# There Are 920,339 Massachusetts Residents Who Face Severe Labor Underutilization Problems: The Pool of Unemployed, Underemployed, Hidden Unemployed and Mal-employed Vastly Exceeds Available Job Openings

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## Introduction

The Great Recession of 2007-2009 and the largely jobless recovery through early 2010 substantially increased labor market problems among U.S. workers, including record high worker dislocation, massive increases in open unemployment, underemployment, and hidden unemployment, and record high mean durations of unemployment.[1] Many of the nation's young college graduates found it difficult to obtain employment, especially in the traditional college labor market.

As the incoming Obama administration struggled to pull together a comprehensive fiscal stimulus (which became known as the American Recovery and Reinvestment Act of 2009) and later maintain momentum to put Americans back to work, increasing controversies took place over the causes of high and rising unemployment with some analysts arguing that unemployment in the U.S. was becoming increasingly structural in nature due to the lack of skills / education / motivation of those left behind in the labor market.[2] Conservative analysts often used this argument to argue against job creation while some workforce development and liberal advocacy groups argued the case for job training / education to combat this so-called structural unemployment.

This debate has been renewed in recent months both across the country and here in our state. A national survey of American manufacturers argued that there were 600,000 jobs unfilled in that sector and a shortage of skilled workers existed.[3] A March 4 Boston Globe Magazine article announced that there were "119,600 jobs going unfilled" in our state due in large part to a lack of qualified applicants.[4] So who is right?

This paper is devoted to a careful, objective empirical analysis of the true facts about unutilized labor and job vacancies in Massachusetts and the U.S. We find a major misinterpretation of job openings data by analysts, a lack of disaggregated information on the characteristics of job vacancies and underutilized labor here in Massachusetts and the U.S., and the failure to properly estimate the pool of unutilized and underutilized labor. The case for

[1] See: Andrew Sum, Mykhaylo Trubskyy, and Joseph McLaughlin, "The Great Worker Dislocation of 2007-2009," Challenge, September/October 2011, pp. 18-45.
[2] See: (i) Andrew Sum, "Is Rising Structural Unemployment a Problem?", The Huffington Post, January 6, 2011; (ii) Lila Shapiro, "Skills Mismatch Causing High Unemployment? Not Quite," The Huffington Post, February 21, 2012.
[3] See: Peter Whoriskey, "U.S. Manufacturing Sees Shortage of Skilled Factory Workers," The Washington Post, February 9, 2012.
[4] See: Jon Marcus, "Putting College Degrees to Work," The Boston Globe, March 4, 2012.

structural unemployment cannot be made at this time. Job deficits are the norm just about everywhere across our nation.

