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Area Economic Conditions and the Labor Market Outcomes of Americans in the Current Recovery

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I. Introduction

To say that the "Great Recession" had a tremendous impact on the U.S. economy is an understatement.[1] Real Gross Domestic Product contracted by 5.0 percent. Real Household income fell at all segments of the distribution, with the largest losses occurring among lower and middle income households.[2] The labor market shed over 7.0 million private sector jobs, resulting in the share of the civilian population that was employed to fall from 62.7 to 59.4 percent. The "official" unemployment rate doubled, jumping from 4.6 to 9.2 percent.

Prior to the "Great Recession", economic recoveries after severe recessions were typically V-shaped. That is, the economy and the labor market with a slight lag, recovered rapidly. Even though the "official" BLS unemployment rate has fallen from 9.8 to 5.9 percent the share of the civilian population that is employed has increased very little. The primary reason for this pattern is that labor force participation drifted downward.[3] This still seems odd even though modest private sector job growth has occurred for over 78 consecutive months, with a definite acceleration in the last two years. In fact, recent Federal Reserve Board of Governor's statements and testimony by Fed Chair Janet Yellen acknowledge this concern. The concern goes beyond the Federal Reserve. "Inflation hawks" are now raising concerns that monetary policy should be less accommodative, that, to get ahead of inflation, the Federal Reserve should raise interest rates. In fact, at FMOC's December meeting, they increased the Federal Funds Rate by 25 basis points.

However, there remain reasons for delaying a first increase over seven years, and definitely not starting a series of increases in the federal funds rate. The drop in oil prices, weaker economic growth abroad, and remaining labor market slack provide empirical support for waiting to increase interest rates.

My concern with the Federal Reserve starting a series of rate hikes sooner than needed, is that jobless Americans, especially those that have the skills and competencies, who signal their desire to work, will have a harder time finding employment. Further, these difficulties will not be racial, gender, age, and education neutral. Some groups will disproportionately bear the brunt of a policy that consciously slows economic growth. More economically vulnerable sub-groups will get locked out of the recovery, raising the odds that they move from being cyclically unemployed due to the "Great Recession" to being structurally unemployment. The latter means a heightened chance that they may not return to the labor force.

To support this claim, I focus on three measures of labor force utilization that until the 1990s Boom, the "Great Recession", and the current recovery received little attention.[4] They comprise a pool of ready, willing, and able workers. The first, who when added to BLS' officially unemployed comprise the agency's U4 concept of unemployment. They are persons marginally attached to the labor force. They are currently not working or looking for work but indicate that they want and are available for a job and have looked for work sometime in the past 12 months. The second are discouraged workers, a subset of the marginally attached. This group has given a job-market related reason for not currently looking for work. When added to the "officially" unemployed and marginally attached, they comprise BLS' U5 unemployment definition. The third and largest group is persons employed part time for economic reasons (i.e., involuntary unemployment). They want and are available for full-time work but have had to settle for part-time hours. Their inclusion creates BLS' U6 jobless measure. Collectively, the three groups represent a pool of untapped and underutilized workers.

The levels for the three groups peaked during the "Great Recession". More troubling has been the pace at which they have fallen. Even 78 months into the current recovery, they still exceed their pre-recession levels. Why is this observation important? Unlike those that exited the labor force (e.g., schooling, retirement, disability or other reasons) during the recession and recovery, the three subgroups

consist of individuals that in their eyes are ready, willing and able to work (maybe not in the eyes of potential employers), but due to local economic conditions can only get part-time employment or no job at all. Thus, if the Federal Reserve raises interest rates too early in the current recovery, this pool of untapped and underutilized Americans may have greater difficulty finding employment. Minorities, teenagers, and the less educated will bear the brunt of this greater difficulty.

This paper has several goals. First, we show that during the "Great Recession", the alternative measures of unemployment (U4 to U6) rose to record levels, and during the current recovery remain elevated, especially for minorities, teenagers and young college graduates. Second, we demonstrate that the alternative measures of unemployment (e.g., part-time for economic reasons) are more sensitive to changes in local macroeconomic conditions than the "official" BLS unemployment rate. That is, a one percentage point increase in an area's unemployment rate (area's Gross Domestic Product) has a greater impact on the unemployment rate when it includes respondents that are working part-time for economic reasons, discouraged, and out of the labor force but want a job.

Third, we use metropolitan area "official" unemployment rates to report how different recession and recovery patterns impact the employment outcomes of vulnerable Americans. Specifically, we present a detailed analysis of the various unemployment rates by demographic group and shows how their sensitivity differs by a local area's recession (e.g., severe) and recovery (e.g., strong) type. The results affirm that any premature slowing of U.S. aggregate demand will diminish the hopes of millions of Americans who are ready, willing, and able to expand their attachment to the workforce.

The key findings are summarized as follows:

- A large amount of slack remains in the labor market. Alternative measures of unemployment that capture discouragement and part-time employment (e.g., involuntary unemployment) indicate that the labor market was weaker when the "Great Recession" started, the recession was worse than indicated by the "official" unemployment rate, and even as of November 2015, these indicators have not returned to pre-recession levels.
- The educational attainment, gender, race, age, and ethnicity of Americans who are discouraged, want a job, and working part time for economic reasons are similar to BLS' "officially" unemployed.
- Discouraged workers, those who want a job, and those who are working part time for economic reasons (e.g., lack of aggregate demand) are more sensitive to changes in local economic conditions as measured by the metropolitan area unemployment rate and metropolitan area real Gross Domestic Product.
- This labor market slack is even present in local labor markets that are experiencing the "best" or "strongest" recoveries.
- The recovery's weakness extends beyond minorities and teenagers. The "real" unemployment rate remains elevated for all Americans.
- Teenagers, young high school and college graduates appear to have used schooling as a safety value to cope with the weak recovery.
- The strength of a local labor market's recovery is linked to the severity of its "Great Recession. Areas that had the most severe recessions are experiencing the weakest recoveries. Areas with the mildest recessions are experiencing the strongest recoveries.

II. Data

We utilize two data sets. The first source is the March Annual Demographic Files of the Current Population Survey (CPS) for 1991, 1997, 2001, 2007, 2009, and 2015. The years cover the start and six years into the three most recent recoveries, plus the "Great Recession". Our sample of all individuals includes 16 to 64 year olds. For 2007, 2009 and 2015, we add the restriction that respondents must reside in one of the 372 metropolitan areas identified in the CPS micro data. To explore the recession and recovery's different impacts across groups, we create six sub-groups: 16 to 64 year old African Americans and Latinos, 18-19 year olds, 16 to 64 year old high school graduates, 55 to 65 year old men and women, and 18 to 24 year old college graduates. We also examine the experiences of 16 to 64 year old men. They are an important group to study because industry shifts during the recession generated what many analysts called a "mancession." Because of the deep cuts in manufacturing and construction and the continued robust growth in education and health services, men were disproportionately hit harder during the "Great Recession."

To measure the different types of attachment and utilization at the micro level, we construct a series of dummy variables. The dummy variable for "official" unemployment equals 1 if the respondent actively searched for a job within the last four weeks, and a 0 if they are employed. The alternative measures are as follows. The U-4 unemployment dummy variable equals 1 if the respondent searched for employment over the last four weeks, or the respondent indicates that they are discouraged and did not actively search. The variable equals zero if the individual is employed. The U-5 unemployment dummy variable equals 1 if the respondent is unemployed, discouraged, or marginally attached to the labor force. The latter means that the respondent is not currently working or looking for work but indicate that they want and are available for a job and have looked for work sometime in the past 12 months. The variable

equals zero if the respondent is employed. Finally, the U-6 unemployment dummy variable equals 1 if the respondent is unemployed, discouraged, marginally attached to the labor force (want a job), or is employed part time for economic reasons (also defined as involuntary part-time employment).

Economic reasons means that a respondent worked less than 35 hours during the survey's reference week because there was 1) slack work or unfavorable business conditions, 2) the inability to find full-time work, or 3) seasonal declines in product demand. The part-time group is our primary sub-group of interest. They comprise the largest pool of underutilized workers and are expected to have the greatest sensitivity to macroeconomic conditions.

As a point of comparison, we construct dummy variables to measure employment and labor force participation. The former equals 1 if the respondent reports employment and 0 if they are searching for a job or out of the labor force. The labor force participation dummy variable equals 1 if the respondent is either employed or searching for a job and 0 if they are out of the labor force.

Local area unemployment rates come from the BLS' Local Area Unemployment Statistics (LAUS) Program. The LAUS program is a Federal-State partnership that creates monthly estimates of total employment and unemployment for approximately 7,300 U.S. areas.[5] BLS develops the concepts, definitions, technical procedures, validation, and publication of the estimates that State employment security agencies prepare. The concepts and definitions underlying the LAUS data come from the CPS, my primary data source.[6] We link the Metropolitan Statistical Area unemployment rates to respondents in the CPS.[7]

The real Metropolitan Statistical Area (MSA) Gross State Products come from the U.S. Bureau of Economic Analysis. The inflation-adjusted estimates of MSA GSP are measured in

chained (2005) dollars for 380 areas and are based on national prices for the goods and services produced within the metropolitan area. Due to the smaller number of MSAs identified in the micro data, only 372 areas can be assigned GSP values.

We merge the MSA unemployment rates and real GSP estimates to the individual-level labor attachment and utilization dummy variables and personal characteristics (e.g., age, educational attainment, race, and ethnicity). We examine how the unemployment measures vary by type of "Great Recession" and type of recovery. We also use the cross section and time series variation in the 372 area "official" unemployment rates to identify and show the greater sensitivity of the alternative measures of unemployment to the "official" BLS unemployment measure.

III. Aggregate Relations

Before reporting the metropolitan area analysis, we summarize the pattern of change in the aggregate U.S. data. Figures 1 and 2, plot measures of labor force utilization from 1948 to the first eleven months of 2015. Figure 3 plots the alternative measures of utilization for 1994 to 2015. The figures reveal that an incredible amount of slack remains in the labor market.

- Although the "official" unemployment rate trended downward after 2009, the drop is largely due to a decline in the labor force participation rate.
- Just over 7 million Americans were unemployed in 2007, jumping to 14.3 million in 2009. During the recovery, the number of unemployed fell to 8.3 million, still above the pre-recession level.
- The alternative measure of labor utilization that captures worker discouragement started at 369,000 in 2007, doubled to 778,000 in 2009, but did not peak until 2010 at 1.2

million. During the recovery, the number of discouraged workers fell to just below three-quarter of a million, but remains a series high.

