become even more unemployable due to a possible negative perception by potential employers. The relevance of such an effect is particularly pertinent under the current scenario of very weak job recovery when millions of workers have been unemployed for an extended period of time.

This Implications section attempts to shed some light on these important aspects of the labor market dynamics.

Framework of the Analysis

One of the most celebrated empirical relationships in macroeconomics has been the Phillips Curve, describing the inverse relationship between unemployment rate and the inflation rate. Its less known counterpart, the Beveridge Curve,⁹ represents an inverse relationship between unemployment rate and job vacancy rate. The Beveridge Curve has been mostly relegated to the margins and has only started to gain prominence over the last few decades. The growing interest in the Beveridge Curve is due to the fact that it captures the state of labor market structural dynamics. Movements along the curve (see Chart 4) are typically interpreted as cyclical movement in labor demand, whereas the shifts in the curve to the left or right indicate possible long-term changes in the “equilibrium” or “structural” unemployment rate. Structural unemployment is generally defined as the form of unemployment due to the mismatch between the sufficiently skilled workers seeking jobs and the available jobs in the labor market. The number of diverse factors that can cause a shift in the Beveridge Curve includes changes in the intensity of job destruction (layoffs) and job creation (new hiring), changes in the labor force participation rate, or divergence in the matching efficiency in the labor market.

If the current woes of the labor market are rooted in structural issues, then that means that much of the problem rests with the unemployed workers; either they do not have the right skills or they reside in the wrong place for the currently available jobs. If this is the case, then the standard macroeconomic tools of fiscal and monetary policy will be ineffective in solving this crisis. There are no good policy alternatives in that case, not at least in the short term. The outlook for the labor market recovery remains bleak under such a scenario.

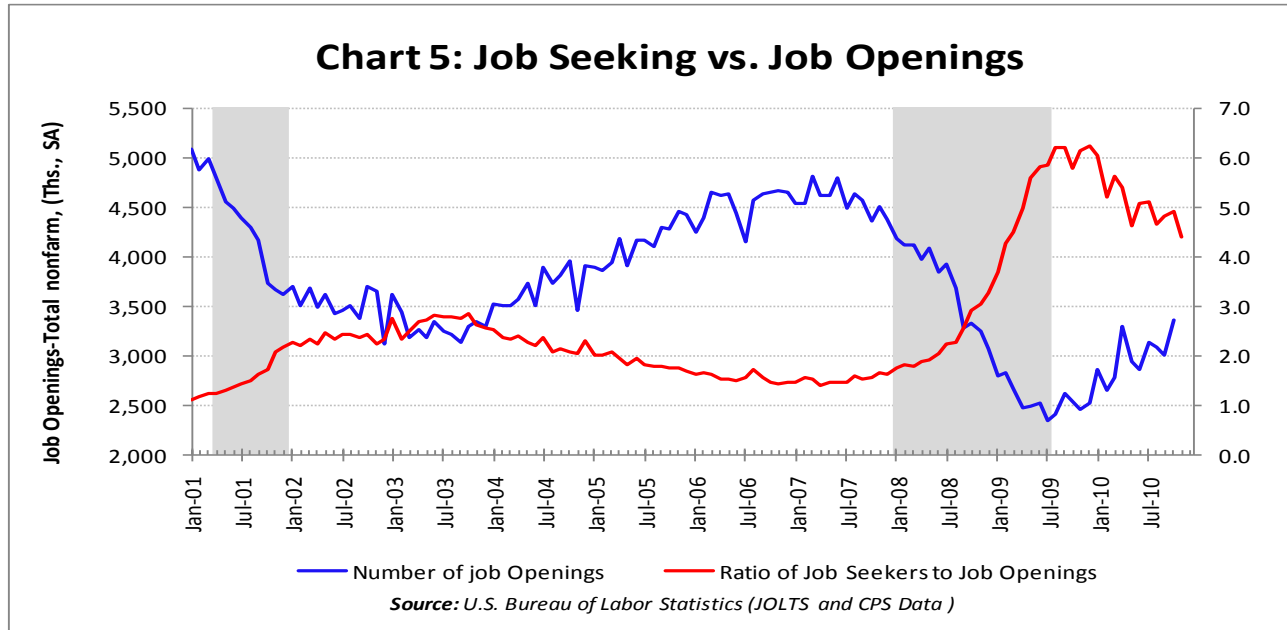
The structural shift in the labor market can be simply depicted in Chart 4. The movements along the curve show the state of the economy in a typical business cycle. For example, in a recessionary (expansionary) phase, the unemployment rate will be high (low) and vacancy rate will be very low (high), as shown by the movement along the right-hand side (left-hand side) of the curve. Due to frictions in the labor market, even in a normally functioning market there are always unemployed people looking for a job while at the same time firms are also looking to fill those positions. These frictions can take various forms, such as job-skill mismatch, geographical mismatch, cost constraints of job search and recruitment, and normal waiting time before a worker accepts a job or a firm hires a worker. Any indication in the shift in the curve generally points to changes in the efficiency of the labor market.

