Understanding Recent Increases in Unemployment Duration

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1 Introduction

A central question in today's policy debate concerns the labor market: Does the low rate of job-finding and the correspondingly high unemployment rate reflect weak aggregate demand or some other factor, such as skills mismatch, expanded unemployment benefits, or the depressing effect of falling house prices on the mobility of homeowners? We shed some light on this issue by investigating the *unemployment durations* of workers in the monthly Current Population Survey (CPS). Specifically, we regress worker-level unemployment durations on explanatory variables that reflect the worker's demographics, his workplace skills, and the strength of his home-state's housing market. The worker's skills are inferred using his education level and previous occupation, while the state-level housing market is allowed to affect the unemployment durations of renters and homeowners differently. We also account for the worker's reason for unemployment, which helps determine whether the worker receives unemployment insurance. We have three main findings:

1. Longer unemployment durations are ubiquitous among jobless workers. It does not appear that low job-finding rates are a problem for only limited subsets of workers, such as those with few skills, middle-aged workers, or workers who own homes in states with depressed housing markets. This finding argues in favor of the aggregate-demand explanation for high unemployment.

2. To get a rough estimate of the effect of extended unemployment insurance benefits (UI), we follow Kuang and Valletta (2010) and label jobless workers as either "voluntarily" or "involuntarily" unemployed.[2] For the most part, only the involuntarily unemployed can receive UI, so differences in unemployment duration between the two groups provide a rough estimate of the effect of UI. Like Kuang and Valletta (2010), we find minor differences in duration between the two groups. This suggests that extended UI accounts for only a modest fraction of the unemployment rate.

3. While our findings are supportive of the aggregate-demand explanation for high unemployment, there is an important caveat. Our regressions do not account for potential *geographic* mismatch in the labor market. We plan to investigate this possibility in future work.

[1] The views expressed in this memo are those of the authors alone, and not necessarily those of the Federal Reserve Bank of Boston or the Federal Reserve System.

[2] Voluntary unemployment spells belong to job leavers as well as both new entrants and re-entrants into the labor force. The involuntarily unemployed are job losers, who may be on either temporary or permanent layoff, or have completed temporary jobs.

2 A Look at the Data

In spite of recent increases in job vacancies, as measured by the BLS's Job Openings and Labor Turnover Survey, current job-finding rates remain low. The green line in Figure 1 shows a rough measure of the finding rate, which has hovered near all-time lows since the Great Recession began. Our empirical strategy is to learn more about this finding rate by studying its corollary, the duration of unemployment (the black line in Figure 1). Investigating unemployment duration in the raw CPS files is conceptually simpler than studying the job-finding rates of different types of workers directly, because it does not require us to match workers in consecutive months. Moreover, some economists have argued that long unemployment durations are interesting in their own right, because a long unemployment spell may make a worker less employable in the future.[3]

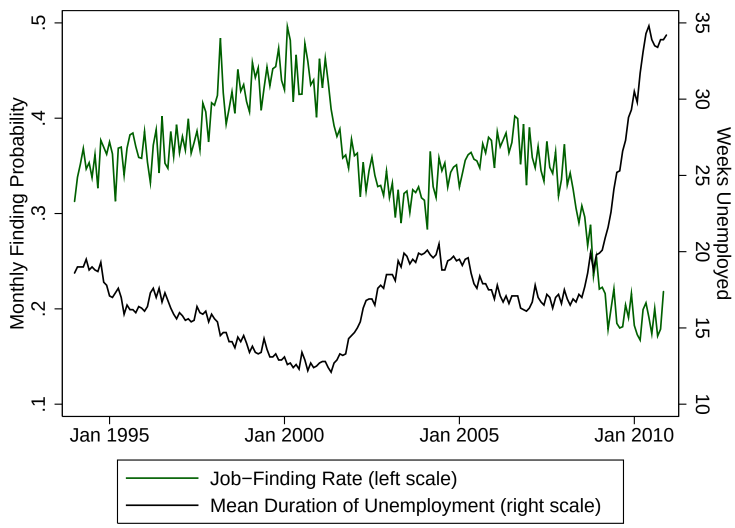

Figure 1. The Job-Finding Rate and Average Unemployment Duration. The job-finding rate is calculated using the method in Shimer (2005). The average duration measure is the seasonally adjusted series published by BLS.

Economists in the Federal Reserve System have already begun to examine unemployment duration in the context of current labor-market weakness. As noted above, Kuang and Valletta (2010) compare the unemployment durations of workers based on their reason for unemployment, in an effort to quantify the effect of extended UI on the unemployment rate. The authors find that expected durations of the involuntarily unemployed rose by about 18.7 weeks during the Great Recession, while expected durations for the voluntarily unemployed rose by 17.1 weeks.[4] Based on the relative sizes of the two groups of unemployed workers, this

[3]Of course, a disadvantage of studying unemployment duration, rather than estimating formal matching functions, is that duration studies do not directly incorporate data on job vacancies, which could be useful in studies of structural unemployment.