- The number of respondents who "want a job" started the recession at 1.4 million, jumped to 2.2 million during the recession. The growth peaked at 2.5 million in 2012. Similar to "discouraged workers", the number remains elevated and is still a series record.
- Respondents working part-time for economic reasons comprise the largest group of underutilized Americans. They also experienced the largest increase during the recession. A significant decline has occurred during the recovery, but this could be due to individuals leaving their jobs and exiting the labor force. Almost 4.5 million Americans were working part time for economic reasons in 2007. This figure doubles to 8.9 million in 2009. During the recovery, the number has fallen to 7.4 million. The series remains close to its series record.
- Including the part time for economic reasons individuals has the biggest impact on the estimates. Instead of the unemployment rate starting the recession at 4.6 percent, including the part time employed generates a jobless rate of 8.3 percent. During the recession, the "official" rate doubled to 9.2 percent, while the most comprehensive alternative measure of unemployment, the U-6 rate jumped to 16.3 percent. Both did not peak until 2010 at 9.6 and 16.7 percent. During the first 11 months of 2015, the "official" unemployment rate fell to 5.3 percent, while the U-6 measure still exceeds 10 percent, signaling a much "slower" recovery and "looser" labor market.
- Even with the improvement during the recovery, the U-6 unemployment rate in 2015 remains close to a series record.

Table 1 describes the labor market outcomes of African Americans and Latinos, men, Teenagers, High School Graduates, Older workers, and young college graduates during the Great Recession (2007 to 2009) and current recovery (2009 to 2015). To summarize, the table illustrates the well-known result that minorities, teenagers, high school graduates, and even young college graduates, start recessions with lower employment-population ratios and during recessions experience the largest deterioration in the labor market opportunities. Except for teenagers and young college graduates, the drops were largely due to increases in the "official" unemployment rate.

Including discouraged workers, individuals that "want a job", and individuals that are working part time for economic reasons, BLS' U-6 unemployment rate, a very different picture emerges. Even at the start of the recession, there is substantial labor market "slack", followed by large increases in unemployment during the recession. The bulk of the difference between the official and U-6 unemployment rates is due to the larger number of individuals working part time for economic reasons. Instead of a 2007 "official" unemployment rate of 4.6 percent, metropolitan areas started the recession with a U6 unemployment rate of 8.1 percent. The increase in the "official" unemployment rate is more than double. The U6 unemployment rate is almost double, moving to14.3 percent.

Shifting to the recovery, Table 1 shows the well-known result that the employment-population ratio stagnated because even though the unemployment rate fell 3.8 percentage points, from 2009 to 2015, it is because the labor force participation rate fell by 2.1 percentage points. Including part-time workers suggest an even weaker recovery. The alternative measure of unemployment that includes them sits at 9.8 percent.

We now describe the disparate impacts of the recession and recovery on minorities, men, teenagers, high school graduates, older workers, and young college graduates. Men and older workers are included because they bore a disproportionate burden of the "Great Recession". Some label the recession as the "Mancession" because of its concentrated effects on the construction and manufacturing industries. Table 2 shows that except for older workers, these groups had bigger drops in their employment-population ratios relative to the overall population. The drop in the teenage employment-population ratio was largest, 7.0 percentage points compared to 4.0 percentage points for the overall sample. Most of the declines can be attributed to increases in the unemployment rate. Teenagers are the exception. Their labor force participation and unemployment rates move in adverse directions.

Switching to the recovery, the most comprehensive alternative unemployment rate, the U-6 jobless rate suggests a very weak recovery for minorities, teenagers, high school graduates, and even young college graduates. In 2013, the U-6 rates were 19.2, 31.4, 15.4 and 14.6 percent, respectively. Even the older worker U-6 rate remains elevated. In 2013, instead of an "official" jobless rate of 6.1 percent, it was 10.0 percent. The table shows that the strong job growth since 2015 has slowly improved the prospects of these heavily impacted sub-groups. The minority U6 jobless rate has fallen by 4.4 percentage points, but remains elevated at 15.6 percent. The teenager U6 rate also fell by 4.0 percentage points, but sits at over 25 percent. The U6 unemployment rate of high school graduates drops by 5.2 points. At 15.4 percent, it remains well above its pre-recession level. Even the young adults with the greatest competencies and attributes, continue to struggle. Their U6 rate has only fallen to 12.6 percent.

To summarize, the inclusion of involuntarily unemployed Americans in the unemployment rate's calculation and estimates suggest the labor market was weaker when the

recession started, that the recession was worse than indicated by the "official" unemployment rate, and the recovery is much weaker. The analysis suggests an even much less resilient labor market for vulnerable groups such as minorities, teenagers, high school graduates, older workers, and young college graduates.

Similar to Freeman and Rodgers (2000), these national-level data do not vary enough to allow us to further characterize the effect of the recession and recovery. To estimate the effect of the recession and recovery on the general labor market and vulnerable populations, we shift to data on labor market conditions and outcomes across local area labor markets. For the "Great Recession" and Recovery, we have data for 372 local labor markets in 2007, 2009, 2013 and the first 11 months of 2015. This offers a wide variety of unemployment experiences to describe the "Great Recession", ranging from the "Worst" to a "Mild" recession. To describe the recovery, the patterns range from "Best", "Weakest", and those areas experiencing a "Big Drop" in their local area unemployment rate.

Further, these data provide us with market conditions where a severe recession occurred followed first by a "jobless" and then modest recovery. Prior to the current recovery, all previous jobless recoveries (1991-93 and 2001-03) were preceded by mild recessions.[8] The data in this recovery allow us to access what happens to vulnerable workers were the aggregate economy to have depression like conditions, and in particular, to evaluate the effect of a jobless recovery that was pre-dated by a severe recession.

Similar to Rodgers and Freeman (2000), we are concerned about adjustments that occur across metro areas, but not nationally. Geographic mobility is our largest concern. It represents an important response to different area economic conditions. Mobility is quite likely to impact

the effects of shocks on outcomes, as impacted individuals move from higher-to-lower unemployment areas. Prior to Rodgers and Freeman (2000), Topel (1986), Blanchflower and Oswald (1999) and others find that local labor markets affect outcomes, especially on the outcomes of vulnerable groups that have less geographic mobility than others.

The housing markets well known collapse and slow recovery may mitigate this problem. Home foreclosure and having one's house "go under water" created financial constraints that restricted the ability of individuals to relocate to "better" local labor markets, especially young adults, the less-educated, the less skilled, and many minorities.

IV. Metropolitan Area Variation

This section describes the area variation in unemployment rates during the "Great Recession". Figure 4 and Table 2 show the "official" metropolitan area unemployment rate frequency distribution. Most areas began the "Great Recession" with unemployment rates that are less than 5.0 percent. Sixty-six percent (267 of the 402) have unemployment rates that are below 5.0 percent in 2007. By 2009, the recovery's start, almost two-thirds (262 of the 402 areas) have jobless rates that exceed 8.0 percent. During the recovery, this number has dropped steadily. In 2013, 31 percent (125 areas) have unemployment rates that exceed 8.0 percent. Two years later, the percentage of areas falls to 7.7 percent (31).

Panel A of Table 3 shows the 2007 to 2009 transition matrix of metropolitan area unemployment rates. The matrix is upper triangular, with zeros in all cells below the diagonal, which reflects the fact that during the "Great Recession" no area moved from a grouping with a higher unemployment rate to one with a lower unemployment rate. The vast majority experience an increase in unemployment. Only 39 areas have unemployment rates in the same group. These

had unemployment rates that exceed 8 percent in both years. Of the areas that started the recession with unemployment rates less than 4 percent, 129 moved into a higher grouping.

Panel B of Table 3 displays the transition probabilities associated with the "Great Recession". The table shows that the recession affected local areas differently. The areas that start 2007 in the less than 4 percent group leave that group in 2009 with a probability of virtually 1.0. During the recession, 29 percent of the areas with 2007 unemployment rates of less than 4 percent move into the at least 8 percent category, 70 percent of areas with unemployment rates between 4 and 5 percent, move to the at least 8 percent group, and 89 percent of areas with unemployment rates between 5 to 6 percent, move to the at least 8 percent group.

Table 4 first reports the unemployment rate distribution by size of the change in percentage points. From 2007 to 2009, 67 areas experience increases of 3 to 4 percentage points. Over the same time period, 53 areas experience increases of 4 to 5 percentage points. Another 44 areas have increases that were between 5 to 6 percentage points. At the ends of the spectrum, 31 and 34 see their unemployment rates increase by 6 to 7 percentage points and 2 to 3 percentage points, respectively. Only 17 areas have unemployment rates that jump by 7 or more percentage points. There are 9 areas with changes of less than 2 percentage points.

Another way to summarize the different metropolitan area recession experiences is to create two categories: "Mild" and "Worst" recessions. "Mild" recessions are characterized by the 14 areas with unemployment rates that were 6.0 percent or less in 2007, 2008, and 2009. The group's average unemployment rate increased from 3.2 to 5.3 percent. These areas are largely from the middle of the country: Iowa, North Dakota, Texas, and South Dakota. Areas with the "Worst" recessions are characterized by 8 areas with unemployment rates that exceeded 8.0

percent in all three years of the recession. Their group average unemployment rate jumps from 9.9 to 16.9 percent. So, the two distinguishing features as to the severity of the "Great Recession" are the area's initial unemployment rate and the size of the rate's increase.

Table 5 lists for the two groups the names of the areas and their jobless rates. Areas with the "worst" recessions are all in California, except for Flint, MI. Areas at the other extreme that had the mildest recessions tend to be in the Midwest, or middle part of the U.S. In many respects, these results mirror the findings in Rodgers and Freeman (2000). They find that local areas with the strongest 1990s recoveries are in the middle of the country, while the worst recoveries are clustered in California. An area's past economic health plays a key role in the severity of its "Great Recession".

Shifting to the current recovery, Figure 3 and Table 2 show the frequency distribution for the "official" metropolitan area unemployment rates. Almost two-thirds (262) of areas begin the recovery with unemployment rates that exceed 8 percent. By 2013, four years into the recovery, 31.1 percent (109) have jobless rates that exceed 8.0 percent. Two years later, the number of areas falls to 7.7 percent (31). The table shows that the economy still has a long way to go if it is going to return to the pre-recession conditions of 2007. In 2015, just over one-third (38.3 percent) of areas have unemployment rates below 5 percent, compared to two-third (66.4 percent) of areas in 2007.

Table 6 shows the 2009 to 2015 metropolitan area transition matrices. There are nine areas where the local unemployment rate increased. Out of the 402 areas, 31 have unemployment rates in the same group, while the vast majority sees a decline in unemployment. Of the 262

areas that start the recovery with unemployment rates above 8 percent, 235 have now moved into a lower group. The most (145) only move to the 5 to 6 or 6 to 7 percent categories.

The second panel displays the transition probabilities associated with the recovery. The areas that start in the greater than 8 percent group in 2009 leave that group in 2013 with a probability of 0.90. During the recovery, only 25 percent of the areas with 2009 unemployment rates above 8 percent shift into the lower than 5 percent categories. If the unemployment rate falls for these groups, the rates tend to move to the 5 to 6 and 6 to 7 percent of areas.