## Job Postings, Job Vacancies, and Labor Shortages/Surpluses

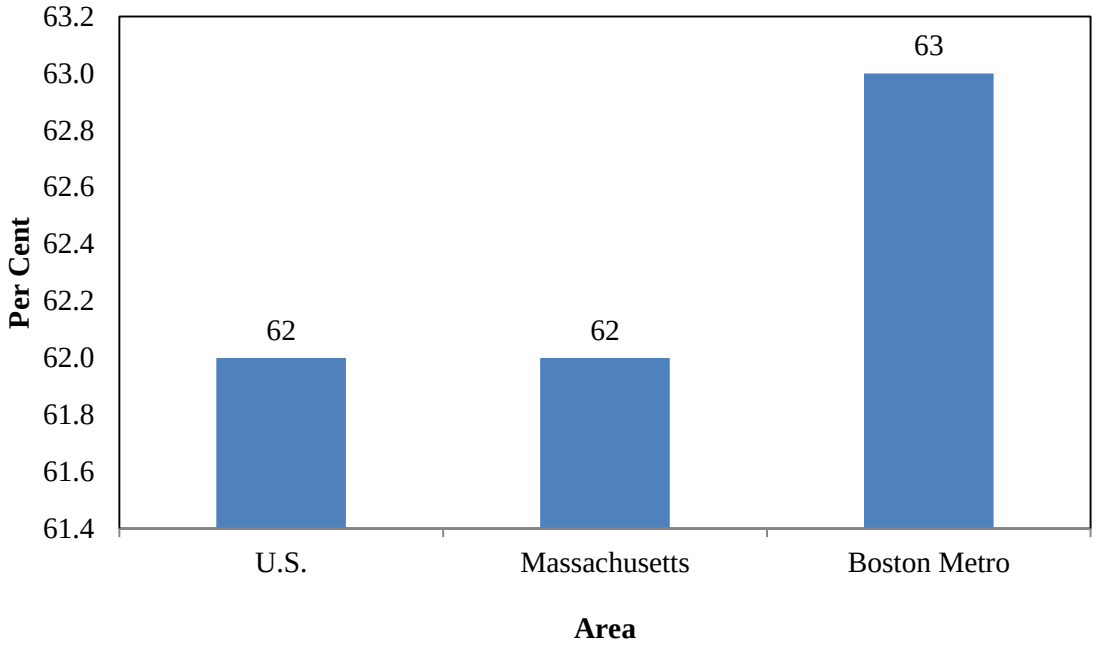
A number of different measures of job postings, job openings, and job vacancies have been used in recent debates over labor shortages and structural unemployment. The number of job postings in The Conference Board's online advertised openings are not the same as the monthly job vacancies estimated either currently by the U.S. Bureau of Labor Statistics or in the past by the Massachusetts Department of Workforce Development.[5] The total number of online ads in the Conference Board data series represent "unduplicated ads" in a given reference period that typically covers the 30 to 31 days from approximately mid-month of the preceding month (January 13) to mid-month of the following month (February 12).[6] This is a flow measure of job postings not a stock measure of job vacancies as used in the U.S. Bureau of Labor Statistics monthly job openings and new hires survey (known as the Job Openings Labor Turnover Survey or JOLTS). In the JOLTS survey, job openings are defined as "positions that were open on the last business day of the month". A specific position must exist (full-time or part-time, permanent or temporary), the job must be able to start within 30 days, and the firm must be actively recruiting from outside the firm".[7]

A key characteristic of a job vacancy is the duration of time in which it has remained unfilled. If most jobs are filled quickly then there is no labor shortage problem. Past findings on job vacancy durations at the state level both here and elsewhere have revealed that the vast majority of job vacancies are very short-term in duration. Nearly 70% were open for less than 30 days, and 85 to 90 per cent were open for less than 2 months. A recent Louisiana job vacancy survey found that the median length of a vacancy in 12 of 23 occupational groups was less than one month.[8] Recent evidence from the job postings of the Conference Board for January 2012 reveal quite similar findings. Of the 4.423 million total ads for the period ending February 12, 2.748 million or 62% were new ads that had appeared in the past 30 days, and only 1.675 million or 38% were carryover from the previous month. This represented a carryover rate of only 38%

[5] The state of Massachusetts quit collecting job vacancy data at the end of 2010. It had produced such estimates for the second and fourth quarters of each year since 2002.
[6] See: The Conference Board, The Conference Board Help Wanted Online Data Series: Technical Notes, 2011.
[7] See: U.S. Bureau of Labor Statistics, Job Openings and Labor Turnover Survey: Data Definitions, www.bls.gov.
[8] See: Louisiana Workforce Commission, Louisiana Job Vacancy Survey, Second Quarter 2011.

from the total ads in the prior month implying a very high short-term fill rate (Chart 1). Very similar results prevailed in Massachusetts and the Greater Boston area. This implies that only a small fraction (35-40%) of the total ads for the February 12 period would have been still open by the ending date of that period.

Chart 1:
Ratios of New Job Postings to Total Job Listings in February 2012 in the U.S., Massachusetts, and the Greater Boston Area




Source: The Conference Board, Release #5571, 2012.

