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How much has house lock affected labor mobility and the unemployment rate?

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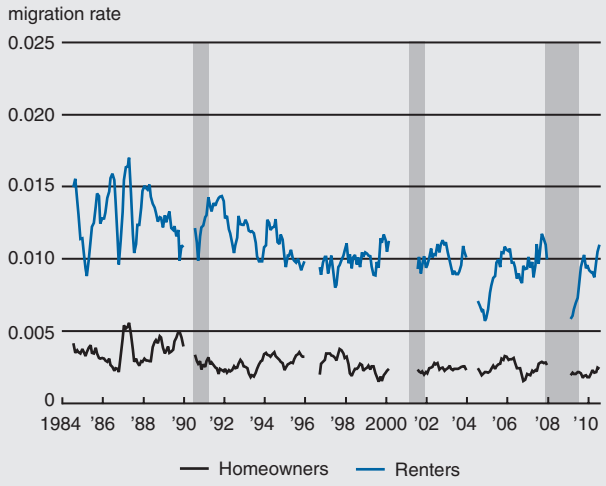
This article explores new evidence from the U.S. Census Bureau's *Survey of Income and Program Participation* (SIPP) on the extent to which "house lock"—the reluctance of households to sell their homes in a declining house price environment—has contributed to the elevated unemployment rate since 2008.

Many have speculated that house lock may create a geographic mismatch between the locations of available workers and jobs vacancies, potentially leading to persistently higher unemployment. We test for the possibility of house lock by comparing state-to-state migration rates of households that might be directly affected by declining home prices (homeowners, particularly those in states with large house price declines) with migration rates of households that are not directly affected (renters). (See figure 1.) We use the SIPP, which has particular strengths for studying this question.

1. Migration rates: Homeowners vs. renters



NOTES: Data displayed are six-month moving averages of seasonally adjusted four-month state-to-state migration rates. The shaded areas indicate official periods of recession as identified by the National Bureau of Economic Research. Several gaps in the time series exist because one cohort had completed the full set of waves (four-month periods) before the next cohort began.

SOURCE: Authors' calculations based on data from the U.S. Census Bureau, 1984–2010 *Survey of Income and Program Participation*.

We find that through the summer of 2010, state-to-state migration patterns are inconsistent with a large role for house lock in persistently higher unemployment. This result supports previous work using different data and methods.[1] In particular, we find that the migration rates of homeowners and renters moved roughly in tandem during the recent recession and early recovery period. There is also no evidence that migration rates fell more among homeowners in states that experienced large house price declines or among homeowner households headed by an individual not working.

Background

The unemployment rate, particularly since early 2009, has exceeded what would have been expected based on past associations between the unemployment rate and growth in economic activity—a negative correlation that is often referred to as "Okun's law." Indeed, at the end of 2010, this relationship underpredicted the rise in the unemployment rate by roughly 1.5 percentage points.[2] An underperforming labor market may be partly due to the inability of employers to find suitable workers, which is often referred to as mismatch. Concern about mismatch is best illustrated by the pickup in job openings during late 2009 and 2010 that still has not translated into a meaningful improvement in hiring.[3]

A number of researchers have looked for specific evidence of mismatch by exploring whether the demand for labor shifted from industries, occupations, or skills in relative decline to ones that

2. Migration rates: Current episode vs. past cycles

	Current episode			1984–2001		
	2005–07	Dec. 2008–July 2010	Difference	Expansions	Recessions	Difference
Homeowners	0.0025 (0.0002)	0.0019 (0.0002)	–0.0006 (0.0003)	0.0029 (0.0001)	0.0023 (0.0002)	–0.0006 (0.0002)
Renters	0.0098 (0.0007)	0.0085 (0.0005)	–0.0013 (0.0009)	0.0114 (0.0002)	0.0096 (0.0006)	–0.0018 (0.0007)
Difference			–0.0008 (0.0010)			–0.0012 (0.0007)
Sample size						
Homeowners	98,473	70,161		715,759	67,736	
Renters	42,852	35,121		347,156	34,992	

Notes: Average seasonally adjusted four-month state-to-state migration rates for each period are shown. Columns and rows may not total because of rounding. Bootstrapped standard errors clustered at the individual level are in parentheses.

Source: Authors' calculations based on data from the U.S. Census Bureau, 1984–2010 *Survey of Income and Program Participation*.

are growing. Reallocation like this can obviously be very costly and time-consuming; while workers and firms make transitions due to this type of reallocation, job openings may remain unfilled despite a large pool of available workers. Of course, reallocation like this is always going on in a dynamic economy, so the key question is whether it picked up over the past few years.