However, even with this uniform leftward shift in the group's unemployment rate distribution, the shifts are heterogeneous. To describe the heterogeneity, I divide the areas into three recovery groups: "Best or Strongest", "Poor or Weakest", and "Major Improvement or Big Drop in the unemployment rate". The dynamics are reported in Table 7 and Figures 7 and 8. The first group is characterized by unemployment rates that were 6.0 percent or less from 2007 to 2015, and includes 7 areas. Their average unemployment rate decreases from 4.9 to 3.0 percent. The "Poor or Weakest" recoveries are characterized by unemployment rates that exceed 8.0 percent in each year of the recovery. Eleven areas comprise this group. Their group average unemployment rate slid downward from 14.4 to 11.3 percent. Similar to the recession, the two distinguishing factors that determine the weakness or tepidness of the recovery appear to be the area's initial unemployment rate and pace of its decline. The 17 areas labeled "Major Improvement" experience an average decline of 5.5 percentage points, from 11.2 to 5.7 percent.

Table 8 reports the actual area names and their "official" jobless rates. Six years into the recovery shows that the "weakest" recovery areas are all in California and New Jersey. However,

when we performed the analysis through 2013, areas that were hit hard by the housing market crisis such as Nevada experience weak recoveries. Flint and Detroit's recoveries were slow too.

The "Best" recoveries tended to occur in the Midwest, or middle part of the U.S. In many respects, these results mirror the findings in Rodgers and Freeman (2000). Four areas (Fargo, ND; Iowa City, IA; Omaha, NE; and Sioux Fall, SD) have strong recoveries from 1991 to 1997 and 2009 to 2015. These areas plus the others in the "Best" recovery category all experience "Mild" Great Recessions.

One of the most important findings is that all of the areas categorized as having the "worst" Great Recessions have the weakest current recoveries, indicating a "state dependency or hysteresis type of response. Another important observation is that almost half (15) of these 34 metropolitan areas have the "worst" metropolitan area recoveries during the 1990s.[9]

There appears to be no systematic pattern (e.g., region, industry) for why areas had big drops in their area unemployment rate, especially 6 years into the recovery. However, Michigan does stick out. Eleven of their metropolitan areas had drops in their unemployment rates of at least 4 percentage points. The government support of the car industry may contribute to this improvement. It is also important to note that if we had used Rodgers and Freeman's threshold of 5 percentage points, the group size would have been much smaller. This may be due to the Great Recession and slow pace of the recovery or that Rodgers and Freeman look seven years into the 1990s recovery.

V. The Relation of Metropolitan Area Unemployment to Alternative Measures of Unemployment

Table 9 reports summary statistics for each labor force attachment and job search sample. The punchline is that the background and characteristics of the unemployed are independent of

unemployment's definition. The educational attainment distributions are similar for the "officially" unemployed and the alternate definition of attachment. Compared to whites, African Americans and Latinos have a higher likelihood of being "officially" unemployed, but the racial and ethnic differences are small as we move across the types of attachment and utilization. Unemployed individuals are younger by 3 to 4 years, but few age differences exist across search intensity.

Are the individuals that comprise the U4 to U6 samples more sensitive to local area conditions than the "official" unemployed? To answer this question, we compared the economic positions of 6 demographic groups across metropolitan areas with different unemployment rates, using the Annual Demographic Files of the Current Population Survey (CPS) and estimated a linear probability model. The dependent variables are 0-1 dummy variables for whether the individual is employed in a given year; in the labor force; "officially" unemployed; the official unemployed plus discouraged workers; the official unemployed, discouraged workers, and those who want a job; and finally, the officially unemployed, discouraged workers, those who want a job, plus the part time for economic reasons individuals. The independent variables are a measure of local area economic health and measures of demographic characteristics: age, educational attainment, race/ethnicity, and gender.

We estimate models where we use the metropolitan area unemployment rate as the measure of local economic health. We also use the logarithm of an area's real metropolitan area gross domestic product. The latter may suffer less from being endogenous with the unemployment outcomes. Table 10 reports our main results linking the six forms of labor force attachment to area unemployment rates and to the logarithm of real Gross Domestic Product. All regressions include year dummy variables and metropolitan area dummy variables. These fixed

effect models reveal how changes in local economic conditions affect an individual's prospects for unemployment.

Table 10 shows that the area unemployment rate has a sizable effect on employment, especially, for young college graduates, men, and Blacks and Latinos. The coefficients for these three groups exceed the coefficient for all individuals. For instance, the estimated effect of the area unemployment rate on the probability of employment is -0.010 for young college graduates versus -0.005 for all individuals. Given the lower level of employment for the groups, these figures translate into larger gains in the probability of employment for young college graduates, and minorities.

Table 10 also reports linear probability models for when the dependent variable is labor force participation and BLS' "official" unemployment definition. A comparison of these coefficients determines whether the employment effect is due to participation or search. The evidence in the table suggests that much of the reduction or greater sensitivity to local area conditions is driven by unemployment as opposed to labor force participation. Men, minorities, and high school graduates have the greatest sensitivity to a one percentage point increase in the local area unemployment rate. Older unemployed are least sensitive. The one exception is young college graduates. Although their unemployment coefficient is positive and measured with significance, in absolute value it equals the labor force participation coefficient. This may be consistent with the spike upward in graduate school enrollment that occurred over this period.

The table's main focus and contribution is what happens to the unemployment coefficient when underutilized and untapped individuals are included in the unemployed sample. The U-4 coefficients include discouraged workers. The U-5 coefficients add those that want a job, and the

U6 coefficients add the part-time for economic reasons group. Focusing on the coefficients for all individuals reveals that a slight increase in sensitivity occurs as we move from the "official" jobless rate to the U-6 rate. The biggest increase occurs when we add individuals working part time for economic reasons. A one percentage point increase in the local area unemployment rate increases the odds of "official" unemployment by 1.0 percentage point, compared to a 1.2 percentage point increase in U-6 unemployment.

When we estimate the alternate unemployment models for the six subgroups, the earlier pecking order in the attachment coefficients remains the same. Minorities, men and high school graduates bear the greatest impact of an increase in the local area unemployment rate. The increased odds range from 1.3 to 1.7 percentage points. Although slightly lower, the U-6's for young college graduates and older men experience nontrivial responses (0.50 and 0.70 percentage points). Thus, any efforts to slow the pace of economic growth could have the unintended consequence of retarding the ability of underutilized and untapped Americans to grab a toe hold in the labor market.

To address the potential for endogeneity between the local area unemployment rate and the unemployment concepts, we estimate the models but use the logarithm of real Gross Domestic Product as the measure of local area macro activity. These runs merge the 2014 GDP data to the 2015 CPS micro data. This requires the assumption that macro-economic growth during 2014 and 2015 is similar, or at least the ranking across metropolitan areas remains the same across these two years.

For All individuals, the impact of local area GDP on employment is to raise it by one-tenth of a percent. The bulk of the impact on attachment and search is driven by a reduction in

the unemployment rate and not labor force participation. The official unemployment rate coefficient indicates that a one percent increase in real local area GDP reduces the odds of unemployment by 0.07 percentage points. Adding in discouraged and want a job unemployed has little impact on the estimate; however, adding the sample of individuals that work part time for economic reasons increases the partial elasticity to one-tenth of a percent.

Switching from metropolitan area unemployment rates to area real GDP changes the ordering of the sensitivity slightly. The employment-population ratio model indicates that minorities and young college graduates have the greatest sensitivity, followed by men, teenagers, high school graduates and older individuals. The labor force participation coefficients show a similar ordering. The sensitivity of the "official" BLS unemployment measure starts with teenagers, minorities, men, young college graduates, high school graduates and older individuals. The U4 and U5 coefficients preserve this ranking. Minorities and teenagers remain first, followed by men, young college graduates, high school graduates, and older workers. Moving to the U-6 measure of unemployment, minorities become the most sensitive macro-economic conditions, closely followed teenagers. The responses of men, high school graduates, and older workers cluster together.

To summarize, the two specifications indicate that slower macroeconomic growth has a slightly larger impact on the involuntarily unemployed moving to full-time work. The effects are largest for minorities, teenagers, and young college graduates. What does this conclusion mean for contractionary monetary policy? Simply put, an increase in the federal funds rate slows economic growth, which then increases unemployment. The involuntarily unemployed will experience greater difficulty securing employment than the "officially" unemployed.

The next issue that we explore is the level of "slack" in the labor market. Is it just limited to vulnerable populations or does it extend to the broader workforce? To examine the pattern of change in employment, participation, and unemployment across areas with different local histories during the recession and recovery, we tabulated in Table 11 the outcomes for all individuals and subgroups (e.g., Black and Latino) in the two recession categories: Worst and Mild. Table 11 also tabulates the statistics for the three types of recoveries: Best, Worst, and Big Drop in the unemployment rate.

"Great Recession" Comparisons

Individuals in metropolitan areas that experienced the "worst" recessions have weaker labor force attachments at the start of the recession. The employment-population ratio for all individuals is 65.0 percent in 2007, compared to 77.0 percent in areas with "mild" recessions. A 9.0 percentage point gap exists between the 2007 labor force participation rates (70.0 vs. 79.0 percent). At the start of the recession, the official unemployment rate in the "worst" areas is almost three times the rate in areas with "mild" recessions. Shifting to the U6 measure lowers the ratio to two.

Several results are worth mentioning. Although the CPS sample weights were used, the 2007 estimates for Blacks and Latinos residing in areas that experienced the "worst" recessions are misleading due to small sample sizes. The 2009 estimates are more reasonable. They clearly show the disadvantage that minorities faced in areas that had the "worst" recessions, when compared to "mild" areas. The employment-population ratio is 17.0 points lower. The labor force participation rate is 12.0 points lower, and the "official" unemployment rate is 11.0 points higher. The U6 unemployment rate is 16 points higher, sitting at 29.0 percent.

Young college graduates are the exception to the previous comparisons. Conditions in 2007 were similar across the type of recession. For example, employment-population ratios were 77.0 and 79 percent, respectively. But labor force participation is higher in areas with the worst recessions because their unemployment rates (official and alternate) are higher. The U6 estimates indicate that in the "worst" areas, 20.0 percent of young college graduates were unemployed, compared to 4.0 percent in areas with "mild" recessions.

The erosion in the employment-population ratios is larger in areas with the "worst" recessions, falling 5.0 to 22.0 percentage points. High school and young college graduates in the "worst" areas experienced double digit drops in their employment population ratios, while the ratios of their counterparts in "mild" areas remained the same or experienced small drops. Labor force participation changes are similar across all groups and areas, except for college graduates. Young college graduate participation rates in areas that experienced the "worst" recessions fell by 25 percentage points, compared to a 4 percentage point drop in "mild" recession areas.