[4]The "expected duration" concept used in Kuang and Valletta (2010) is the expected *completed* duration of a worker who is currently unemployed, using a formula derived in Valletta (2005). The CPS measures only

difference implies extending UI payments to 99 weeks has raised the overall unemployment rate modestly, by about 0.4 percentage point.[5] Another publication, Aaronson et al. (2010), takes a more expansive look at current unemployment durations using CPS microdata. In one section of the paper, the authors investigate the role of worker-level characteristics in high- and low-frequency changes in unemployment duration; these characteristics include age, gender, race, education, and industry. The authors find that changes in characteristics can explain much of the secular rise in unemployment duration from the mid-1980s to the mid-2000s. But the characteristics can account for only a portion of the pronounced rise in durations during the recent recession.[6] In a separate exercise, the authors show that the recent spike in duration is likely driven by lower job-finding rates, with higher separation rates playing a limited role. At the end of the day, the authors attribute the increase in unemployment duration in 2009 to "especially weak labor demand, as reflected in a low rate of transition out of unemployment into employment," with perhaps 10–25 percent of the duration increase due to extensions in UI payments (Aaronson et al. 2010, p. 29). Finally, Valletta (2010) conducts a test of the "house-lock" hypothesis based on the expected durations of the in-progress unemployment spells that are available in the CPS.[7] Comparing the expected unemployment durations of owners and renters in a maximum-likelihood framework, Valletta (2010) finds no significant differences in the effect of lower house prices on the durations of these two groups, a finding that argues against the house-lock hypothesis.

This memo builds on earlier work by investigating additional worker-level characteristics that are likely to correlate with an increase in the natural rate of unemployment, given ongoing trends in labor and housing markets. Our sample period is January 1994 through September 2010, with the starting date reflecting the major redesign of the CPS. We could expand our analysis to earlier periods without too much trouble, but the real question we want to answer is why unemployment durations have risen so much recently. Thus, the comparison of interest is the *cross-sectional* comparison of unemployment durations of different types of workers during the Great Recession, not the *time-series* comparison of durations today with durations in previous recessions. The ending date of September 2010 is necessitated by our inability to observe homeownership status after that month, due to the somewhat quirky way in which the BLS incorporates homeownership information into the CPS.[8]

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the number of weeks that a worker has been unemploymed in his current spell, as of the time of the survey date.

[5]The changes in duration measured by Kuang and Valletta (2010) run from an initial baseline period of 2006–07 and end in the fourth quarter of 2009. In some later work, marked FR-Internal, the authors extended their analysis to include changes through 2009 and early 2010, not just 2009:Q4. They find that this expansion raises the estimate of the effect of more-generous UI to about 0.8 percentage points of unemployment.

[6]See their Table 2 on page 36, and accompanying discussion.

[7]In contrast to Valletta (2010), this memo uses the in-progress spells directly as left-hand-side variables to be explained. See Guell and Hu (2006) for a description of the econometric technique used in Valletta (2010).

[8]Household-level homeownership status is available directly on CPS microdata files from January 1994 through September 2000. Afterward, homeownership status is available through the CPS's DataFerrett program. By way of individual-level identifiers, we merge the DataFerrett data and CPS files beginning in September 2000. Our match rate is generally near 100 percent for unemployed persons with nonmissing

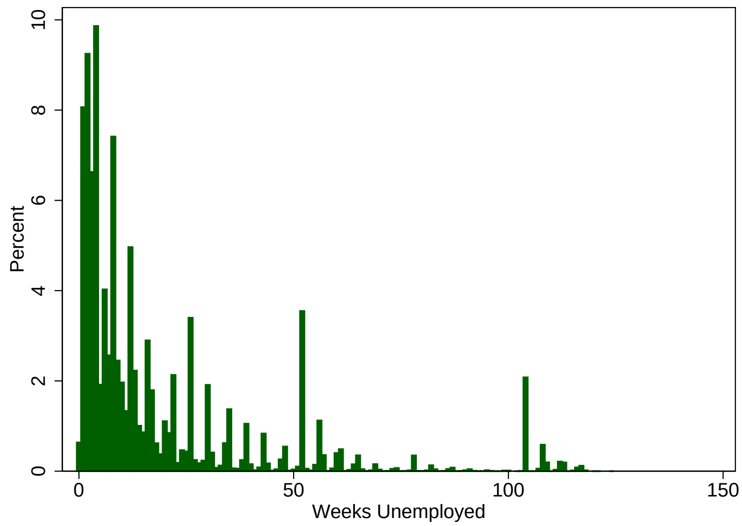

Figure 2. The Unemployment Duration Histogram. Note the bunching at one and two years (52 weeks and 104 weeks).

Figure 2 provides the histogram of unemployment durations. As is well-known, there is bunching in the responses to the unemployment-duration question; people often answer in terms of months or even years, with these answers translated into weeks by the BLS. We basically punt on the question of whether this bunching biases our results one way or another. Duration will appear on the left-hand-side of our regressions, so measurement error in the duration variable will not bias our coefficients if it is of the "classical" type. We maintain the classical-measurement-error assumption throughout our work. We note, however, that the R^2s of our regressions are low (on the order of 0.10). Much of the noise in the data is no doubt coming from the intrinsic randomness of labor-market outcomes; earnings regressions also tend to have low R^2s. But some of our noise is undoubtedly due to duration mismeasurement as well.