Findings for Massachusetts and five other states in 2010 also revealed that between one-third and 45 per cent of all job vacancies were part-time, and another 20 per cent were temporary jobs. Under 40 per cent of available job openings in Massachusetts in 2010 required an Associate's or higher degree. In the Conference Board's recent job postings for January 2012, four of the top ten demand occupations were reported to be characterized by an average hourly wage of only $10.20 to $12.16, far removed from a family sustaining wage.[9]

The estimates of state job postings cited by Jon Marcus in his recent Globe Magazine article, thus, clearly exaggerate true available job vacancies and ignore the fact that many of the postings are part-time, temporary, low-skilled, low wage and frequently short term. To make the case for the existence of large scale occupational shortages in high skilled areas or structural

[9] These four occupational groups included sales and related, office, food prep and serving and transportation / material moving.

unemployment, we must be able to identify the existing number of available vacancies, their occupational characteristics, their educational requirements, their durations, and their wage offers. These job vacancies must then be compared to the number of unemployed, underemployed, and mal-employed workers in these same occupations. Let us now turn to an examination of the pool of unutilized workers in Massachusetts and the U.S.

## The Pool of Underutilized Labor in Massachusetts in 2011

During calendar year 2011, the state labor market improved along a number of important dimensions. Total payroll employment rose from 3.190 million in 2010 to 3.209 million in 2011, a gain of nearly 20,000 or .6%.[10] Still, payroll employment in the final quarter of the year remained at only 3.212 million, or 170,000 below its previous, seasonally adjusted, peak in the first quarter of 2001. For the first decade ever since 1940, total payroll employment in Massachusetts failed to increase over an entire decade.

Total civilian employment of Massachusetts residents, including the self-employed, also rose during the past year up by 21,000 or .7%. Combined with a drop in the resident labor force of about 13,000, the state's unemployment rate fell from 8.3% in 2010 to 7.4% in 2011 nearly 1.5 percentage points below the national unemployment rate during that year.

Total official unemployment in Massachusetts last year according to the CPS survey averaged slightly more than 252,000 (See Table 1). Unfortunately, the state experienced a big jump in the number of underemployed; i.e., those working part-time but desiring full-time employment and in the numbers of hidden unemployed, those wanting a job now but not actively looking for work.[11] The annual average number of underemployed rose above 200,000 during the year while the hidden unemployed jumped sharply to 118,000, a surprising development given the improvement in the state's labor market that normally would have been expected to attract more workers into the paid labor force.[12] The total pool of unemployed, underemployed,

[10] The state just recently revised downward its estimate of payroll job growth in 2011 from 41,000 to slightly under 20,000.

[11] For a review of rising underemployment problems in the U.S. during the Great Recession of 2007-09,
See: Andrew Sum and Ishwar Khatiwada, "The Nation's Underemployed in the U.S. During the Great Recession of 2007-09", Monthly Labor Review, November 2010, pp. 3-15.

[12] For a review of hidden unemployment in our state and the nation,
See: Katie Johnston, "5.4 Million U.S. Workers Call it Quits", The Boston Globe, February 8, 2012.

and hidden unemployed in the state rose to 570,000 persons in 2011 or 15,000 more than in 2010, hardly signs of a rapidly improving labor market.

Table 1:
Estimated Number of Massachusetts Residents with a Labor Underutilization Problem, 2011
(Annual Averages)

| Problem | Number |
|---|---|
| Unemployed | 252,142 |
| Underemployed | 200,187 |
| Hidden unemployed | 118,010 |
| Mal-employed | 350,000 |
| Total | 920,339 |

Source: CPS household surveys, public use files, tabulations by authors.