For all workers, males, and high school graduates, the "official" unemployment rate increases more in areas with the "worst" recessions. The U6 unemployment rate, or the addition of part-time workers and individuals that want to work, just amplifies the severity of the recession in the "worst" areas. The increases in the "worst" areas are two to three times the size of increases in areas with "mild" recessions.

A positive finding is that areas with the "worst" recessions have stronger recoveries than "mild" recession areas. This is due in part because the former start at a lower base. However, the "worst" areas have only returned to pre-recession levels. As a result, the recovery has not been

strong enough to reduce gaps or differences in participation and attachment that existed in 2007, the start of the recession.

To summarize, the interesting findings here are that for most groups, there were large advantages to living in an area that had a "mild" great recession. Attachment was higher at the start of the recession. Except for young college graduates, the losses are similar as in areas with the worst Great Recession. They are mainly due to increases in the unemployment rates and not a reduction in participation. The striking result is that teenagers in mild recessions experience a much bigger drop in their participation rate. We speculate that this is a schooling response to the "Great Recession". These 16 to 19 year olds use schooling (e.g, high school and college) as a safety valve.

Recovery Comparisons

Shifting to Tables 12 and 13, we now discuss the experiences of individuals in the three types of recoveries. Areas with the "Best" recoveries start out with higher labor force participation ratios, higher employment population ratios, and lower unemployment rates than areas with the "worst" recoveries. In 2009, their labor force participation rate and employment population ratio was 79.0 and 76.0 percent, respectively. The rate and ratio for "Bad", and "Large Drop" recoveries range from approximately 66 to 76 percent. The 2009 unemployment rates for "Best" recoveries range from 4.0 to 7.0 percent compared to 15.0 to 21.0 percent for the two other types recoveries.

The key distinction to be made between the "Best" recovery and the two other recoveries is that the severity of its "Great Recession" matters. The legacy of the "Great Recession" partially dictates the nature of an area's recovery. Areas with the "Best" recoveries experienced

very mild recessions. In fact, all of the areas in the "Best" recovery category are in the "Mild" recession group. The "Best" recovery's attachment measures fell by 3 to 4 percentage points, compared to larger drops in the two other types of recoveries, which ranged from 4 to 5 percentage points. The "Best" area's unemployment rates only increased by 1 to 2 percentage points, while the two other recovery types saw their jobless rates increase by 7 to 8 percentage points.

Similar to Freeman and Rodgers (2000), the "Best" recovery areas can be used to simulate how well a strong macroeconomy can narrow racial and ethnic inequality. Specifically, it would be good to know how minorities in the "Best" recoveries faired relatively to the general population of workers in the "Best" recoveries, and how Minorities in the "Best" recoveries compared to minorities in weaker recoveries. Even minorities in areas with the "Best" recoveries have higher unemployment rates and lower participation measures than the typical worker in the same type of local area, confirming the continued inability of a strong macro-economy to narrow long standing racial and ethnic inequality.

We do find that minorities living in the "Best" recoveries also have better labor force outcomes than minorities in "Weak" recoveries and recoveries where the unemployment rate dropped more than 5 percentage points (e.g., "Big Drop").

Teenagers, another vulnerable group to macro fluctuations because of their lack of education and experience also do well in the "Best" recoveries and "Big Unemployment Rate Drop" recoveries. An overall healthy economy or one that tightens quickly provides significant employment opportunities. However, the levels in these areas have not returned to their pre-recession levels. High school graduates, young college graduates, and older workers exhibit the

overall pattern. The "Big Drop" recoveries experience the largest improvement, but the levels have not returned to pre-recession levels and they are lower than their counterparts in the "Best" areas.

To summarize, the benefit to residing in an area defined as a "Best" recovery is that the levels of participation, employment, and unemployment exceed those in the two weaker recovery areas. However, in terms of actual improvement, the three areas and the 6 demographic groups seem to have experienced modest improvement at best. Few if any areas and sub-groups have returned to their pre-recession levels. The addition of the U6 measures further amplifies the weakness of the current recovery. The labor market contains a significant amount of slack.

Not only have we shown that participation has yet to recover to its pre-recession levels, even in the strongest areas, but the U6 concept of unemployment paints a very different picture of the labor market's strength. Areas with the best recoveries have U6 unemployment rates that range from 5.0 (overall) to 12.0 (Black and Latino, teenagers, and college graduates) percent. In areas designated as having the weakest recoveries, the U6 unemployment rate is 16.0 percent. In areas with "Big Unemployment Rate Drops" during the recovery, U6 rates were 17.0 and 15.0 percent. The U6 rates for our marginal groups in the strongest local labor markets exceed 13.0 percent.

VI. Conclusion

The evidence presented in this paper runs through the first 11 months of 2015. As of November 2015, BLS' U6 unemployment rate sits at 9.9 percent, down from 11.4 percent a year ago. The drop in the "officially" unemployed is the major reason the U6 rate has fallen. The alternative measures of unemployment remain elevated. Focusing on prime-age men between the

ages of 25 and 54, whose attachments are not impacted by schooling and retirement decisions, we observe continued slackness. Their Labor Force Participation rate remains at 88.0 percent well below the pre-recession level of 90.6 percent. The employment population ratio is 84.3 percent, compared to its prerecession level of 87.2 percent.

The point of all this is to say that the modest recovery and its impact on U.S. labor markets remain very relevant, especially the relative comparisons across type of recovery and the sub-groups. Today, 154 (up from 93 in 2014) areas have jobless rates below, 5 percent; however, this is only 38.0 percent (164/402*100) of the 402 areas for which metropolitan area unemployment rates are published by the Bureau of Labor Statistics.

Thus, the paper's following findings should still be of great interest to policy makers and analysts.

- A major amount of slack remains in the labor market. Alternative measures of unemployment that capture discouragement and part-time employment indicate that the labor market was weaker when the "Great Recession" started, the recession was worse than indicated by the "official" unemployment rate, and the expansion remains tepid at best.
- The educational attainment, gender, race, age, and ethnicity of Americans who are discouraged, want a job, and working part time for economic reasons are similar to BLS' "officially" unemployed.
- Discouraged workers, those who want a job, and those who are working part time for economic reasons are more sensitive to changes in local economic conditions.

- The labor market slack shown in this paper is even present in local labor markets that experienced the "best" or "strongest" recoveries.
- The current recovery's weakness extends beyond the most vulnerable Americans (e.g., minorities and teenagers). The "real" or U6 unemployment rate is elevated for all Americans.
- Teenagers, young high school and college graduates appear to have used schooling as a safety value to cope with the weak recovery.
- The strength of a local labor market's recovery is linked to the severity of its "Great Recession. Areas that had the worst recessions are experiencing the weakest recoveries. Areas with the mildest recessions are experiencing the strongest recoveries.

Table 1: Selected Measures of Labor Force Attachment and Search

All	**Selected Years**				**Recession**	**Recovery**	
Variable	**2007**	**2009**	**2013**	**2015**	**2009-2007**	**2013-2009**	**2015-2009**
EPOP	0.720	0.680	0.674	0.688	-0.040	-0.005	0.008
LFP	0.755	0.751	0.732	0.730	-0.004	-0.019	-0.021
Official Unemployment Rate	0.046	0.095	0.079	0.057	0.049	-0.016	-0.038
U4-Unemployment Rate	0.049	0.099	0.084	0.062	0.050	-0.016	-0.037
U5-Unemployment Rate	0.071	0.125	0.113	0.090	0.053	-0.012	-0.035
U6-Unemployment Rate	0.081	0.143	0.122	0.098	0.061	-0.020	-0.044
Blacks and Latinos							
EPOP	0.661	0.611	0.603	0.628	-0.050	-0.008	0.017
LFP	0.720	0.709	0.692	0.699	-0.011	-0.017	**-0.010**
Official Unemployment Rate	0.082	0.138	0.129	0.101	0.056	-0.009	-0.038
U4-Unemployment Rate	0.089	0.146	0.137	0.110	0.057	-0.009	-0.037
U5-Unemployment Rate	0.123	0.185	0.181	0.147	0.062	-0.004	-0.038
U6-Unemployment Rate	0.131	0.200	0.192	0.156	0.069	-0.008	-0.044
Men							
EPOP	0.779	0.719	0.727	0.743	-0.060	0.008	0.024
LFP	0.822	0.811	0.794	0.793	-0.011	-0.017	**-0.018**
Official Unemployment Rate	0.052	0.114	0.084	0.062	0.061	-0.029	-0.051
U4-Unemployment Rate	0.056	0.118	0.090	0.068	0.063	-0.029	-0.050
U5-Unemployment Rate	0.073	0.140	0.114	0.091	0.067	-0.026	-0.049
U6-Unemployment Rate	0.085	0.163	0.126	0.101	0.079	-0.038	-0.062
Teenagers							
EPOP	0.462	0.392	0.352	0.384	-0.070	-0.040	-0.008
LFP	0.530	0.494	0.448	0.461	-0.036	-0.046	**-0.034**
Official Unemployment Rate	0.129	0.207	0.216	0.167	0.079	0.008	-0.040
U4-Unemployment Rate	0.135	0.215	0.224	0.175	0.079	0.010	-0.039
U5-Unemployment Rate	0.193	0.287	0.306	0.256	0.094	0.019	-0.031
U6-Unemployment Rate	0.198	0.304	0.314	0.264	0.106	0.009	-0.040
High School Graduates							
EPOP	0.700	0.647	0.631	0.644	-0.053	-0.016	-0.003
LFP	0.741	0.738	0.705	0.698	-0.004	-0.033	**-0.040**
Official Unemployment Rate	0.055	0.123	0.105	0.078	0.068	-0.018	-0.045
U4-Unemployment Rate	0.059	0.128	0.111	0.085	0.069	-0.017	-0.043
U5-Unemployment Rate	0.082	0.155	0.142	0.116	0.073	-0.012	-0.039
U6-Unemployment Rate	0.094	0.179	0.154	0.127	0.085	-0.025	-0.052
Notes: See end of the table.							

