Unemployment in the Great Recession: Did the Housing Market Crisis Prevent the Unemployed from Moving to Take Jobs?

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The "Great Recession" of 2008-2009 continues in the labor market. By any reasonable metric, there is more unemployment and unemployment spells are longer than at any time since the Great Depression. I begin by presenting evidence on the state of the labor market in the Great Recession, highlighting the failure of the unemployed to escape unemployment. I then present some evidence on a particular explanation for that failure, that the housing market crisis has prevented the unemployed from selling their homes and moving to take new jobs.

I. Labor Force Statistics from the CPS

I created a database of all observations in every monthly CPS from January 1976 - November 2011. This database contains 45,939,508 observations with information on the usual CPS labor force items, and it serves as the basic resource for my analysis.

Figure 1 (left axis) presents the seasonally adjusted aggregate unemployment rate (U3) quarterly from 1976q1-2011q4 (through November 2011). These are based on my own calculations using the individual level CPS data available for this period. I weight by the CPS final sampling weights, and I seasonally adjust using a very simple model.[1] This plot shows the steady increase in unemployment from 2008q1 through 2010q1 and and the steady slow decline since that time.

Perhaps the most striking feature of the current recession is the long duration of many unemployment spells. Figure 1 (right axis) presents a plot of the median reported duration of unemployment from 1976q1-2011q4. It is clear from figure 1 that, until the last few years, median unemployment duration showed very little cyclical variation. Current durations are substantially higher than even those seen in the weak labor market of 1983, and they show no sign of moderating even as the unemployment rate has fallen over the last 1.5 years.

Figure 2 presents the seasonally adjusted employment-population ratio (EPOP) and the seasonally adjusted labor force participation rate (LFPR) for individuals aged 25-64. Both the EPOP and the LFPR were increasing from at least the mid-1970s through 2000, reflecting the rapid increase in employment among females partially offset by a slow decline among men. There is an obvious cyclical component to the EPOP with declines in slack periods. Since 2000, the EPOP and the LFPR have been in decline. The drop in the EPOP was especially steep in the recent recession, with the overall EPOP falling from about 0.76 mid-decade to about 0.72 since 2009. The lack of recovery in the EPOP and the continued decline of the LFPR is evidence that the decline in the unemployment rate since early 2010, is a result of a shrinkage of the labor force rather than robust job creation.

II. Labor Force Flows

The rotation group structure of the CPS, where individuals living at sampled addresses (approximately 60,000 each month) are surveyed for four consecutive months (rotation groups 1-4), left alone for eight months, and interviewed again for four consecutive months (rotation groups 5-8). If a household/individual changes residence at any point during this 16 month pe-

[1] In order to seasonally adjust a series Y_t with overall mean $\bar{Y}$, I regress Y_t on a complete set of seasonal dummy variables and calculate the residuals, e_t. I then compute the seasonally adjusted series as $Y_t^{sa} = \bar{Y} + e_t$.
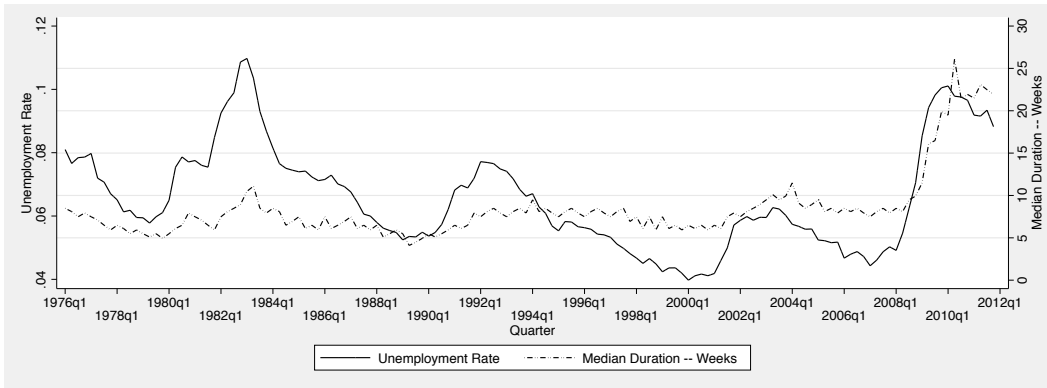
FIGURE 1. QUARTERLY UNEMPLOYMENT RATE AND MEDIAN UNEMPLOYMENT DURATION, 1976-2011 (S.A.)
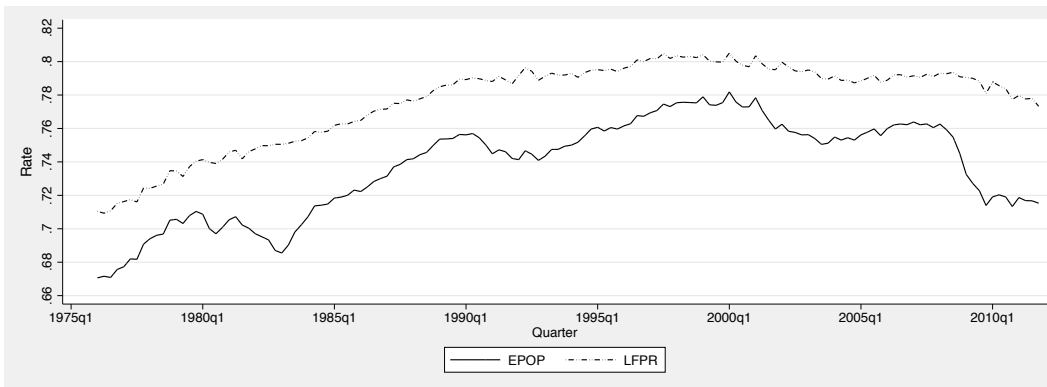