There is one additional labor market problem that needs to be addressed in assessing whether structural unemployment problems persist in our state and identifying the overall incidence of labor market problems. That problem is mal-employment: those employed persons holding jobs in occupations that do not utilize their occupational skills, training, or education.[13] Mal-employment can exist among individuals lacking post-secondary education, including graduates of many vocational-technical programs in high school and in post-secondary training institutions, but our analysis of mal-employment is confined to employed persons holding an Associate's, Bachelor's, or higher academic degree. Problems of mal-employment among college graduates in the U.S. and Massachusetts in recent years have frequently varied widely across degree types, age groups of workers, and major fields of study. The youngest college graduates (those 25 and under), Associate degree holders, and those majoring in arts, communications, the humanities, and area studies tend to experience the most severe mal-employment problems. They earn substantially less per year than their counterparts who are not mal-employed, thereby reducing both the private and social returns to a college education.

In calendar year 2010, we estimated that there were about 375,000 employed college graduates (20 and older) who were mal-employed of whom 25,000 were also underemployed. Removing the overlap between the mal-employed and the underemployed yields another 350,000

[13] For a review of methodologies for estimating mal-employment problems among college graduates and applications to Massachusetts and the U.S.,
See: Andrew Sum, Ishwar Khatiwada, Joseph McLaughlin, et. al., Recapturing the American Dream: Meeting the Challenges of the Bay State's Lost Decade, Massachusetts Institute for A New Commonwealth, Boston, 2011.

underutilized workers in Massachusetts, bringing the combined, unduplicated pool of underutilized workers to 920,339 in 2011.[14]

Comparisons of the estimated numbers of underutilized workers in our state in 2011 with both the Conference Board's estimates of job postings in recent months and our corrections for the likely number of unfilled job openings in our state are displayed in Table 2. The combined pool of underutilized workers in Massachusetts (a conservative estimate since it excludes full-time workers who cannot achieve adequate annual earnings) was more than 7 times higher than the exaggerated count of job postings. If we adjust the count of job postings to reflect the likely number of true job vacancies (immediately available job openings) the ratio is more than 12 to 1. (See Table 2). Clearly, using either measure of job postings or job vacancies, there was a massive aggregate labor surplus in the state (and the nation) in 2011.

This finding is in complete accord with that for real wage changes of workers in both our state and the nation over both recent years and the entire past decade. In the U.S., while corporate profits have exploded over the past three years, the real weekly earnings of U.S. wage and salary workers have either declined or remained unchanged. Less skilled, lower wage workers have fared the worst in the U.S. and in Massachusetts. Within our state, the mean real weekly earnings of wage and salary workers were unchanged over the past decade and do not appear to have risen over the past three years. If true labor shortages existed, real wages would have been rising over the past few years and job vacancies would exceed the pool of unutilized labor. Unfortunately the opposite is true.

Table 2:
Comparisons of the Numbers of Underutilized Workers in Massachusetts in 2011
With the Average Month Number of Job Postings and Actual Estimated Job Vacancies

| Variable | Number |
|---|---|
| Number of underutilized workers (2011) | 920,339 |
| Job Postings Over a Four Week Period (Average February 2011 and January 2012) | 127,000 |
| Ratio of Underutilized to Job Postings | 7.2* |
| Estimated Job Vacancies in 2011 | ~75,000 |
| Ratio of Underutilized to Vacancies | 12.3* |

[14] We have assumed that the pool of mal-employed college graduates in 2011 was essentially identical to that in 2010. The 2011 ACS surveys will not be released until late in 2012.

The substantial gaps between the pool of underutilized labor and the number of job listings / vacancies in our state also prevail across the entire country. In Table 3 below, we present annual average estimates of the number of U.S. workers who encountered one of the above four labor market problems in 2011. There were 13.85 million unemployed workers coupled with nearly 8.6 million underemployed, 6 million hidden unemployed, and 11.8 million mal-employed college graduates with an Associate's or higher degree, yielding a combined pool of underutilized labor of 40.2 million. This group was between 9 and 10 times as high as average online job postings in 2011-2012. Replacing the online job postings with the annual number of job vacancies in the U.S. from the JOLTS survey in 2011 (a total of 3.129 million) yields a ratio of 13 unutilized workers for every job vacancy, indicative of a major labor surplus in the nation in 2011.