Table 1 cont.: Selected Measures of Labor Force Attachment and Search

	Selected Years				Recession	Recovery	
Older Workers	**2009**	**2013**	**2015**	**2009**	**2013**	**2015**	**2009**
EPOP	0.578	0.567	0.580	0.582	-0.011	0.013	0.015
LFP	0.599	0.612	0.617	0.609	0.013	0.005	-0.004
Official Unemployment Rate	0.034	0.074	0.061	0.044	0.040	-0.014	-0.030
U4-Unemployment Rate	0.037	0.078	0.065	0.050	0.041	-0.013	-0.028
U5-Unemployment Rate	0.059	0.105	0.094	0.078	0.046	-0.011	-0.027
U6-Unemployment Rate	0.065	0.119	0.102	0.087	0.054	-0.017	-0.032
Young College Graduates							
EPOP	0.700	0.662	0.614	0.622	-0.038	-0.048	**-0.040**
LFP	0.736	0.723	0.679	0.672	-0.012	-0.044	**-0.052**
Official Unemployment Rate	0.049	0.085	0.096	0.074	0.037	0.011	-0.011
U4-Unemployment Rate	0.050	0.088	0.099	0.078	0.038	0.011	-0.010
U5-Unemployment Rate	0.079	0.123	0.140	0.116	0.043	0.017	-0.006
U6-Unemployment Rate	0.089	0.135	0.146	0.126	0.045	0.011	-0.009

Notes: Estimates constructed using the 2007, 2009, 2013 and 2015 micro data from March Annual Demographic File. I constructed dummy variables that capture the BLS official unemployment rate. To be included in the sample, the respondent must be 16 to 64 years of age and live in one of the metropolitan areas identified by the Current Population Survey (CPS) metropolitan area variable. All estimates are weighted using the CPS sample weights. "All" denotes individuals 16 to 64. All sub groups are 16 to 64, except for teenagers who are 16 to 19 years of age, older workers who are 55 to 65 years of age, and young college graduates, who have completed at least a bachelor's degree and are 18 to 24 years of age. "EPOP" denotes the employment population ratio. "LFP" denotes the labor force participation rate. The dummy variable for the "official" unemployment rate is constructed as follows. An individual receives a 1 if they have actively searched for a job within the last four weeks, and a 0 if they are employed. The alternative measures are as follows. The U-4 unemployment dummy variable equals 1 if the respondent has searched for employment over the last four weeks, or the respondent indicates that they are discouraged and did not actively search. The variable equals zero if the individual is employed. The U-5 unemployment dummy variable equals 1 if the respondents being unemployed, discouraged, or marginally attached to the labor force. The latter means that the respondent is not currently are working or looking for work but indicate that they want and are available for a job and have looked for work sometime in the past 12 months. The variable equals zero if the respondent is employed. Finally, the U-6 unemployment dummy variable equals 1 if the respondent is unemployed, discouraged, marginally attached to the labor force (want a job), or is employed part time for economic reasons (also labeled involuntary part time employment).

Table 2: Metropolitan Unemployment Rates and the Great Recession and Recovery

	Frequency					Percent				
Category	**2007**	**2009**	**2013**	**2014**	**2015**	**2007**	**2009**	**2013**	**2014**	**2015**
Less than 4%	129	1	13	29	65	32.1%	0.2%	3.2%	7.2%	16.2%
4 to 5%	138	9	27	64	89	34.3%	2.2%	6.7%	15.9%	22.1%
5 to 6%	62	26	55	97	122	15.4%	6.5%	13.7%	24.1%	30.3%
6 to 7%	26	39	82	99	67	6.5%	9.7%	20.4%	24.6%	16.7%
7 to 8%	8	65	100	56	28	2.0%	16.2%	24.9%	13.9%	7.0%
At Least 8%	39	262	125	57	31	9.7%	65.2%	31.1%	14.2%	7.7%
Total	402	402	402	402	402	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Authors' tabulations from U.S. Department of Labor, Bureau of Labor Statistics. www.bls.gov. The entries for 2015 are an average of the year's first 11 months.

Table 3: Great Recession Transition Matrices of Metropolitan Unemployment Rates

Panel A: Frequencies	**2009**						
2007	**Less than 4%**	**4 to 5%**	**5 to 6%**	**6 to 7%**	**7 to 8%**	**At Least 8%**	**Total**
Less than 4%	1	9	25	27	29	38	129
4 to 5%	0	0	1	11	30	96	138
5 to 6%	0	0	0	1	6	55	62
6 to 7%	0	0	0	0	0	26	26
7 to 8%	0	0	0	0	0	8	8
At Least 8%	0	0	0	0	0	39	39
Total	1	9	26	39	65	262	402
Panel B: Transition Probabilities	**2009**						
2007	**Less than 4%**	**4 to 5%**	**5 to 6%**	**6 to 7%**	**7 to 8%**	**At Least 8%**	**Total**
Less than 4%	0.01	0.07	0.19	0.21	0.22	0.29	1.00
4 to 5%	0.00	0.00	0.01	0.08	0.22	0.70	1.00
5 to 6%	0.00	0.00	0.00	0.02	0.10	0.89	1.00
6 to 7%	0.00	0.00	0.00	0.00	0.00	1.00	1.00
7 to 8%	0.00	0.00	0.00	0.00	0.00	1.00	1.00
At Least 8%	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Total	0.00	0.02	0.06	0.10	0.16	0.65	1.00

Notes: Authors' tabulations from data taken from various years of the BLS, LAUS program, www.bls.gov. In Panel B, each entry represents the probability of unemployment in 2009 conditional on 2007.

Table 4: Different Types of Great Recessions

	Unweighted Yearly Average		
Size of Increase (Number of Areas)	**2007**	**2009**	**Percentage Point Change**
Less than 2.0 Percentage Points (9)	3.5	5.2	1.7
2 to 3 (34)	4.2	6.8	2.6
3 to 4 (67)	4.3	7.9	3.6
4 to 5 (53)	4.5	9.0	4.5
5 to 6 (44)	4.9	10.4	5.5
6 to 7 (31)	5.2	11.7	6.5
At least 7.0 Points (17)	6.6	14.4	7.8
Severity of the Recession	**2007**	**2008**	**2009**
Worst (8)	9.9	12.2	16.9
Mild (14)	3.2	3.4	5.3
Notes: U.S. Department of Labor, Bureau of Labor Statistics. Values correspond to the group's unweighted average unemployment rate in a given year. "Worst" is defined as an area where the local unemployment rate exceeds 8.0 percent in 2007, 2008, and 2009. A "Mild" recession is defined as an area where the local unemployment rate remains below 6.0 percent in 2007, 2008 and 2009.			

Table 5: Severity of the "Great Recession"
("Official" BLS Unemployment Rate)

Panel A: Worst Areas			
Metropolitan Area	**2007**	**2008**	**2009**
Bakersfield, CA	8.2	9.8	14.4
El Centro, CA	18.1	22.4	27.9
Flint, MI	8.2	10.2	14.5
Fresno, CA	8.6	10.5	15
Merced, CA	10.1	12.5	16.9
Modesto, CA	8.7	11.0	15.8
Stockton, CA	8.1	10.4	15.3
Visalia-Porterville, CA	9.2	10.8	15.2
Unweighted Average	9.9	12.2	16.9
Panel B: Mildest Recessions			
Metropolitan Area	**2007**	**2008**	**2009**
Amarillo, TX	3.4	3.6	5.2
Billings, MT	2.6	3.4	4.4
Des Moines, IA	3.5	3.8	5.9
Fargo, ND-MN	2.8	2.9	4.3
Honolulu, HI	2.5	3.6	5.8
Iowa City, IA	2.9	3.0	4.5
Lafayette, LA	2.8	3.2	5.2
Lawrence, KS	3.8	4.0	5.9
Lawton, OK	4.4	3.8	5.5
Lubbock, TX	3.6	3.8	5.3
Midland, TX	2.9	2.9	5.5
Omaha-Council Bluff, NE	3.4	3.6	5.1
Sioux Falls, SD	2.5	2.7	5.2
Waterloo-Cedar Fall, IA	3.7	3.8	5.8
Unweighted Average	3.2	3.4	5.3

Source: U.S. Department of Labor, Bureau of Labor Statistics. Areas designated as having the "Worst" or weakest recessions have unemployment rates above 8.0 percent from 2007 to 2009. Metropolitan Areas during the "Great Recession" that experienced "Mild" recessions have unemployment rates below 6.0 percent from 2007 to 2009.

Table 6: Recovery Transition Matrices of Metropolitan Unemployment Rates

Panel A: Frequencies	**2015**						
2009	**Less than 4%**	**4 to 5%**	**5 to 6%**	**6 to 7%**	**7 to 8%**	**At Least 8%**	**Total**
Less than 4%	1	0	0	0	0	0	1
4 to 5%	7	0	2	0	0	0	9
5 to 6%	19	4	1	1	0	1	26
6 to 7%	16	12	5	3	2	1	39
7 to 8%	7	24	23	9	0	2	65
At Least 8%	15	49	91	54	26	27	262
Total	65	89	122	67	28	31	402
Panel B: Transition Probabilities	**2015**						
2009	**Less than 4%**	**4 to 5%**	**5 to 6%**	**6 to 7%**	**7 to 8%**	**At Least 8%**	**Total**
Less than 4%	1.00	0.00	0.00	0.00	0.00	0.00	1.00
4 to 5%	0.78	0.00	0.22	0.00	0.00	0.00	1.00
5 to 6%	0.73	0.15	0.04	0.04	0.00	0.04	1.00
6 to 7%	0.41	0.31	0.13	0.08	0.05	0.03	1.00
7 to 8%	0.11	0.37	0.35	0.14	0.00	0.03	1.00
At Least 8%	0.06	0.19	0.35	0.21	0.10	0.10	1.00
Total	0.16	0.22	0.30	0.17	0.07	0.08	1.00

Notes: Authors' tabulations from data taken from various years of the BLS, LAUS program, www.bls.gov. The Panel B entries represent the probability of unemployment in 2015 conditional on 2009.

Table 7: Area Unemployment by Type of Recovery

Variable	Poor/Weakest(11)	Best/Strongest (7)
2009	14.4	4.9
2010	15.6	5.0
2011	15.2	4.6
2012	14.2	4.1
2013	14.0	3.8
2014	12.5	3.3
2015	11.3	3.0

Notes: U.S. Department of Labor, Bureau of Labor Statistics. Values correspond to the group's unweighted average unemployment rate in a given year. The "Best" or "Strongest" Recovery areas have unemployment rates below 6.0 percent from 2009 through the first 11 months of 2015. The "Poor or Weakest" recoveries have unemployment rates that exceed 8.0 percent in each year of the recovery.