Though it will not play a prominent theme in this memo, the effect of age on duration is pronounced, as seen in Figure 3. This figure shows that the youngest group of workers (those aged 16–25) tend to have much shorter unemployment durations than the oldest two groups (ages 46–55 and 56+). Thus, we would expect a secular rise in unemployment duration during our sample period as the workforce grew older. Another lesson from Figure 3—and one that will be repeated when examining the durations of alternative classifications of workers—is that durations have risen sharply for all subclassifications of workers during the Great Recession.

Of more interest in our analysis will be the role of homeownership and changes in state-level house prices, which are investigated in the next two figures. The top panel of Figure

duration data, especially late in the sample period. However, our match rate often falls to between 80 and 85 percent for particular months in the 2003–2005 period. The DataFerrett application updates homeownership status only in January, April, July, and October.

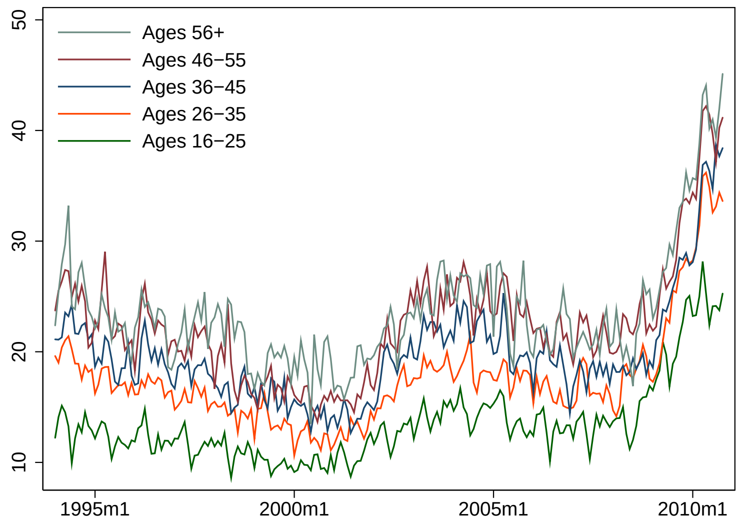

Figure 3. Unemployment Duration by Age Class.

4 graphs the average unemployment duration of renters (green line) and homeowners (red line) as a function of the percentage change in state-level house prices during the previous 12-months.[9] A striking feature of this graph is the sharp rise in unemployment duration that occurs *for both owners and renters* when house-price changes move into negative territory.

This rise suggests a reduced-form relationship between unemployment duration and house-price changes that is based on aggregate demand. For example, negative price changes could indicate that the state's economy has experienced a negative shock to its major industry, so that few firms are hiring. The jump in durations at zero arises because house prices are sticky downwards, so that price changes become negative only when the state's economy is severely depressed and hiring is very low. A second aggregate-demand channel of falling house prices on unemployment duration could arise through an effect of housing wealth on consumption. If people in states with falling house prices feel substantially poorer, they might delay consumption decisions, depressing hiring among firms that produce non-tradable consumption goods. A channel that is not suggested by the top panel of Figure 4 is a homeowner lock-in effect driven by falling house prices. It may be true that homeowners find it difficult to sell their homes and move elsewhere when house prices fall. But there is little difference between the price–duration relationships of owners and renters in Figure 4.[10] The bottom panel of Figure 4 presents the person-weighted number of observations experiencing various 12-month house-price changes during the sample period. It shows that while negative price changes are

[9] The 12-month changes in house prices are rounded to the nearest even integer. All house prices in this memo come from the Federal Housing Financing Agency (formerly the Office of Federal Housing Enterprise Oversight, or OFHEO). The quarterly, purchase-only house prices for each state are linearly interpolated into a monthly series for matching with the monthly CPS. Thus, a worker who is unemployed in May of 2005 is matched with the percentage change in house prices in his state from May 2004 to May 2005.

[10] Foreshadowing our results, we will also find small owner–renter differences when we investigate the data more formally with regressions.

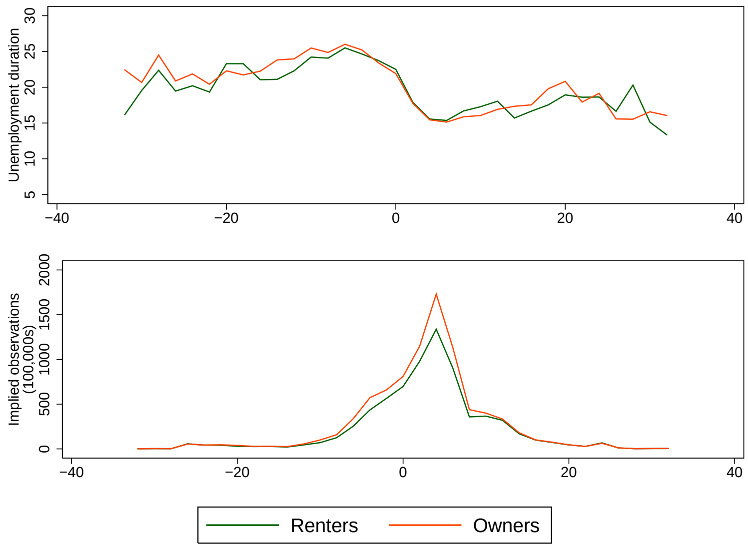

Figure 4. Average Unemployment Duration by 12-Month Change in State-Level House Prices. The horizontal axes measure the percentage change in house prices, as indicated by monthly interpolations of the quarterly, seasonally adjusted purchase-only price series from the Federal Housing Financing Agency.