FIGURE 2. QUARTERLY EMPLOYMENT-POPULATION RATIO AND LABOR FORCE PARTICIPATION RATE, AGES 25-64 (S.A.)

riod, whatever new households/individuals at that address are interviewed. I use CPS data matched month-to-month from September 1995-November 2011 to investigate monthly transitions across labor force states (employed, unemployed, out of the labor force). The month-to-month forward match rate for those in eligible rotation groups (1-3 and 5-7) is 94.4 percent. The resulting sample includes 15,245,682 observations.

I present the average monthly transition rates from employment in figure 3. The E-E flow shows the sharp decline in the probability of remaining employed (read from the left-hand axis) early in the current recession. The E-E transition probability fell from 0.960 to 0.955 between 2007q4 and 2009q2. In the same time frame, the E-U transition probability (right-hand axis)

increased sharply from 0.011 to 0.018 and the E-N transition probability (right-hand axis) decreased from 0.028 to 0.026.[2]

I present average monthly transition probabilities from unemployment by quarter in figure 4. These transition rates show the usual cyclical pattern during the recession of the early 2000s. What is striking is the sharp upward movement in the U-U transition rate (reflecting difficulty in leaving unemployment) from about 0.47 in 2006-2007 to 0.63 in 2009-2010. This is due to the combination of a sharp drop in the

[2] These may seem like small changes, but they need to be evaluated understanding that the pool of employed workers in 2007 was 19 times larger than the pool of unemployed workers. A small increase in the transition rate from employment to unemployment implies a much larger proportional increase in the stock of unemployed workers.
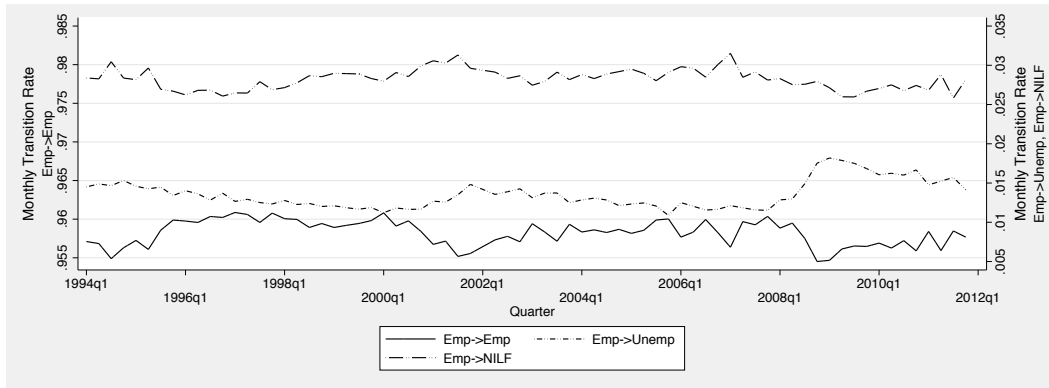
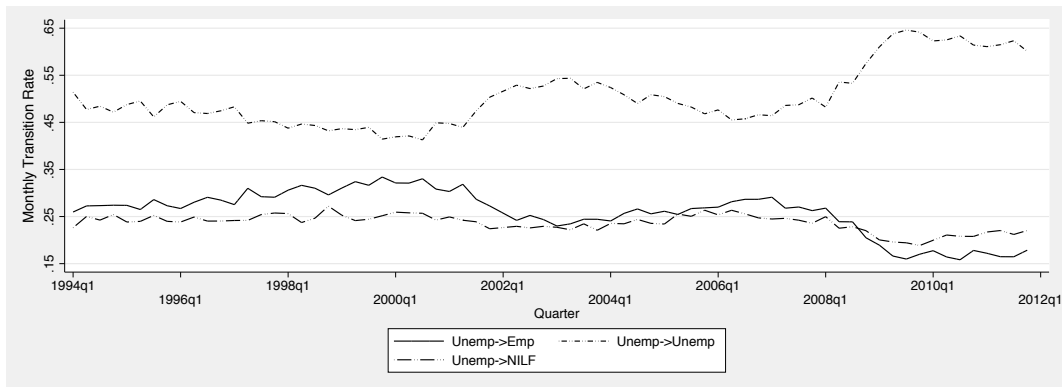FIGURE 3. AVERAGE MONTHLY TRANSITION RATES FROM EMPLOYMENT (S.A.)