Table 3:
Comparisons of the Stock of Unutilized Labor in the U.S. in the Average Number of Job Postings in February 2011 – February 2012
(in Millions)

| Variable | Estimated Number |
|---|---|
| Unemployed | 13.850 |
| Underemployed | 8.583 |
| Hidden Unemployed | 5.950 |
| Mal-employed(1) | 11.800 |
| Total Pool of Underutilized Labor | 40.183 |
| National Job Postings (February 2011 – February 2012 Average) | 4.265 |
| Ratio of Unutilized Labor to National Job Postings | 9.4* |

(1) The estimates count of the mal-employed population is for 2010 due to new occupational codes introduced in 2011.
Source: (i) U.S. Census Bureau, Current Population Survey, public use files, 2011, tabulations by authors; (ii) The Conference Board, Online Labor Demand Rises 39,900 in February, the Conference Board Reports.

## The Labor Market Situation in the State's Manufacturing Industries and Blue-Collar Labor Markets in Massachusetts and the U.S.

During the past year, an increasing amount of political attention has been paid by the nation's political leaders including President Obama and contenders for the Republican Presidential nomination to the nation's manufacturing industries. Some attention also has been

paid to the need for further infrastructure spending to boost the demand for construction workers who were badly affected by the deep downturn in the construction industry, especially residential construction, during and after the Great Recession of 2007-09.

Recently, a number of claims have been made both nationally and in Massachusetts that manufacturing firms are facing difficulties in finding qualified workers despite the high levels of unemployment among blue-collar workers.[15] Is there a serious labor mismatch problem in manufacturing industries or in blue-collar occupations, especially highly skilled blue-collar workers (machinists, tool and die workers, constructions trade)? To answer this question for Massachusetts, we tracked findings of the last statewide job vacancy survey conducted in the fourth quarter of 2010 and compared those results with findings on unemployed and underemployed workers in manufacturing industries and blue-collar occupations (Table 4).

In the last quarter of 2010, the Massachusetts economy had only 4,393 job vacancies in its manufacturing industries of which nearly 95% were full-time. During the second half of that same year, there were nearly 25,000 unemployed workers in manufacturing, and nearly 30,300 full-time unemployed and underemployed workers. There were 5.5 full-time unemployed workers for every full-time job vacancy in manufacturing, and 7.2 full-time unemployed and underemployed workers for every full-time job vacancy, representing a massive labor surplus in the aggregate. This does not automatically imply that there are no spot shortages. There may well be specific occupations (machinists, numerical control operators) for which some firms face difficulties in finding experienced and skilled workers. Helping them solve their labor recruitment problems is in the interest of the state, but this should not be confused with a general labor shortage.

The state job vacancy survey also produced estimates of the numbers of job vacancies in major occupational groups. Given recent debates over the numbers of job openings for blue-collar workers both nationally and in Massachusetts, we examined the labor market situation in the state's blue-collar labor markets in late 2010. Our first set of estimates pertain to both job vacancies and unemployment / underemployment data for all blue-collar workers combined (construction / extraction, installation / repair, production, and transportation / material moving).

[15] See: (i) Lila Shapiro, "Skills Mismatch Causing High Unemployment? Not Quite", The Huffington Post, February 21, 2012; (ii) Peter Whoriskey, "U.S. Manufacturing Sees Shortage of Skilled Factory Workers", The Washington Post, February 9, 2012.

The Great Recession of 2007 – 2009 and its early jobless recovery took a very severe toll on the state's and nation's blue-collar workers.[16]

In the fourth quarter of 2010, there were only 6,731 job vacancies for blue-collar workers in Massachusetts of which only two-thirds were full-time job vacancies.[17] In comparison, there were 66,700 unemployed blue-collar workers in the state during the second half of 2010 of whom the vast majority (92%) were seeking full-time work. When are include the underemployed the count goes to just under 100,000 (Table 4). There were nearly 10 unemployed blue-collar workers for every job vacancy in the final quarter of 2010. There were approximately 14 full-time unemployed blue-collar workers for every full-time job vacancy, and 22 full-time unemployed and underemployed blue-collar workers for every full-time job vacancy. The labor market situation for the state's blue-collar workers in 2010 would be objectively characterized as one of deep labor surpluses not anywhere near a labor shortage situation.