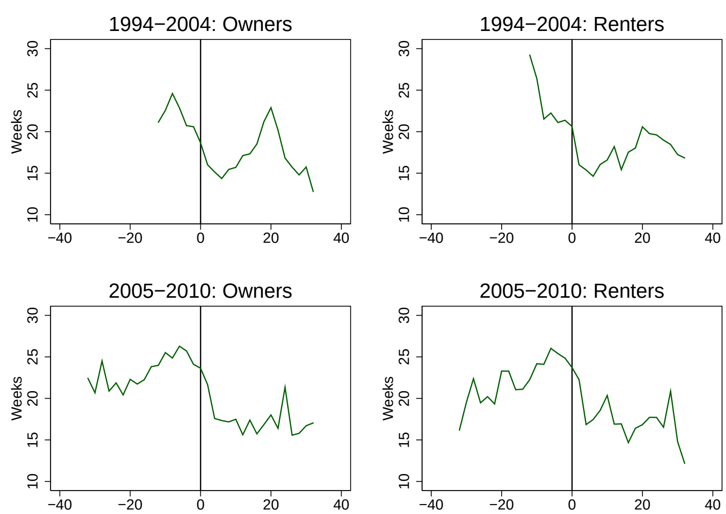

Figure 5. Average Unemployment Duration by House-Price Change, Housing Tenure, and Time Period. The horizontal axis measures the change in state-level house prices over the previous 12 months.

relatively rare, there are still a substantial number of price changes just to the left of zero (down to about –10 percent or so).

Figure 5 asks whether the interesting price–duration relationship of Figure 4 is evident before the recent nationwide housing crisis. The top two panels present the same relationship as the previous figure, but use a sample period that ends in 2004. Though nationwide housing prices did not fall during this period, some states saw price declines in the early-to-mid 1990s (for example, California, Hawaii, and New York). The smaller sample sizes obscure the relationship somewhat, but discernable jumps in duration remain for both owners and renters when prices turn negative. In the lower two panels the sample period is 2005–2010, and the jumps are even clearer.

3 Labor-Market Polarization

We investigate the relationship between unemployment duration and worker skills in two different ways. First, we classify each worker into four standard educational classifications: high-school dropout, high-school graduate, some college or an associate's degree, and college graduate. During the past two decades the earnings of college graduates have risen much faster than the earnings of less-educated groups. The general consensus among labor economists is that higher wages for college-educated workers are the result of the favorable effect that technological growth has had on the productivity of highly educated workers.[11]

Our analysis also reflects the "polarization" of the labor market during the past several decades. In a series of papers, David Autor and co-authors have argued that job opportunities have grown at the poles of the skill distribution, rising for both high-skill and low-skill workers.[12] Workers in the middle part of the skill-distribution, however, have seen their opportunities fade, as their jobs are replaced by automation or by international trade. Jobs in the bottom part of the skill distribution are relatively immune to technology and trade because these jobs are hard to automate or ship abroad. For example, jobs of middle-skill assembly-line workers might be replaced by robots or lost to workers in China. But it is hard to program a robot to do low-skill custodial work, and it is impossible to offshore custodial work to foreign workers.[13]

For our regressions, we were able to classify workers as belonging to one of three skill groups, either high, middle, or low. This classification is possible because the CPS includes

[11] Goldin and Katz (2008) argue that there has been a "race" between education and technology since World War I. Technological growth has proceeded rapidly since that time, sometimes outpacing the growth in the stock of educated workers. When technological growth outruns growth in educational attainment, as it has since 1980, then labor demand for educated workers outpaces the supply of these workers, causing the wages of college graduates to grow relative to wages of other groups.

[12] Some relevant citations are Autor (2010), Acemoglu and Autor (Forthcoming), Autor and Dorn (2009), and Autor et al. (2008).

[13] Note that the polarization hypothesis is consistent with the widening distribution of income since the 1980s, because workers who are displaced from middle-skill jobs are often forced into jobs with lower skill requirements, where they compete with low-skill workers for employment and thereby drive down wages for low-skill jobs.

data on unemployed individuals' previous jobs. The CPS uses this information to categorize individuals into hundreds of detailed occupations. While the question to elicit an individual's job has not changed throughout the relevant sample period, the classification system changed in January 2003 (Bowler et al. 2003, p. 18). Fortunately, Meyer and Osborne (2005) have created a consistent occupational classification system, which also has hundreds of entries. Autor and Dorn (2009) and Autor (2010) use this system to aggregate individuals into 10 coarser occupations that remain constant over time. These papers further aggregate the 10 occupations into high-, middle-, and low-skill groups, which is the classification used in our regressions.[14]