FIGURE 4. AVERAGE MONTHLY TRANSITION RATES FROM UNEMPLOYMENT (S.A.)

U-E transition rate from 0.28 to 0.17 and a substantial drop in the U-N transition rate from 0.25 to 0.20 over the same period. Importantly, since early 2010, the U-E transition rate has shown no improvement while the U-N transition rate has increased slightly. Again, this suggests that the decline in the unemployment rate since early 2010 is driven by exit from the labor force rather than by job creation.

III. Can Low Geographic Mobility due to the Housing Market Crisis Explain the Weak Labor Market?

A key question is why the consequences of job loss appear to be more serious in the Great Recession, with persistently higher unemployment rates and longer durations of unemployment, than in earlier recessions. One possible explanation that has particu-lar resonance is that the unemployed, particularly homeowners, are currently less able to move geographically because of the housing market crisis, resulting in a geographic mismatch between job vacancies and the unemployed.[3] In this section, I use two types of information on worker mobility to investigate this hypothesis. First, I examine post-job-loss mobility rates using data from the Displaced Workers Survey (DWS, a bi-annual supplement to the CPS from 1984-2010) combined with informa-

[3] This hypothesis derives from the so-called "Oswald Conjecture," (Oswald 1996) that unemployment rates tend to be higher where rates of home ownership are higher, and there is some recent work investigating its importance using a variety of data sets, and the consensus view appears to be that "house lock" is, at best, a small factor explaining recent labor market problems. See Aaronson and Davis (2011), Modestino and Dennett (2011), Schmitt and Warner (2011) and Valletta (2010).
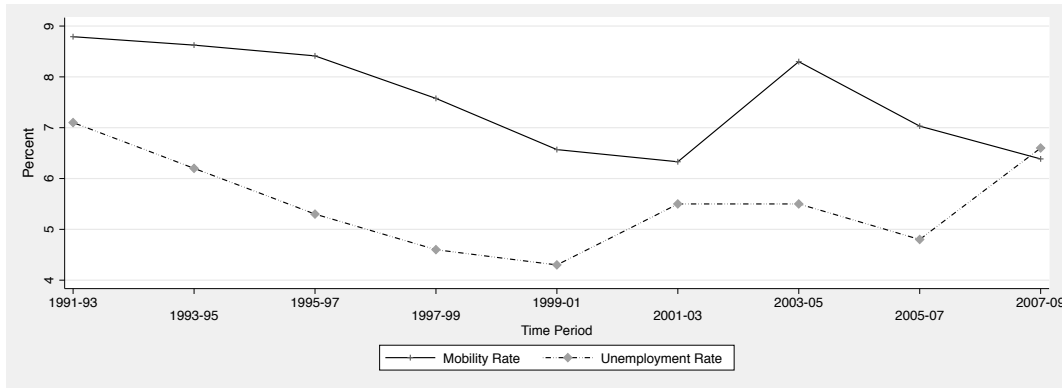
FIGURE 5. FRACTION OF JOB LOSERS WHO MOVED TO TAKE OR LOOK FOR A JOB, DWS

tion on home ownership status available in the CPS.[4] Second, I examine mobility rates for unemployed homeowners and renters from the month-to-month CPS match.