Table 8: Metropolitan Area Unemployment Rates by Type of Recovery

Panel A: Best Recoveries	**Year**						
Metropolitan Area (Type of Recession)	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Amarillo, TX (Mild)	5.2	5.6	5.4	4.8	4.6	3.7	3.1
Billings, MT (Mild)	4.4	5.2	4.9	4.5	4.3	3.8	3.3
Fargo, ND-MN (Mild)	4.3	4.1	3.9	3.4	3.2	2.7	2.7
Iowa City, IA (Mild)	4.5	4.5	4.3	3.8	3.5	3.2	2.7
Midland, TX (Mild)	5.5	5.3	4.4	3.6	3.7	2.9	3.1
Omaha-Council Bluff, NE (Mild)	5.1	5.2	5.0	4.5	4.1	3.7	3.1
Sioux Falls, SD (Mild)	5.2	5.1	4.5	3.9	3.2	2.9	2.9
Unweighted Average	4.9	5.0	4.6	4.1	3.8	3.3	3.0
Panel B: Poor or Weakest Recoveries	**Year**						
Metropolitan Area (Type of Recession)	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Atlantic City, NJ	11.8	12.7	12.9	13.2	11.6	10.4	9.9
Bakersfield, CA (Worst)	14.4	15.9	15.0	13.3	11.7	10.5	10.0
El Centro, CA (Worst)	27.9	29.0	28.9	27.2	24.9	23.6	23.0
Fresno, CA (Worst)	15.0	16.7	16.4	15.0	13.2	11.6	9.9
Madera, CA	13.6	15.5	15.0	13.3	12.5	11.0	9.9
Merced, CA (Worst)	16.9	18.7	18.2	16.9	14.5	12.8	11.0
Modesto, CA (Worst)	15.8	17.2	16.7	15.1	12.9	11.2	9.4
Ocean City, NJ	11.1	12.2	12.7	13.2	14.5	12.5	11.4
Stockton, CA (Worst)	15.3	17.3	16.8	15.0	12.4	10.6	8.8
Vineland-Millville, NJ	12.4	13.6	13.4	13.7	11.7	9.9	9.4
Visalia-Porterville, CA (Worst)	15.2	17.0	16.8	15.9	14.4	13.2	11.7
Unweighted Average	14.5	16.0	15.8	15.0	13.4	11.7	10.3
Notes: See end of table.							

Table 8 cont.: Metropolitan Area Unemployment Rates by Type of Recovery

Panel C: Big Declines in Unemployment Rate			
Metropolitan Areas (Type of Recession)	**2009**	**2015**	**Change**
Akron, OH	9.8	4.9	-4.9
Ann Arbor, MI	8.4	3.7	-4.7
Appleton, WI	8.3	3.9	-4.4
Bakersfield, CA	14.4	10.0	-4.4
Bend, OR	14.7	6.1	-8.6
Boise City-Nampa, I..	8.1	3.8	-4.3
Bowling Green, KY	10.2	4.7	-5.5
Canton-Massillon, OH	11.3	5.2	-6.1
Cape Coral-Fort Myers. FL	12.1	5.2	-6.9
Charlotte-Gastonia-..	11.2	5.5	-5.7
Chicago-Naperville-..	10.0	5.9	-4.1
Chico, CA	12.5	7.1	-5.4
Cincinnati-Middleton, OH	9.3	4.4	-4.9
Columbus, OH (Morro..	8.4	4.1	-4.3
Dayton, OH	11.1	4.8	-6.3
Decatur, IL	11.3	6.8	-4.5
Deltona-Daytona Beach, FL.	10.7	5.9	-4.8
Denver-Aurora, CO	8.3	4.0	-4.3
Detroit-Warren-Livo..	15.0	6.3	-8.7
Duluth, MN-WI (Carl..	9.2	5.0	-4.2
El Centro, CA	27.9	23.0	-4.9
Eugene-Springfield,, OR	12.1	6.1	-6.0
Evansville, IN-KY (..	8.5	4.4	-4.1
Flint, MI	14.5	6.0	-8.5
Fort Wayne, IN	10.7	4.8	-5.9
Fresno, CA	15.0	9.9	-5.1
Grand Rapids, MI	11.0	3.8	-7.2
Greeley, CO	9.1	4.0	-5.1
Green Bay, WI	8.3	4.2	-4.1
Greensboro-High Point, NC	10.8	5.9	-4.9
Hickory-Morganton, NC	14.0	5.8	-8.2
Jackson, MI	13.2	5.3	-7.9
Jacksonville, FL	9.8	5.4	-4.4
Janesville, WI	12.8	5.2	-7.6
Kalamazoo-Portage, MI	10.5	4.7	-5.8
Kankakee-Bradley, IL	12.0	6.4	-5.6
Lakeland-Winter Haven, FL	11.1	6.3	-4.8
See end of table.			

Table 8 cont.: Metropolitan Area Unemployment Rates by Type of Recovery

Panel C: Big Declines in Unemployment Rate			
Metropolitan Areas (Type of Recession)	**2009**	**2015**	**Change**
Lansing-East Lansing, MI	10.6	4.5	-6.1
Las Vegas-Paradise, NV	11.9	7.0	-4.9
Lexington-Fayette, KY	8.4	4.0	-4.4
Los Angeles-Long Beach, CA.	10.9	6.5	-4.4
Louisville, KY-IN	10.0	4.7	-5.3
Medford, OR	12.6	7.1	-5.5
Merced, CA	16.9	11.0	-5.9
Miami-Fort Lauderdale, FL	10.3	5.6	-4.7
Michigan City-La Po	11.9	6.5	-5.4
Minneapolis-St Paul, MN	7.9	3.6	-4.3
Modesto, CA	15.8	9.4	-6.4
Monroe, MI	14.2	4.6	-9.6
Muskegon, MI	14.5	5.7	-8.8
Myrtle Beach-Conway, SC	11.9	7.1	-4.8
Napa, CA	8.6	4.4	-4.2
Naples-Marco Island, FL	10.9	5.3	-5.6
Nashville-Davidson, TN	9.4	4.8	-4.6
Niles-Benton Harbor, MI	12.4	5.2	-7.2
Ocala, FL	12.6	6.5	-6.1
Ogden-Clearfield, UT	7.8	3.7	-4.1
Orlando, FL	10.3	5.1	-5.2
Oxnard-Thousand Oaks, CA	9.9	5.6	-4.3
Palm Bay-Melbourne, FL	10.3	6.0	-4.3
Pensacola, FL	9.5	5.3	-4.2
Peoria, IL	10.3	6.1	-4.2
Portland, OR	10.8	5.4	-5.4
Port St. Lucie, FL	12.4	6.1	-6.3
Prescott, AZ	10.3	5.6	-4.7
Provo-Orem, UT	7.5	3.3	-4.2
Punta Gorda, FL	11.7	6.0	-5.7
Racine, WI	10.4	5.8	-4.6
Reno-Sparks, NV	11.5	6.5	-5.0
Riverside-San Bernardino, CA	13.2	6.6	-6.6
Rockford, IL	14.8	6.6	-8.2
Sacramento, CA	11.1	5.8	-5.3
Saginaw, MI	12.2	5.7	-6.5
St. Cloud, MN	8.2	3.9	-4.3
Notes: See end of table.			

Table 8 cont.: Metropolitan Area Unemployment Rates by Type of Recovery

Panel C: Big Declines in Unemployment Rate			
Metropolitan Areas (Type of Recession)	**2009**	**2015**	**Change**
St. Louis, MO-IL	9.9	5.4	-4.5
Salem, OR	10.6	6.2	-4.4
Salt Lake City, UT	7.5	3.4	-4.1
San Diego, CA	9.6	5.1	-4.5
San Francisco-Oakland, CA	9.6	4.2	-5.4
San Jose-Sunnyvale, CA	10.9	4.1	-6.8
San Luis Obispo, CA	9.0	4.6	-4.4
Santa Rosa-Petaluma, CA	9.6	5.0	-4.6
Seattle-Tacoma, WA	9.1	4.6	-4.5
Vero Beach, FL	12.7	6.9	-5.8
South Bend, IN	11.5	5.3	-6.2
Spartanburg, SC	12.1	6.3	-5.8
Springfield, OH	10.3	4.8	-5.5
Stockton, CA	15.3	8.8	-6.5
Tampa-St. Petersburg, FL	10.8	5.3	-5.5
Toledo, OH	12.2	5.1	-7.1
Vallejo-Fairfield, CA	10.6	6.0	-4.6
Wausau, WI	8.9	4.1	-4.8
Winston-Salem, NC	9.7	5.4	-4.3
Youngstown, OH	12.5	5.9	-6.6
Leominster-Fitchburg, MA	10.4	5.8	-4.6
Santa Rosa, CA	9.6	4.4	-5.2
Unweighted Average	11.2	5.7	-5.5

Notes: U.S. Department of Labor, Bureau of Labor Statistics. Unweighted Average corresponds to the group's unweighted average unemployment rate in a given year. "Best" or "Strongest" areas have unemployment rates below 6.0 percent from 2009 through the first 11 months of 2015. "Poor" or "Weakest" areas have unemployment rates that exceed 6.0 percent from 2009 through the first 11 months of 2015. "Large Drop" areas have unemployment rates fall by at least 4.0 percentage points from 2009 through the average of the first 11 months of 2015.

Table 9: Summary Statistics by Level of Labor Force Attachment

	Attachment		Search Intensity			
Variable	**EPOP = 1**	**LFP = 1**	**Official = 1**	**U4 = 1**	**U5 = 1**	**U6 = 1**
EPOP = 1	1.000	0.934	0.000	0.000	0.000	0.114
LFP = 1	1.000	1.000	1.000	0.943	0.676	0.713
"Official" Unemployment = 1	0.000	0.066	1.000	1.000	1.000	0.841
U4: "Official" + Discouraged = 1	0.000	0.066	1.000	1.000	1.000	0.848
U5:U4 + Want a Job = 1	0.000	0.066	1.000	1.000	1.000	0.886
U6: U5 + PT for Econ. Reasons = 1	0.013	0.079	1.000	1.000	1.000	1.000
Area Unemployment Rate	6.300	6.370	7.370	7.350	7.160	7.170
Area Gross Domestic Product	11.464	11.460	11.401	11.412	11.435	11.423
Age	39.947	39.690	36.081	36.164	36.185	36.388
Men = 1	1.487	1.481	1.405	1.402	1.447	1.439
HS Graduate = 1	0.283	0.289	0.373	0.374	0.359	0.361
Some College/AA Degree = 1	0.298	0.297	0.279	0.275	0.284	0.281
At Least BA Degree = 1	0.329	0.317	0.145	0.145	0.150	0.149
African American	0.115	0.120	0.190	0.195	0.193	0.183
Other	0.071	0.070	0.064	0.065	0.072	0.070
Latino	0.155	0.158	0.195	0.195	0.190	0.204
2009	0.322	0.333	0.477	0.471	0.436	0.442
2015	0.342	0.338	0.293	0.299	0.320	0.311
Presence of Own Children = 1	0.933	0.929	0.877	0.867	0.901	0.928
Sample Size	158,141	168,782	10,641	11,238	15,770	17,790

Notes: Authors' tabulations from the 2007, 2009, and 2015 March Annual Demographic Files of the Current Population Survey. To be included in the sample, the respondent must be 16 to 64 years of age and live in one of the metropolitan areas identified by the Current Population Survey (CPS) metropolitan area variable. The respondent must have complete information on age, gender, educational attainment, race and ethnicity. "EPOP" denotes whether the respondent is employed. "LFP" denotes whether respondent is in the labor force. ""Official" Unemployment" denotes whether the respondent has searched for a job in the last four weeks. U4 denotes whether the respondent is "Officially" unemployed or a discouraged worker. U5 denotes whether the respondent meets the U4 criteria or wants a job. U6 denotes whether the respondent meets the U5 criteria or works part time for economic reasons. Area Unemployment Rate denotes the Metropolitan Statistical Area's unemployment rate. Age denotes the respondents age in years. The remaining variables are indicators for gender, educational attainment, race, ethnicity and year of the survey.