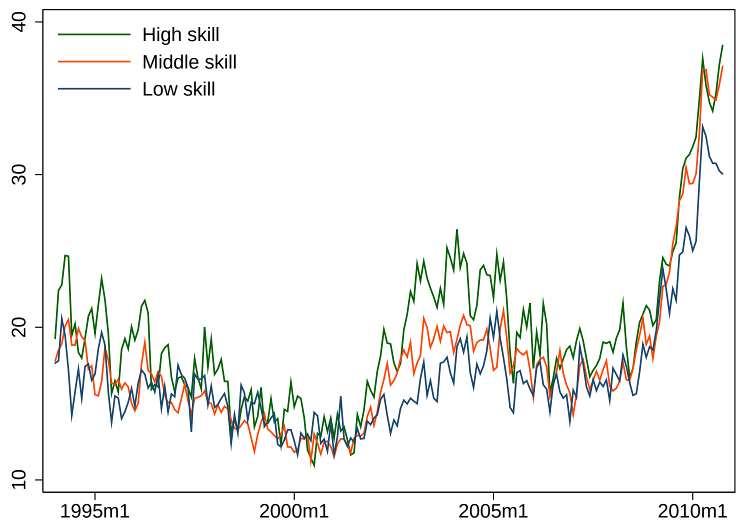

Figure 6. Average Unemployment Duration by Skill Classification.

Figure 6 graphs the average unemployment durations for each of the three groups of workers during our sample period. Workers in high-skill occupations (green line) tend to have the longest unemployment durations, presumably because their skill sets are more specialized and thus harder to match with jobs. Alternatively, high-skill workers may be wealthier, so they face fewer liquidity constraints when undertaking long job searches. A simple version of the polarization hypothesis would predict that jobs in the middle-skill classification would experience the largest increase in durations during the most-recent recession. To some extent, this is borne out in the figure, as the durations of middle-skill workers have "caught up" with the durations of high-skill workers during the most recent recession. However, just as we saw in Figure 3, which disaggregated workers by age, the durations of all subclassifications

[14]Of the 10 occupations that Autor and Dorn (2009) and Autor (2010) create, the three included in the high-skill group are Managers; Professionals; and Technicians. The four occupations in the middle-skill group are Sales; Office and Administration; Production, Craft and Repair; and Operators, Fabricators, and Laborers. The three occupations in the low-skill group are Protective Services; Food Preparation and Building and Grounds Cleaning; and Personal Care and Personal Services.

of workers have increased rapidly as the labor market has soured. Moreover, quantifying the precise effect of having a middle-skill occupation on duration requires a full regression model, which is the topic of the next section.

4 Regression Results

Our regression is

$$DUR_{imt} = \alpha_t + \beta' \mathbf{X}_{imt} + \gamma_t' \mathbf{Z}_{imt} + \theta_m + \epsilon_{imt},$$

where DUR is the in-progress unemployment duration for worker i in month m of year t, taken directly from the CPS; α_t and θ_m are vectors of yearly and monthly dummies, respectively; $\mathbf{X}$ measures characteristics that are assumed to have constant effects on duration; $\mathbf{Z}$ measures characteristics that are assumed to have effects on duration that vary from year-to-year; and ϵ is an error term. We structure our regression so that the estimated αs measure the expected unemployment duration for a "baseline worker" who would not be expected to suffer long unemployment spells even if the structural, homeowner lock-in, or UI-based theories for long durations are true. For example, we account for skill in our regression by entering dummy variables for "low-skill" and "middle-skill" occupations. Because we allow the effects of skill to change from year to year (that is, skill is included in $\mathbf{Z}$), we interact the low-skill and middle-skill dummies with yearly dummies. The omitted skill dummy is "high skill," so the αs measure the expected unemployment duration for high-skill workers. Similarly, the omitted educational category corresponds to college-educated workers, so dummies for the three other educational classifications are interacted with the yearly dummies. Table 1 summarizes the structure of the regression and the characteristics of the baseline worker. The only set of characteristics not captured by dummy variables is age, which is specified as a non-time-varying cubic. The specification assumes that the baseline worker is 30 years old.[15]

Table 2 presents the estimates of the non-time-varying coefficients in the regression. As we saw in Figure 3, age has a positive effect on unemployment duration. Also, workers who are nonwhite and single tend to have longer durations than the baseline worker, while females generally have shorter durations. More interesting are the estimates of the αs, which trace out the expected duration of the baseline worker over time. Figure 7 shows that these estimates are quite close to the yearly, unconditional averages of unemployment duration since 1994. In particular, the increase in the expected duration of the baseline worker closely follows the unconditional average in the most recent year, though a small difference has opened up by 2010.

The fact that the baseline worker's expected duration closely follows the unconditional average suggests constancy in the effects of characteristics such as skill and education during the sample period. This conjecture is borne out by Figure 8, which depicts the regression's time-varying parameter estimates. Panel A shows that construction workers generally have

[15] That is, "age" in our regression is really age minus 30.