Blue-collar jobs cover a wide array of occupations with varying technical skills, literacy / numeracy requirements, and educational requirements. They include electricians, plumbers, machinists, welders, numerical control operators, truck drivers, construction laborers, and material moving / handling jobs. Since the more highly skilled blue-collar occupations typically require either lengthy formal apprenticeships or formal training provided by employers both off and on the job, they would be most likely to experience skill shortages under a strong labor market. To test whether the more highly skilled blue-collar occupations were characterized by more favorable labor market conditions in our state in late 2010, we analyzed their job vacancy / unemployment / underemployment situation separately. Those workers in construction and extraction crafts and installation / maintenance repair occupations were classified as skilled blue-collar. Findings reveal an even deeper labor surplus situation among skilled blue-collar workers.

[16] See: Andrew Sum and Mykhaylo Trubskyy, "The Depression in Blue-Collar Labor Markets in Massachusetts and the U.S.: The Implications of Growing Labor Surpluses for Future Economic Stimulus and Workforce Development Policies," Mass Benchmarks, 2011.

[17] For a review of job vacancy and unemployment developments in Massachusetts during the second quarter of 2010,
See: Joseph McLaughlin and Andrew Sum, Comparisons of Job Vacancies with the Stock of Unemployed / Underemployed Workers in Massachusetts, Report Prepared for the Workforce Solutions Group, Boston, October 2011.

There were only 1,743 job vacancies for skilled blue-collar workers in our state in the fourth quarter of 2010 of which about 77% were full-time. In contrast, the number of unemployed, skilled blue-collar workers was nearly 32,000 of whom 97% or 31,770 were seeking full-time work. In addition, there were 15,300 underemployed, skilled blue-collar workers bringing the combined total of full-time unemployed and underemployed to 47,085 workers. In the last quarter of 2010, there were nearly 19 unemployed, skilled blue-collar workers for every full-time job vacancy. This is representative of the state's skilled blue-collar workers especially those in the construction crafts. Very similar findings apply to the Conference Board findings of the February 12 reference period for job postings for construction and maintenance / repair workers in Massachusetts. Only 3,834 job postings over the entire month were available, representing about 1,400 unfilled job openings at the end of the period given average fill rates. This is nearly identical to the job vacancy estimates for the fourth quarter of 2010.

Table 4:
Comparisons of Job Vacancies and Full-Time Job Vacancies with the Unemployed and Underemployed in Manufacturing Industries, Blue-Collar Occupations, and Skilled Blue-Collar Occupations in Massachusetts, 2010 IV

| Variable | (A) Manufacturing Industries | (B) Blue-Collar Occupations | (C) Skilled Blue-Collar Occupations |
|---|---|---|---|
| Job Vacancies | 4,393 | 6,731 | 1,743 |
| Full-time Job Vacancies | 4,193 | 4,540 | 1,335 |
| Unemployed | 24,629 | 66,700 | 32,755 |
| Full-time Unemployed | 23,140 | 62,700 | 31,770 |
| Full-time Unemployed and Underemployed | 30,276 | 99,300 | 47,085 |
| Unemployed / Job Vacancies | 5.6* | 9.9* | 18.8* |
| Full-time Unemployed / Full-Time Vacancies | 5.5* | 13.8* | 23.8* |
| Full-time Unemployed + Underemployed / Full-time Vacancies | 7.2* | 21.9* | 35.3* |

At the national level, the U.S. Bureau of Labor Statistics produces monthly estimates of job openings by major industry but not by occupation. Job openings for the nation's

manufacturing industries in 2011 yielded a monthly average of about 230,000 job vacancies while monthly unemployment averaged about 1.45 million or 6.3 unemployed for every job opening in manufacturing.[18]