Table 10: The Impact of Local Labor Market Conditions on Participation and Unemployment

Panel A: Macro Measures - Metropolitan Area "Official" Unemployment Rate							
Attachment Category	**All**	**Black & Latino**	**Men**	**Teenagers**	**HS Graduates**	**Older**	**Young College Graduates**
Employment = 1	-0.005	-0.013	-0.010	-0.003	-0.004	0.001	-0.010
	(0.001)	(0.003)	(0.002)	(0.006)	(0.002)	(0.003)	(0.005)
Labor Force Participation = 1	0.002	-0.005	-0.001	0.001	0.004	0.004	-0.006
	(0.001)	(0.003)	(0.001)	(0.006)	(0.002)	(0.003)	(0.005)
BLS Official	0.010	0.013	0.011	0.008	0.010	0.005	0.006
	(0.001)	(0.002)	(0.001)	(0.006)	(0.002)	(0.002)	(0.003)
U4(Official + Discouraged)	0.010	0.015	0.012	0.007	0.012	0.007	0.007
	(0.001)	(0.002)	(0.001)	(0.006)	(0.002)	(0.002)	(0.003)
U5(U4+ Want a Job)	0.011	0.016	0.012	0.004	0.012	0.007	0.007
	(0.001)	(0.003)	(0.001)	(0.007)	(0.002)	(0.002)	(0.004)
U6 (U5 + PT for Economic Reasons)	0.012	0.017	0.013	0.004	0.014	0.007	0.005
	(0.001)	(0.003)	(0.001)	(0.007)	(0.002)	(0.002)	(0.004)

Notes: Calculated from the U.S. Bureau of Census Current Population Survey's March Annual Demographic Files, 2007, 2009 and 2015. The estimates are coefficients are from linear probability models of a micro outcome such as employment regressed on metropolitan area dummy variables, year dummy variables, age, educational attainment, gender, and race/ethnicity dummy variables. Standard errors are in parentheses.

Table 10 cont.: The Impact of Local Labor Market Conditions on Participation and Unemployment

Panel B: Macro Measures - Logarithm of Metropolitan Gross Domestic Product							
Attachment Category	**All**	**Black & Latino**	**Men**	**Teenagers**	**HS Graduates**	**Older**	**Young College Graduates**
Employment = 1	0.099	0.284	0.137	0.121	0.055	0.041	0.230
	(0.025)	(0.074)	(0.034)	(0.126)	(0.049)	(0.067)	(0.111)
Labor Force Participation = 1	0.050	0.205	0.091	0.035	0.049	0.036	0.211
	(0.024)	(0.070)	(0.031)	(0.127)	(0.046)	(0.066)	(0.106)
BLS Official	-0.074	-0.153	-0.067	-0.232	-0.017	-0.017	-0.054
	(0.016)	(0.056)	(0.023)	(0.139)	(0.034)	(0.040)	(0.074)
U4(Official + Discouraged)	-0.081	-0.169	-0.078	-0.220	-0.033	-0.042	-0.060
	(0.016)	(0.057)	(0.023)	(0.140)	(0.035)	(0.041)	(0.075)
U5(U4+ Want a Job)	-0.100	-0.209	-0.088	-0.194	-0.049	-0.047	-0.111
	(0.018)	(0.064)	(0.026)	(0.152)	(0.038)	(0.049)	(0.088)
U6 (U5 + PT for Economic Reasons)	-0.098	-0.201	-0.074	-0.175	-0.042	-0.048	-0.064
	(0.019)	(0.065)	(0.027)	(0.154)	(0.040)	(0.052)	(0.092)

Notes: Calculated from the U.S. Bureau of Census Current Population Survey's March Annual Demographic Files, 2007, 2009 and 2015. The estimates are coefficients are from linear probability models of a micro outcome such as employment regressed on metropolitan area dummy variables, year dummy variables, age, educational attainment, gender, and race/ethnicity dummy variables. Standard errors are in parentheses.

Table 11: Labor Market Outcomes by Year, Type of Recession and Demographic Characteristics

All	**Worst Recession**					**Mild Recession**				
Variable	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.65	0.59	0.64	-0.05	0.05	0.77	0.74	0.75	-0.03	0.02
LFP	0.70	0.71	0.69	0.01	-0.01	0.79	0.79	0.79	-0.01	0.00
Official Unemployment Rate	0.08	0.16	0.07	0.08	-0.09	0.03	0.06	0.04	0.03	-0.02
U6-Unemployment Rate	0.12	0.23	0.13	0.10	-0.09	0.06	0.10	0.07	0.05	-0.04
Black and Latino	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.29	0.49	0.64	0.19	0.15	0.71	0.66	0.63	-0.05	-0.03
LFP	0.44	0.59	0.73	0.15	0.14	0.74	0.71	0.73	-0.04	0.03
Official Unemployment Rate	0.34	0.18	0.12	-0.16	-0.05	0.05	0.07	0.14	0.02	0.07
U6-Unemployment Rate	0.41	0.29	0.15	-0.12	-0.13	0.10	0.13	0.18	0.03	0.05
Men	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.71	0.60	0.70	-0.10	0.10	0.83	0.78	0.78	-0.05	0.00
LFP	0.77	0.75	0.76	-0.02	0.01	0.86	0.84	0.82	-0.01	-0.02
Official Unemployment Rate	0.08	0.19	0.07	0.11	-0.13	0.03	0.08	0.05	0.05	-0.02
U6-Unemployment Rate	0.12	0.26	0.13	0.14	-0.13	0.06	0.12	0.08	0.06	-0.04
Teenagers	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.42	0.32	0.33	-0.09	0.01	0.57	0.43	0.51	-0.14	0.08
LFP	0.54	0.52	0.41	-0.02	-0.10	0.60	0.52	0.54	-0.09	0.03
Official Unemployment Rate	0.22	0.38	0.20	0.15	-0.18	0.05	0.17	0.06	0.11	-0.10
U6-Unemployment Rate	0.28	0.49	0.37	0.21	-0.12	0.11	0.27	0.13	0.16	-0.14
High School Graduates	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.66	0.53	0.64	-0.13	0.11	0.75	0.71	0.75	-0.04	0.04
LFP	0.71	0.69	0.71	-0.02	0.02	0.77	0.79	0.79	0.01	0.01
Official Unemployment Rate	0.06	0.23	0.09	0.16	-0.14	0.04	0.10	0.06	0.07	-0.05
U6-Unemployment Rate	0.11	0.27	0.16	0.16	-0.11	0.07	0.15	0.08	0.08	-0.07
Notes: See end of table.										

Table 11 cont.: Labor Market Outcomes by Year, Type of Recession and Demographic Characteristics

55 and Over	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.52	0.48	0.51	-0.05	0.04	0.65	0.63	0.66	-0.02	0.03
LFP	0.54	0.53	0.54	0.00	0.01	0.66	0.67	0.68	0.00	0.01
Official Unemployment Rate	0.03	0.11	0.05	0.08	-0.06	0.02	0.05	0.03	0.03	-0.02
U6-Unemployment Rate	0.05	0.22	0.11	0.17	-0.10	0.03	0.09	0.07	0.05	-0.02
Young College Graduates	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.77	0.55	0.66	-0.22	0.11	0.79	0.81	0.70	0.02	-0.11
LFP	0.87	0.62	0.70	-0.25	0.08	0.81	0.85	0.74	0.04	-0.11
Official Unemployment Rate	0.11	0.12	0.06	0.01	-0.06	0.03	0.05	0.05	0.02	0.00
U6-Unemployment Rate	0.20	0.16	0.11	-0.04	-0.05	0.04	0.12	0.07	0.08	-0.04

Notes: Estimates constructed using the 2007, 2009 and 205 micro data from March Annual Demographic File. To be included in the sample, the respondent must be 16 to 64 years of age and live in one of the metropolitan areas identified by the Current Population Survey (CPS) metropolitan area variable. All estimates are weighted using the CPS sample weights. "All" denotes individuals 16 to 64. All sub groups are 16 to 64, except for teenagers who are 16 to 19 years of age, older workers who are 55 to 65 years of age, and young college graduates, who have completed at least a bachelor's degree and are 18 to 24 years of age. "EPOP" denotes the employment population ratio. "LFP" denotes the labor force participation rate. The dummy variable for the "official" unemployment rate is constructed as follows. An individual receives a 1 if they have actively searched for a job within the last four weeks, and a 0 if they are employed. The alternative measures are as follows. The U-4 unemployment dummy variable equals 1 if the respondent has searched for employment over the last four weeks, or the respondent indicates that they are discouraged and did not actively search. The variable equals zero if the individual is employed. The U-5 unemployment dummy variable equals 1 if the respondents being unemployed, discouraged, or marginally attached to the labor force. The latter means that the respondent is not currently are working or looking for work but indicate that they want and are available for a job and have looked for work sometime in the past 12 months. The variable equals zero if the respondent is employed. Finally, the U-6 unemployment dummy variable equals 1 if the respondent is unemployed, discouraged, marginally attached to the labor force (want a job), or is employed part time for economic reasons (also labeled involuntary part time employment). Areas designated as having the "Worst" or weakest recessions have unemployment rates above 8.0 percent from 2007 to 2009. Metropolitan Areas during the "Great Recession" that experienced "Mild" recessions have unemployment rates below 6.0 percent from 2007 to 2009.