Category	Dummy Variables Included	Dummies Interacted with Year?	Omitted Category (Characteristic of Baseline Worker)
Construction	Was a construction worker	Yes	Was not a construction worker
Education	High-school dropout High-school graduate Some college	Yes	College graduate
Skill	Middle-skill Low-skill	Yes	High-skill
Reason for Separation	Involuntary	Yes	Voluntary
Housing Tenure	Owner	Yes	Renter
Race	Nonwhite	No	White
Gender	Female	No	Male
Marital Status	Single	No	Married

Table 1. Baseline Regression Specification. The baseline regression also includes a cubic in years of age, with "age" in the regression defined as the worker's true age minus 30. This implies that the baseline worker is 30 years old.

Age	0.53^{***}
	(0.02)
Age^2	-0.01^{***}
	(0.00)
Age^3	0.00^{***}
	(0.00)
Nonwhite	4.11^{***}
	(0.32)
Female	-2.81^{***}
	(0.20)
Single	2.19^{***}
	(0.23)
N	$637,652$
R^2	0.099

Table 2. Estimates of Constant Coefficients. The dependent variable is weeks unemployed. Standard errors are clustered by state.

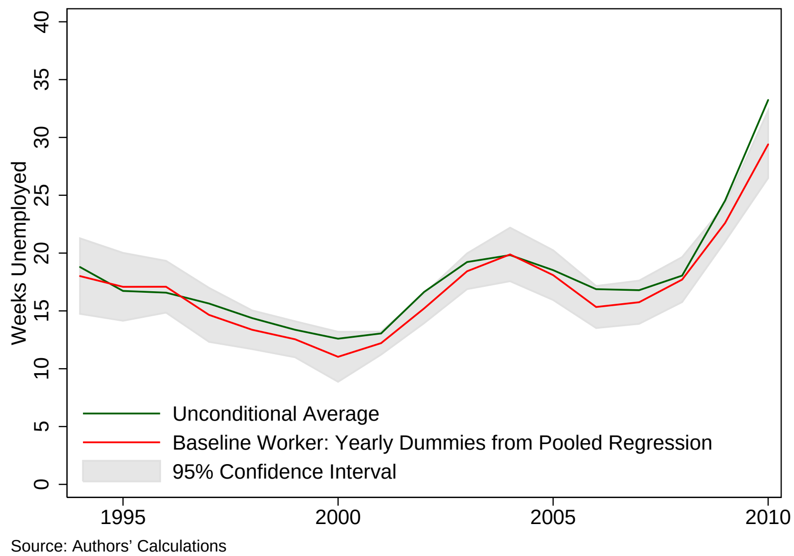

Figure 7. Average Unemployment Duration and Baseline-Worker Prediction from Baseline Regression.

shorter durations than non-construction workers, as the yearly estimates are generally significantly different from zero. Interestingly, however, there is no evidence that unemployment duration of construction workers has lengthened, relative to non-construction workers, in 2010. In fact, the construction effect has actually moved lower during the most recent year.

Panels B, C, and D present estimated effects of the various educational classifications. In 2009, workers in each of these three classifications saw their durations rise relative to the durations of college-educated workers, but this difference declined in 2010.[16] Panels E and F present the estimates for the two skill classifications in the regression. Particularly interesting is Panel F, which presents the estimates for middle-skill workers, who have borne the brunt of labor-market polarization in recent years. These middle-skill workers appear to have very similar durations relative to high-skill workers throughout the sample period, with little change in this difference during the most-recent recession. Panel G shows that workers who involuntarily separate from their jobs generally have shorter durations than workers who are voluntarily separated, but this this gap has closed in 2010. The closing of this gap is consistent with a UI effect. With extended UI, workers who are involuntarily separated can now take longer to find a job. Thus, the gap between these workers and voluntary separations has shrunk. Note, however, that the estimate for the effect of an involuntary separation in 2010 is only moderately higher than estimates for 2002 and 2003, the previous period of labor-market weakness.

Finally, Panel H shows the estimated homeownership effects on duration. These differences are small and virtually always insignificant. Of course, the lack of any ownership

[16]In some unreported work, we investigated the possibility that the decline in duration of the three less educated groups in 2010, relative to college graduates, stems from our use of only nine months of 2010 data. But the decline remains even when we use 9-month samples for all years.