The DWS asks individuals who reported a job loss in the preceding three years if they have moved to a new city or county in order to look for or take a new job. Figure 5 contains a plot of the proportion of job losers from the 1994-2010 surveys (covering job loss in the 1991-2009 period) who report having made such a move. The figure also contains the average unemployment rate in each 3-year period in order to help focus on the cyclical nature of the mobility rate of job losers. Interestingly, the mobility rate of job losers trended downward in the 1990s and has fluctuated in the 2000s. There is a substantial positive correlation ($\rho = 0.68$) between the mobility rate and the unemployment rate from 1991-2007, so that job losers were more likely to move in weaker labor markets. However, in the 2007-2009 period, mobility declined while the unemployment rate rose sharply. An key question is whether the housing market collapse contributed to the lower mobility of job losers.

The base CPS contains information on whether or not individuals live in an owner-occupied dwelling. However, because the DWS collects information retrospectively, I do not have information on ownership sta-

tus at the time of job loss. However, with some reasonable assumptions and with the application of Bayes' Rule I can calculate an estimate of the change between two periods in the likelihood of moving conditional on home ownership status.

The expressions for these changes are contained in the note to figure 6, and three quantities are needed for their calculation.

1) The rate of non-movement of job losers ($P(M = 0)$) is directly observable in the data.

2) The *ex ante* probability of home-ownership by job losers who do not move ($P(O = 1|M = 0)$) is proxied by the *ex post* probability of home-ownership by job losers who do not move.

3) By assuming that the overall *ex post* home-ownership rate of job losers ($P(O = 1)$) is constant across adjacent survey years (e.g., 2008 and 2010), I use the *ex post* home-ownership rate of non-movers averaged across the two survey years as a proxy for $P(O = 1)$.[5]

Figure 6 shows the cumulative change by survey year from 1991-93 in the conditional probability of mobility for job losers by home-ownership status. A clear pattern emerges. The mobility rate for renting

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[4] Farber (2011) presents an analysis of the DWS focusing on the incidence and costs of job loss from 1981-2009.

[5] While movers have lower probability of home ownership than non-movers, the probability of mobility is less than 0.08, so that the home-ownership rate of non-movers is a good approximation to the overall rate.
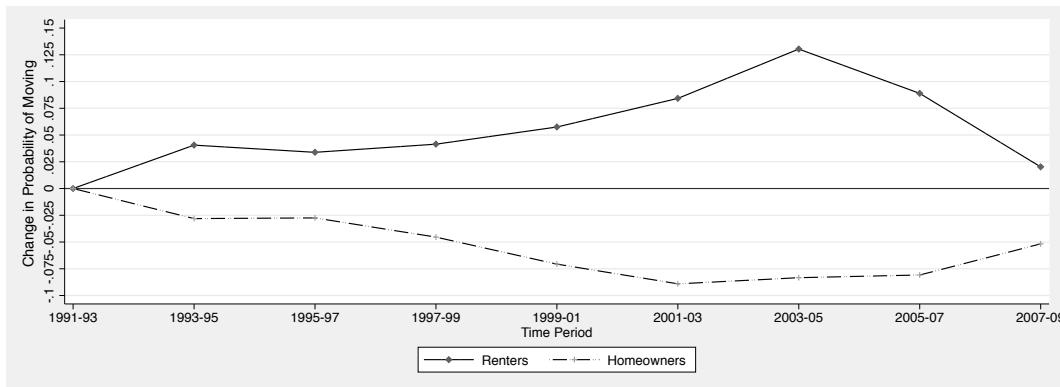
FIGURE 6. CUMULATIVE CHANGE IN THE PROBABILITY OF MOVING, BY HOME-OWNERSHIP STATUS (DWS), 1991-93=0.

Note: $P(\cdot)$ denotes probablity, O is an indicator for home ownership, and M is an indicator for mobility. The subscripts index the "pre" (0) and "post" (1) periods when calculating changes.
$$\Delta[P(M = 1|O = 1)] = [P_0(O = 1|M = 0)P_0(M = 0) - P_1(O = 1|M = 0)P_1(M = 0)]/P(O = 1)$$
$$\Delta[P(M = 1|O = 0)] = [P_0(O = 0|M = 0)P_0(M = 0) - P_1(O = 0|M = 0)P_1(M = 0)]/P(O = 0)$$

job losers increases through 2003-2005, and declines thereafter. In contrast, The mobility rate for home-owning job losers decreases through 2001-2003, and increases thereafter. This evidence does not support the hypothesis that the collapse of the housing market has prevented unemployed homeowners from moving to take a new job.