Table 12: Labor Market Outcomes by Year, Type of Recovery and Demographic Characteristics

All	**Best Recovery**					**Bad Recovery**				
Variable	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.80	0.76	0.82	-0.04	0.05	0.65	0.61	0.62	-0.04	0.00
LFP	0.82	0.79	0.84	-0.03	0.05	0.71	0.72	0.68	0.01	-0.04
Official Unemployment Rate	0.03	0.04	0.03	0.01	-0.01	0.08	0.15	0.09	0.07	-0.06
U6-Unemployment Rate	0.05	0.07	0.05	0.02	-0.02	0.13	0.21	0.16	0.08	-0.05
Black and Latino	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.74	0.68	0.69	-0.05	0.00	0.50	0.44	0.38	-0.06	-0.06
LFP	0.78	0.72	0.75	-0.06	0.03	0.68	0.61	0.49	-0.07	-0.12
Official Unemployment Rate	0.05	0.05	0.08	-0.01	0.04	0.26	0.28	0.22	0.02	-0.07
U6-Unemployment Rate	0.14	0.09	0.12	-0.05	0.03	0.28	0.37	0.25	0.09	-0.11
Men	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.86	0.83	0.83	-0.03	0.00	0.71	0.62	0.68	-0.09	0.05
LFP	0.88	0.87	0.87	-0.01	0.00	0.78	0.76	0.74	-0.02	-0.02
Official Unemployment Rate	0.03	0.05	0.05	0.02	0.00	0.09	0.18	0.09	0.09	-0.09
U6-Unemployment Rate	0.04	0.08	0.06	0.03	-0.02	0.13	0.24	0.16	0.11	-0.08
Teenagers	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.67	0.46	0.57	-0.21	0.11	0.35	0.29	0.34	-0.06	0.05
LFP	0.73	0.47	0.58	-0.26	0.12	0.45	0.46	0.43	0.01	-0.03
Official Unemployment Rate	0.08	0.01	0.02	-0.07	0.01	0.23	0.36	0.21	0.14	-0.15
U6-Unemployment Rate	0.15	0.12	0.11	-0.03	-0.01	0.28	0.49	0.37	0.21	-0.12
High School Graduates	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.78	0.75	0.80	-0.02	0.04	0.68	0.55	0.62	-0.13	0.07
LFP	0.81	0.80	0.83	-0.01	0.03	0.73	0.70	0.69	-0.03	-0.01
Official Unemployment Rate	0.04	0.06	0.04	0.01	-0.02	0.06	0.22	0.11	0.16	-0.11
U6-Unemployment Rate	0.08	0.09	0.07	0.01	-0.02	0.11	0.25	0.18	0.14	-0.07
Notes: See end of table.										

Table 12 cont.: Labor Market Outcomes by Year, Type of Recovery and Demographic Characteristics

	Best Recovery					Bad Recovery				
55 and Over	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.72	0.65	0.69	-0.07	0.04	0.55	0.50	0.47	-0.05	-0.03
LFP	0.73	0.67	0.72	-0.06	0.05	0.58	0.55	0.50	-0.03	-0.04
Official Unemployment Rate	0.01	0.03	0.04	0.01	0.01	0.05	0.08	0.06	0.04	-0.02
U6-Unemployment Rate	0.03	0.07	0.08	0.04	0.01	0.06	0.17	0.12	0.12	-0.05
Young College Graduates	**2007**	**2009**	**2015**	**2009-07**	**2015-09**	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.74	0.81	0.81	0.07	0.01	0.73	0.60	0.64	-0.14	0.04
LFP	0.76	0.87	0.87	0.11	0.00	0.83	0.68	0.69	-0.15	0.02
Official Unemployment Rate	0.03	0.08	0.07	0.04	-0.01	0.12	0.12	0.08	0.00	-0.03
U6-Unemployment Rate	0.04	0.12	0.10	0.07	-0.02	0.20	0.15	0.13	-0.05	-0.02

Notes: Estimates constructed using the 2007, 2009 and 2015 micro data from March Annual Demographic File. To be included in the sample, the respondent must be 16 to 64 years of age and live in one of the metropolitan areas identified by the Current Population Survey (CPS) metropolitan area variable. All estimates are weighted using the CPS sample weights. "All" denotes individuals 16 to 64. All sub groups are 16 to 64, except for teenagers who are 16 to 19 years of age, older workers who are 55 to 65 years of age, and young college graduates, who have completed at least a bachelor's degree and are 18 to 24 years of age. "EPOP" denotes the employment population ratio. "LFP" denotes the labor force participation rate. The dummy variable for the "official" unemployment rate is constructed as follows. An individual receives a 1 if they have actively searched for a job within the last four weeks, and a 0 if they are employed. The alternative measures are as follows. The U-4 unemployment dummy variable equals 1 if the respondent has searched for employment over the last four weeks, or the respondent indicates that they are discouraged and did not actively search. The variable equals zero if the individual is employed. The U-5 unemployment dummy variable equals 1 if the respondents being unemployed, discouraged, or marginally attached to the labor force. The latter means that the respondent is not currently are working or looking for work but indicate that they want and are available for a job and have looked for work sometime in the past 12 months. The variable equals zero if the respondent is employed. Finally, the U-6 unemployment dummy variable equals 1 if the respondent is unemployed, discouraged, marginally attached to the labor force (want a job), or is employed part time for economic reasons (also labeled involuntary part time employment). "Best" or "Strongest" areas have unemployment rates below 6.0 percent from 2009 through the first 11 months of 2015. "Poor" or "Weakest" areas have unemployment rates that exceed 6.0 percent from 2009 through the first 11 months of 2015. "Large Drop" areas have unemployment rates fall by at least 4.0 percentage points from 2009 through the first 11 months of 2015.

Table 13: Labor Market Outcomes by Year, Type of Recovery and Demographic Characteristics

All	**Big Drop**				
Variable	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.73	0.68	0.69	-0.05	0.01
LFP	0.77	0.76	0.74	0.00	-0.03
Official Unemployment Rate	0.05	0.11	0.06	0.06	-0.05
U6-Unemployment Rate	0.08	0.16	0.10	0.08	-0.06
Black and Latino					
EPOP	0.66	0.61	0.63	-0.05	0.02
LFP	0.73	0.72	0.70	0.00	-0.02
Official Unemployment Rate	0.10	0.16	0.10	0.06	-0.06
U6-Unemployment Rate	0.15	0.23	0.16	0.09	-0.07
Men					
EPOP	0.79	0.71	0.75	-0.08	0.04
LFP	0.84	0.82	0.80	-0.02	-0.02
Official Unemployment Rate	0.05	0.13	0.06	0.08	-0.07
U6-Unemployment Rate	0.09	0.19	0.10	0.10	-0.09
Teenagers					
EPOP	0.50	0.39	0.43	-0.11	0.03
LFP	0.57	0.51	0.51	-0.06	0.00
Official Unemployment Rate	0.12	0.23	0.16	0.10	-0.07
U6-Unemployment Rate	0.20	0.33	0.25	0.13	-0.09
High School Graduates					
EPOP	0.71	0.64	0.64	-0.07	0.00
LFP	0.75	0.75	0.70	0.00	-0.05
Official Unemployment Rate	0.05	0.14	0.08	0.09	-0.06
U6-Unemployment Rate	0.09	0.20	0.13	0.11	-0.07
Notes: See end of table.					

Table 13 cont.: Labor Market Outcomes by Year, Type of Recovery and Demographic Characteristics

55 and Over	**2007**	**2009**	**2015**	**2009-07**	**2015-09**
EPOP	0.58	0.57	0.57	-0.02	0.00
LFP	0.61	0.63	0.60	0.02	-0.02
Official Unemployment Rate	0.04	0.09	0.05	0.05	-0.04
U6-Unemployment Rate	0.07	0.14	0.10	0.07	-0.04
Young College Graduates					
EPOP	0.73	0.66	0.63	-0.07	-0.02
LFP	0.76	0.72	0.69	-0.04	-0.04
Official Unemployment Rate	0.04	0.09	0.08	0.05	-0.02
U6-Unemployment Rate	0.08	0.15	0.13	0.07	-0.02

Notes: Estimates constructed using the 2007, 2009 and 2015 micro data from March Annual Demographic File. To be included in the sample, the respondent must be 16 to 64 years of age and live in one of the metropolitan areas identified by the Current Population Survey (CPS) metropolitan area variable. All estimates are weighted using the CPS sample weights. "All" denotes individuals 16 to 64. All sub groups are 16 to 64, except for teenagers who are 16 to 19 years of age, older workers who are 55 to 65 years of age, and young college graduates, who have completed at least a bachelor's degree and are 18 to 24 years of age. "EPOP" denotes the employment population ratio. "LFP" denotes the labor force participation rate. The dummy variable for the "official" unemployment rate is constructed as follows. An individual receives a 1 if they have actively searched for a job within the last four weeks, and a 0 if they are employed. The alternative measures are as follows. The U-4 unemployment dummy variable equals 1 if the respondent has searched for employment over the last four weeks, or the respondent indicates that they are discouraged and did not actively search. The variable equals zero if the individual is employed. The U-5 unemployment dummy variable equals 1 if the respondents being unemployed, discouraged, or marginally attached to the labor force. The latter means that the respondent is not currently are working or looking for work but indicate that they want and are available for a job and have looked for work sometime in the past 12 months. The variable equals zero if the respondent is employed. Finally, the U-6 unemployment dummy variable equals 1 if the respondent is unemployed, discouraged, marginally attached to the labor force (want a job), or is employed part time for economic reasons (also labeled involuntary part time employment). "Best" or "Strongest" areas have unemployment rates below 6.0 percent from 2009 through the first 11 months of 2015. "Poor" or "Weakest" areas have unemployment rates that exceed 6.0 percent from 2009 through the first 11 months of 2015. "Large Drop" areas have unemployment rates fall by at least 4.0 percentage points from 2009 through the average of the first 11 months of 2015.

ENDNOTES

[1] Using the National Bureau of Economic Research definitions, the recession started December 2007 and ended June 2009.

[2] Real household income fell by 3.3 percent at the lowest fifth of the distribution, 3.9 percent at the second fifth, 4.2 percent at the third fifth, 3.8 percent at the fourth fifth, and 1.68 percent at the highest fifth. Household income for the top 5 percent of households contracted by only 0.57 percent.

[3] The Council of Economic Advisors estimates that one-half of the decline is due to the retirement of baby boomers.

[4] The bulk of the literature on alternative measures of unemployment is descriptive, showing how the "official" measure misses or undercounts the underutilized and thus provides an unrealistic or accurate representation of the labor market's health. See, for example Howell (2010), Sorrentino (1995), Larson and Ong (1994), Kjeldstad and Nymoen (2012).Stratton (1995, 1996), and Clain (1988).

[5] They are a widely used set of estimates. Federal programs use the data for allocations to States and areas, as well as eligibility determinations for assistance. State and local governments use the estimates for planning and budgetary purposes and to determine the need for local employment and training services. Private industry, researchers, the media, and other individuals use the data to assess localized labor market developments and make comparisons across areas.

[6] For a more detailed discussion of how the estimates are constructed, see http://www.bls.gov/lau/lauov.htm.

[7] The Program estimates unemployment rates for 1) Census regions and divisions, 2) States, 3) Metropolitan Statistical Areas and Metropolitan NECTAS (New England City and Town Areas), 4) Metropolitan Divisions and NECTA Divisions, 5) Micropolitan Statistical Areas and Micropolitan NECTAs, 6) Combined Metropolitan Statistical Areas and Combined NECTAs, 7) Small Labor Market Areas, 8) Counties and county equivalents, 9) Cities of 25,000 population or more, and 10) Cities and towns in New England regardless of population .

[8] These are the 8 month recessions from March 2001 to November 2001 and July 1990 to March 1991.

[9] Rodgers and Freeman (2000) use 7 percent as the cut off.