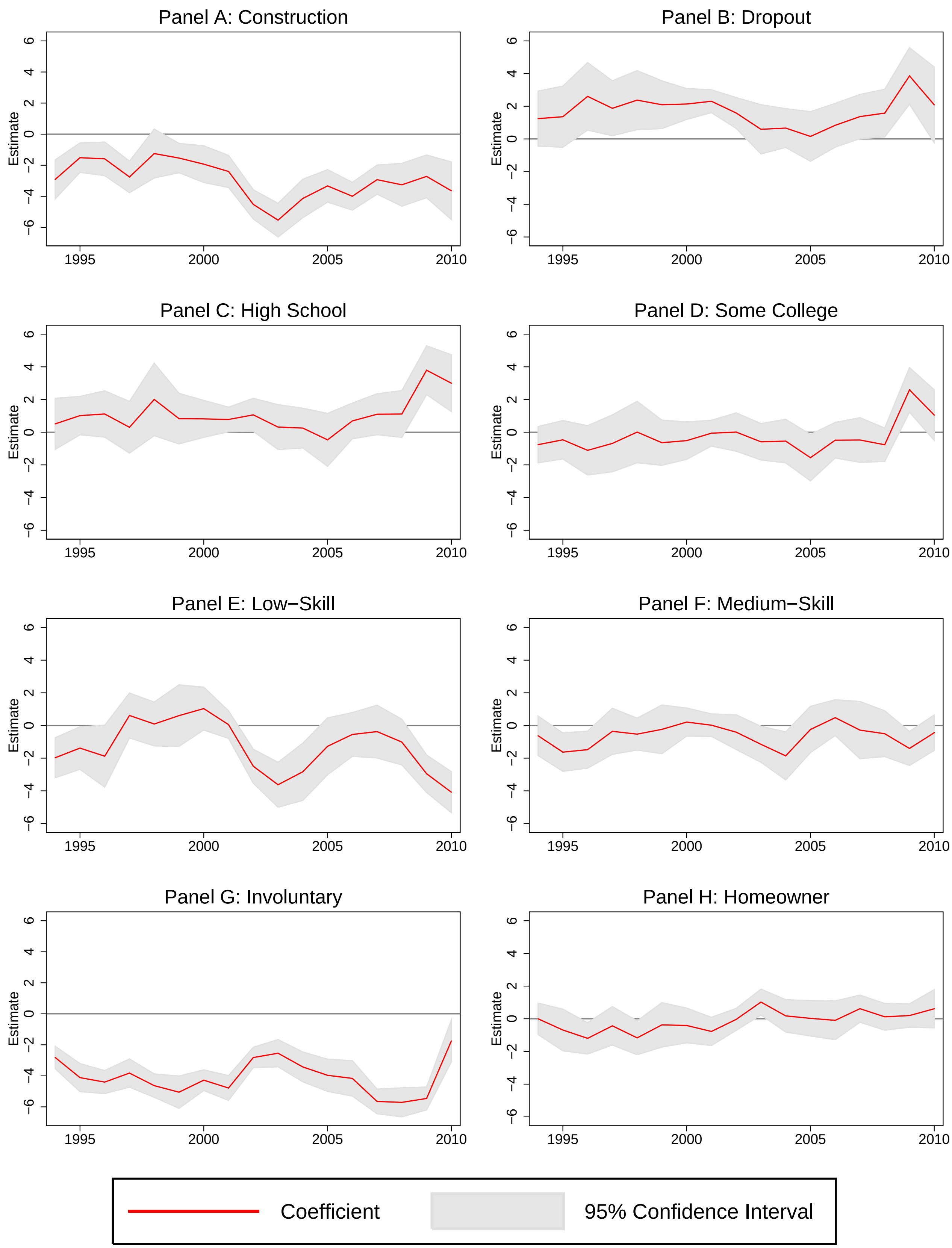

Figure 8. Estimates of Time-Varying Coefficients from Baseline Regression.

effect on duration could reflect an inadequately flexible regression specification. Recall from Figures 4 and 5 that duration is strongly influenced by the change in state-level housing prices (though these effects did appear similar for both owners and renters). In the baseline regression specification above, no information about state-level housing prices is entered. Perhaps if we modeled the ownership effects on duration as dependent on past changes in state-level housing prices, a homeowner lock-in effect of falling prices might become evident. We investigate this possibility next.

5 Expanding the Ownership–House Price Interactions

For an expanded regression specification, we drop the ownership–year interactions, replacing them with a set of variables involving both house prices and tenure status. The effects of ownership and house price are assumed not to vary with year, so that only changes in house prices themselves can bring about differences in the unemployment durations of homeowners relative to renters. The non-time-varying coefficients from the expanded regressions are reported in Table 3. The first six coefficients in the table are virtually identical to those in Table 2. The remaining coefficients are new; they include an ownership dummy, a continuous measure of the 12-month house price change (Δ price), an indicator variable if this price change is negative ($-\Delta$ price), and appropriate interactions. Given these interactions, the baseline worker is now a renter whose home state has experienced zero change in house prices during the past 12 months.

The effect of these variables and interactions on unemployment duration is depicted in Figure 9. As would be expected from the analysis of means (Figures 4 and 5), there are small differences between the expected durations of owners and renters at all price changes.[17] Table 4 tests for differences between these durations at various price-change points. Only when the 12-month changes approach –20 percent does a statistically significant (but economically small) difference emerge.[18]

Finally, we depict the implied duration for the baseline worker from the expanded regression in Figure 10. Note that the new baseline estimate is lower than the previous estimate, indicating that the baseline worker would be expected to have a shorter unemployment duration than we observe in the data. This is consistent with the view that falling house prices raise the unemployment durations of renters. When we obtain specific estimates of these effects, as we do in the expanded regression, we would expect shorter durations for renters who have experienced no change in housing prices (the baseline case), relative to renters who have suffered negative price changes (the case in the actual data).

[17]We enter yearly and monthly dummies in our regressions, so we must choose a month and year when we construct estimates of implied duration levels. This choice makes no difference for a comparison of owners vs. renters, because the choice shifts both durations up or down by the same amount. Figure 9 uses September 2010, the last month in our sample.

[18]Twelve-month declines in the FHFA state-level house prices of 20 percent are rare. In our sample period (January 1994 to September 2010), such declines are found in only the "sand states" of Arizona, California, Florida, and Nevada during the worst phase of the recent housing crisis (2008-2009).