I derive more information on mobility by exploiting the rotation-group structure of the CPS (described above). The major reason an individual in a continuing rotation group (1-3 or 5-7) cannot be found at the same address in the next month is that the individual has moved to a new address. Such moves may or may not be within the same local area and such moves may or may not be made in order to look for or take a new job. However, the non-match (mobility) rates of unemployed homeowners and renters over time provides some evidence on how the housing market collapse has affected geographic mobility of the unemployed.

Figure 7 contains the seasonally-adjusted match/non-match mobility rates by labor-force and home-ownership status quarterly from 1994 through 2010q3. As expected, mobility rates conditional on home-ownership status are lower for the employed than for the unemployed and mobility rates conditional on labor force status are lower for homeowners than for renters.

With regard to movement over time, the mobility rates in figure 7 show some decline since 2006, with mobility rates for renters falling by more than mobility rates for homeowners. Among the unemployed, the mobility rate for renters fell by 2.9 percentage points between 2006 and 2010, while the mobility rate for homeowners fell by 1.2 percentage points over the same period. The declines in mobility rates were smaller among the employed, but again renters saw larger declines than homeowners (2.5 vs. 0.5 percentage points). If we think of renters as a control group whose change in mobility rates over time captures other factors that affect mobility, these results imply that the housing market crisis did not adversely affect mobility rates of homeowners, whether employed or unemployed. Once again, this pattern of evidence does not support the hypothesis that the collapse of the housing market has prevented unemployed homeowners from moving to take a new job.

IV. Final Remarks

The mobility patterns of job losers (from the DWS) and the unemployed (from the matched CPS) are clearly not consistent with the hypothesis that the collapse of the housing market in the last several years made it relatively more difficult for home-
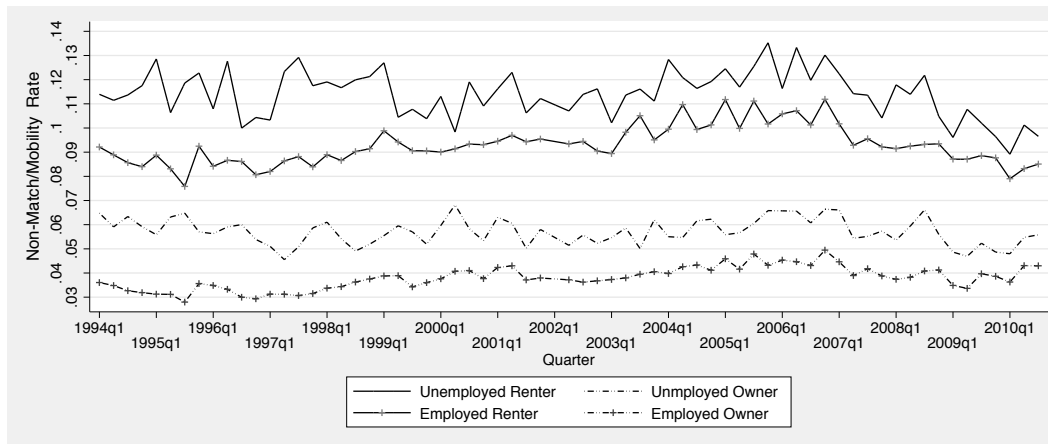
FIGURE 7. CPS NON-MATCH/MOBILITY RATE, BY LABOR-FORCE AND HOME-OWNERSHIP STATUS (S.A.)

owning job losers to move for a new job. The fact that the mobility of renting job losers and the renting unemployed, who presumably are less affected by housing market problems, declined substantially in the last several years suggests an alternative explanation is needed for the overall decline in mobility among job losers and the unemployed in the last five years.

One potential explanation that is consistent with lower mobility and with the difficulty of unemployed job losers to find new jobs is that the Great Recession was geographically quite broad based, so that mobility was (and remains) not particularly productive for the unemployed. Simply put, there may not be places with jobs to which to move, so that the unemployed tend to stay put. This suggests that deficient demand is more likely than structural (geographic) mismatch as an important explanation for persistent unemployment.

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