Chart 4: Beveridge Curve : Structural Shift in the Labor Market



Recent Evidence From the Labor Market

The nationwide measure of vacancy rate is generally gauged by the Job Openings and Labor Turnover Survey (JOLTS), published by the Bureau of Labor Statistics (BLS) on a monthly basis. According to the survey, the level of job openings has been on an upward trajectory since mid-2009 (Chart 5). Job vacancies reached their lowest level (2.46 million) in the 3rd quarter of 2009 and then started to slowly climb, reaching their current peak (3.05 million) in the 3rd quarter of 2010. The ratio of job seekers to job openings has been trending lower since reaching its peak in November 2009, but it still remains very high relative to the historical average. The BLS also reports a “job opening rate” on a monthly basis (Chart 6), which measures the number of job openings as a percentage of total employment in addition to the job openings level. The rate, like the number of job openings, has also been showing improvement over the last year. While there has been some improvement in both measures (job openings as well as job opening rate), the numbers still remain far below their historical averages.



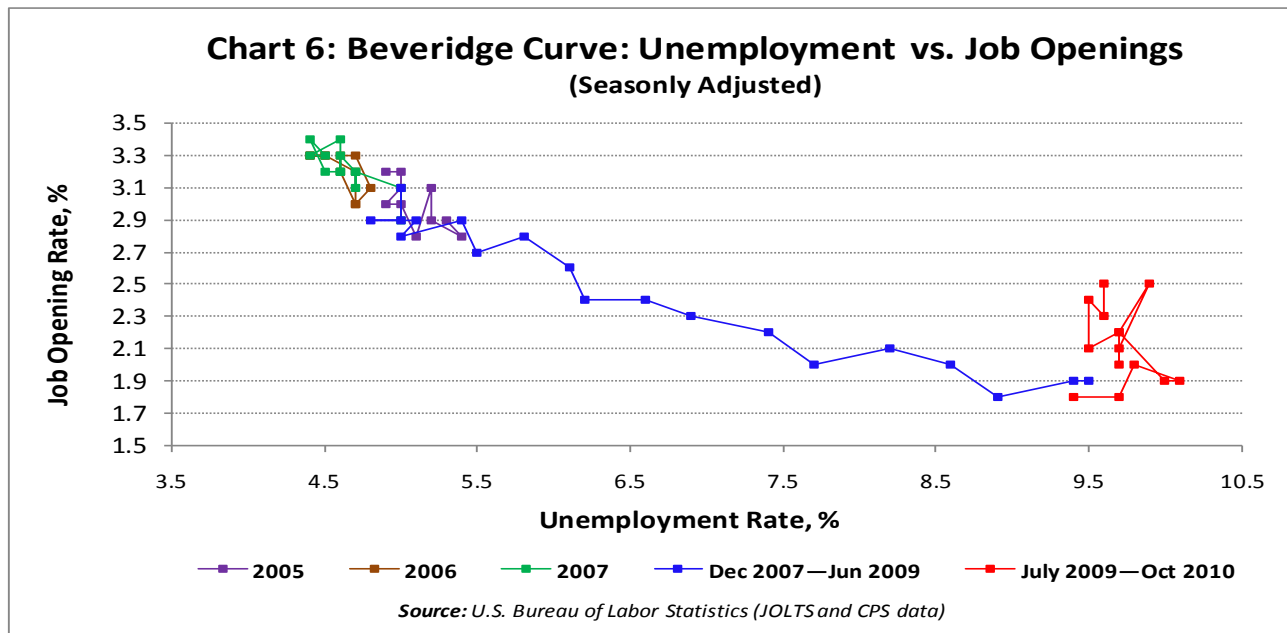
The worrisome sign is that, despite the rising number of posted vacancies, the unemployment rate is not declining (Chart 6). This observation is lending some support to the argument that the Beveridge Curve has shifted as a result of the structural shift in the labor market. During the recent recession (December 2007 to June 2009), the points on the curve moved lower and further to the right as the job openings rate declined and the unemployment rate rose, a classical negatively sloping trend. However, starting in December 2009, the points have moved up and slightly to the left on the curve as the job openings rate increased while the unemployment rate decreased only marginally.

The visible change in the shape of the curve over recent months (shown as Red) suggests that the curve may have shifted upward due to permanent adverse effects of the deep recession on the labor market. While it is true that some jobs lost in this recession may never come back, particularly in manufacturing and IT, that trend was already under way well before the onslaught of the recession. But to suggest that the apparent shift may be structural and permanent in nature needs a very careful analysis of the data before any definitive conclusions can be drawn.