Age	0.53***
	(0.02)
Age^2	−0.01***
	(0.00)
Age^3	0.00***
	(0.00)
Nonwhite	4.12***
	(0.32)
Female	−2.79***
	(0.20)
Single	2.17***
	(0.23)
Homeowner	0.04
	(0.46)
Δprice	−0.02
	(0.04)
Δprice × own	−0.02
	(0.04)
–Δprice	2.80***
	(0.61)
–Δprice × Δprice	0.03
	(0.07)
–Δprice × Δprice × own	−0.06
	(0.04)
–Δprice × own	−0.45
	(0.44)
N	637, 652
R^2	0.100

Table 3. Estimates of Constant Coefficients from Regression with Expanded Ownership-House Price Interactions. The dependent variable is weeks unemployed. The symbol "$-\Delta$price" is an indicator variable that equals one when the 12-month house-price change is negative. Standard errors are clustered by state.

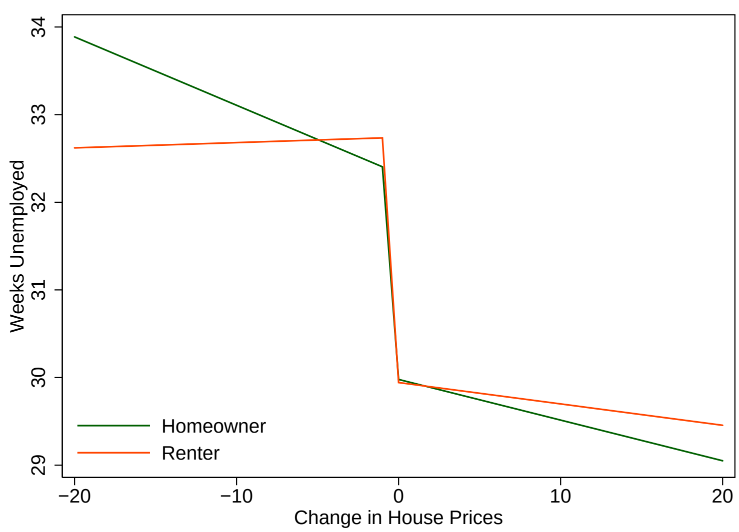

Figure 9. Estimated Effects of Changes in 12-month House Prices for Owners and Renters, from Regression with Expanded Ownership–House Price Interactions.

12-Month Percentage Change in State-Level House Prices	Difference in Estimated Duration	Std. Error of Difference	P-val
+20	−0.40	0.62	0.51
+10	−0.18	0.37	0.62
0	0.04	0.46	0.94
–10	0.43	0.32	0.19
–20	1.27	0.42	0.00

Table 4. Tests of Differences in Unemployment Duration for Owners and Renters at Various House-Price Changes. Differences in the table are defined as a homeowner's weeks of unemployment duration minus an otherwise identical renter's weeks of unemployment duration. The covariance matrix used for these tests is clustered by state.

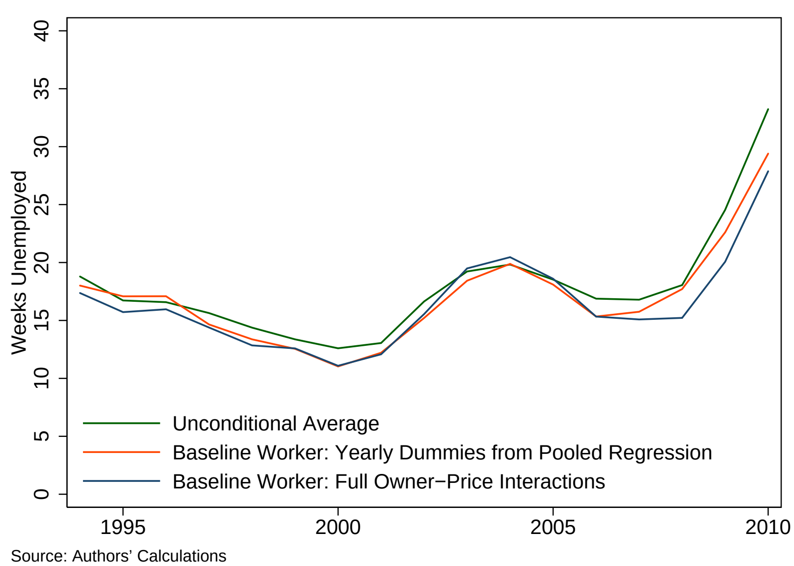

Figure 10. Average Unemployment Duration and Baseline-Worker Prediction, from Regression with Expanded Ownership–House Price Interactions.

6 Conclusion

As noted in the Introduction, we find little support for the structural or homeowner lock-in theories in this paper. There is some evidence that workers who separated from their jobs involuntarily, and who are thus more likely to be eligible for unemployment insurance, have seen their unemployment durations lengthen recently. But the effect of involuntary status on unemployment duration appears to be broadly similar to that which occurred during the last period of labor-market weakness.

One caveat to these results is that our regressions are silent as to the possibility of geographic mismatch in the labor market. We hope to use the unemployment duration data to investigate that possibility in future work.

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