The Conference Board's analyses of national job postings can be broken out by major occupation group, including blue-collar production workers and construction / extraction occupations. Estimates of job postings for the mid-December 2011 to mid-January 2012 period together with estimates of the number of unemployed and underemployed in these same occupations are displayed in Table 5. For production workers, there were 137,200 posted job openings over this 31 day period, yielding probably no more than 54,000 unfilled job openings at the end of this period. If we compare the annual average number of unemployed workers in 2011 with the posted job openings (an exaggerated count of unfilled job vacancies), then there were 7.5 unemployed for every job posting, and about 11 unemployed and underemployed production workers for every job opening.

For construction and extraction occupations, the national labor market situation was considerably worse. There were only 74,000 job postings versus 1.424 million unemployed and 2.304 million unemployed and underemployed workers in these occupations This yields 19.3 unemployed for every job posting and 31 unemployed and underemployed construction and extraction workers for every job posting. Adjusting the job postings number for true unfilled job vacancies at the end of the period would likely yield a 50-1 ratio of unemployed / underemployed construction and extraction workers for every unfilled job vacancy in recent months. This group of skilled blue-collar workers faces the most severe labor market difficulties today due to the meltdown of the residential and commercial construction industries of the country. We need many more jobs for these workers with existing skills to solve this problem.

[18] The estimates of job openings by major industry can be obtained from the BLS website.
See: www.bls.gov, "Job Openings and Labor Turnover Survey".

Table 5:
Conference Board Job Listings in Key Blue-Collar Occupations in the U.S. Versus the Estimated Number of Unemployed and Underemployed Workers in Those Same Occupations

| Variable | (A) Production Workers | (B) Construction and Extraction Occupations |
|---|---|---|
| Posted Job Listings in December 2011 / January 2012 | 137,200 | 74,000 |
| Unemployed Workers in 2011 | 1,031,200 | 1,424,600 |
| Unemployed Plus Underemployed Workers | 1,453,900 | 2,303,900 |
| Unemployed / Job Listings | 7.5* | 19.3* |
| Unemployed Plus Underemployed / Job Listings | 10.6* | 31.1* |

## Summary and Conclusions

The national and state evidence on the pool of underutilized labor and the numbers of available job postings / job vacancies clearly reveals that major labor surpluses are the norm not labor market shortages. There is no evidence from any source of any serious labor market mismatch or structural unemployment. At the current time, job deficits (both quantity and quality) are the nation's and state's number one labor market problem.

In 2011, there were at least 9 underutilized workers in Massachusetts for every job posting in recent months and quite likely 14-15 for every actual available job vacancy. For the state's blue-collar workers, the ratios varied from 11-1 to as high as 31-1 representing massive labor surpluses. Similar results prevail across the nation. There were about 8 full-time unemployed workers per full-time vacancy, 10 unemployed, hidden unemployed, or underemployed persons per every job vacancy, and 14 unemployed, underemployed, and mal-employed persons per job vacancy. The current degree of labor surplus in the U.S. is among the worst in the entire post-World War II era. In his classic 1944 text, *Full Employment in A Free Society,* the late William Beveridge of Great Britain noted that full employment of labor existed when "there were more available jobs than men. Jobs should wait not men." How far removed we are from that situation today. To be worried about structural unemployment or labor mismatches with the massive degree of surplus currently prevailing in Massachusetts and U.S. labor markets is not only intellectually misplaced but detracts from the more immediate need for

active and comprehensive job creation efforts across the country to put the unemployed and underemployed back to work. This does not deny the existence of spot occupational shortages (medical scientists, medical doctors as general practitioners, computer technologists, skilled machinists, some life scientists) or the need to improve the fit between our recent college graduates and the labor market. But these arguments need to be put in proper perspective. Let's get back to the serious business of creating large numbers of new jobs. It is time to quit deceiving ourselves and placing the blame on our schools, colleges, or training institutions for the lack of jobs.