There are various points that may illustrate that the apparent shift is not necessarily unique to the recent recession and may be a result of something else happening in the economy. In a speech delivered on October 15 in Boston, Fed Chairman Ben Bernanke said “*The bulk of increase in unemployment, since the recession began, is attributable to the sharp contraction in economic activity that occurred in the wake of the financial crisis and the continuing shortfall of aggregate demand since then, rather than to structural factors.*” Most economists believe that current labor market woes are not truly structural in nature but are driven by the lack of demand.

The small shift in the curve is not extraordinary given the depth of the recent recession; thus, the effect may be transitory rather than permanent in nature. One argument used to highlight the case for mismatches is that workers who were employed in the construction industry during its heyday may not possess the necessary skills for job hiring in growth areas

such as the health services industry. That argument is valid at anytime and is not unique to the recent recession. Any negative effect of a downturn in the construction industry should dissipate over time as housing and commercial markets slowly recover. One of the key points that has relevance in the recent recession is that many people may not be as mobile as in past recessions because they cannot easily sell their homes, pointing to low geographic mobility. However, this effect also should fade over time as the housing market slowly recovers.



It has been long recognized that the availability and the level of generosity of unemployment insurance (UI) benefits can lengthen the duration of an unemployment spell. One key factor that may be contributing to the continued high unemployment rate at this stage of economic recovery is the extension of UI benefits. Two recent Fed studies^{10,11} suggested that extension of unemployment benefits may have contributed between 0.4 to 0.7 percentage points to the current unemployment rate. The studies point to the unintended consequences of extending unemployment benefits, enabling workers to remain on the sidelines rather than actively look for work or accept an offer that they deem unattractive relative to the benefits provided by the government. The numbers seem relatively small in percentage terms, although that could mean about a million workers being unemployed as a result of extension of UI benefits.

Attributing the entire or most of the shift in the curve to mismatches (skills or geographical in nature) may be premature at this point. The Beveridge Curve generally follows a pattern of shifting outward during early phases of recovery, possibly due to the effect of some discouraged workers reentering the labor force. Discouraged workers may rejoin the labor force and the officially unemployed as job openings increase; this would keep the unemployment rate high despite an increase in new job postings and new jobs being filled at a higher rate. The cyclical short-term factors may be complicating the shape of the curve at this juncture of the business cycle and should not be readily deemed as a permanent shift in the structure of the US economy.

Conclusion

Recovery in the workers compensation market is directly tied to the recovery in the labor market. There appears to be some evidence that efficiency of the labor market has suffered somewhat in the wake of the deepest recession since the Great Depression. Although one can not conclusively say that the current labor market issues are structural in nature, they may become structural if nothing is done to tackle long-term unemployment soon. If the problems of long-term unemployment, underemployment, and people dropping out of the labor force are not addressed in a meaningful way soon, then what appears to be a demand-side issue may become a supply-side structural issue. Such a scenario bodes ill for the national economy and needs a carefully crafted response by policy makers.

End Notes:

- ¹ NCCI Holdings, "State of the Line." Annual Issues Symposium 2010
- ² Kocherlakota, Naryana, "Inside the FOMC." Speech delivered on August 17, 2010, in Marquette, MI http://www.minneapolisfed.org/news_events/pres/speech_display.cfm?id=4525
- ³ Barnichon, Regis, and Andrew Figura, "What Drives Movement in the Unemployment Rate? A Decomposition of the Beveridge Curve." The Federal Reserve Board, Discussion Paper 2010-48, August 20, 2010
- ⁴ Lindner, John, and Murat Tasci, "Has the Beveridge Curve Shifted?" Federal Reserve Bank of Cleveland, Economic Trends, August 10, 2010
- ⁵ Mishel, Lawrence, Heidi Shierholz, and Kathryn Edwards, "Reasons for Skepticism about Structural Unemployment: Examining the Demand-side Evidence." Economic Policy Institute, Briefing Paper # 279, September 22, 2010
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- ⁸ Blanchard, Oliver, and Lawrence Summers, "Hysteresis and the European Unemployment Problem." NBER Working Paper #50, June 1986
- ⁹ Blanchard, Oliver, and Peter Diamond, "The Beveridge Curve." Brookings Papers on Economic Activity, Vol. 1989, No. 1 (1989), pp. 1-76
- ¹⁰ Valletta, Robert G., and Katherine Kuang, "Extended Unemployment and UI Benefits." FRBSF Economic Letters, 2010-12, April 19, 2010
- ¹¹ Aaronson, Daniel, Bhashkar, and Shani Schechter, "What is Behind the Rise in Long-Term Unemployment." Federal Reserve Bank of Chicago, Economic Perspective, 2Q/2010