An aspect of mismatch may be geographic in nature. In such a case, moving to a labor market with better opportunities, like investing in more training or education to improve skills, can raise an individual's employment prospects. It is important to note that migration across labor markets tends to be mildly procyclical (i.e., it rises during expansions and falls during recessions).[4] But, recently, this cyclical decline may have been reinforced by the housing bust and the resulting hit to housing wealth. If a household is stuck with little or negative home equity, it may be difficult to produce a down payment for a new loan on the next home, thus hindering job-related moves. There may also be incentives for a household to stay in a home and strategically default on a mortgage, thereby passing up job opportunities elsewhere. House lock, like other potential impediments to job matching, implies that the "steady-state" rate of unemployment (the nonaccelerating inflation rate of unemployment, or NAIRU) has gone up. A higher NAIRU implies less slack in the economy.

Data

Our analysis of house lock is based on the SIPP—a large representative sample of households interviewed every four months (called a "wave") for two to four years. The first SIPP panel begins in 1984, with new cohorts added roughly when the previous cohort's survey cycle is completed. The latest group entered the survey in 2008, and we use data for this group through July 2010. The sample is based on nonmilitary households with a head between the ages of 25 and 59. This leaves approximately 21,000 households per year or over 1.4 million household–wave observations between 1984 and 2010.[5]

The SIPP is useful for looking at migration behavior for several reasons. First, it follows households for a fairly long time and contains a wealth of demographic, labor market, and housing information. Second, unlike the U.S. Bureau of Labor Statistics' *Current Population Survey* (which tracks households at fixed addresses), the SIPP tracks households when they move from one residence to another. Therefore, we know explicitly whether the households moved, as opposed to leaving the sample for some other reason,[6] and also whether they left for a new labor market.

We define a labor market as a state and, therefore, a move as a change in state of residence between waves.[7] The overlapping nature of the survey (e.g., some households begin the 2008 SIPP in January 2008, others in February 2008, etc.) allows us to compute migration rates by month, but the monthly migration rate represents the share of households that moved between states four months ago (between waves). Unfortunately, there are several gaps in the time series, including during 2008, because one cohort had completed the full set of waves before the next cohort began.

Results

Figure 1 plots four-month state-to-state migration rates for homeowners (black line) and renters (blue line). The figure highlights the infrequency of moves across state lines. In a given year, fewer than 2% of all SIPP households cross a state border.[8] State-to-state migration is particularly uncommon for homeowners; renters are about three to four times as likely to switch states—a pattern that holds throughout the sample period. Consequently, over the past 25 years, a significant portion of geographic reallocation of households has been due to those unencumbered by selling a home.

In figure 2, we compare the average four-month state-to-state migration rates during the 2005–07 period (first column)—the final three years of economic expansion before the recession[9]—with those of the December 2008–July 2010 period (second column), which are based on the most recent data available. We find that homeowner migration rates (first row) fell from 0.0025 during 2005–07 to 0.0019 during December 2008–July 2010—a decline of 0.0006 (annualized, roughly 0.0006*3 = 0.0018, or about two-tenths of a percentage point). But renter migration rates (second row) dropped as well. The row labeled "difference" compares the patterns between the two groups. We find that homeowner and renter migration rates fell roughly in tandem. The difference is economically small and, as shown by the standard error in parentheses, statistically indistinguishable from zero. Moreover, the results are very similar if we compare the December 2008–July 2010 migration rates with those of the entire 2002–07 economic expansion.

How do these patterns compare with previous recessions that lacked large national declines in house prices? In the

3. Migration rates, by state house price and work status

	2005–07	Dec. 2008–July 2010	Difference
Large-price-decline states (above median)			
Homeowners	0.0020	0.0017	–0.0004
	(0.0002)	(0.0002)	(0.0003)
Renters	0.0087	0.0078	–0.0008
	(0.0007)	(0.0006)	(0.0009)
Difference			–0.0004
			(0.0010)
Small-price-decline states (below median)			
Homeowners	0.0032	0.0023	–0.0008
	(0.0004)	(0.0003)	(0.0004)
Renters	0.0121	0.0097	–0.0024
	(0.0014)	(0.0010)	(0.0018)
Difference			–0.0016
			(0.0019)
Household head is unemployed or not in labor force			
Homeowners	0.0037	0.0029	–0.0008
	(0.0005)	(0.0005)	(0.0007)
Renters	0.0104	0.0092	–0.0012
	(0.0015)	(0.0010)	(0.0019)
Difference			–0.0004
			(0.0020)
Household head is employed			
Homeowners	0.0022	0.0017	–0.0005
	(0.0002)	(0.0002)	(0.0003)
Renters	0.0096	0.0082	–0.0014
	(0.0008)	(0.0006)	(0.0011)
Difference			–0.0009
			(0.0012)

NOTES: Average seasonally adjusted four-month state-to-state migration rates for each period are shown. Columns and rows may not total because of rounding. Bootstrapped standard errors clustered at the individual level are in parentheses. In the top half of the figure, the sample is split into above- and below-median price decline categories based on state house price changes between 2007:Q2 and 2010:Q2.

SOURCES: Authors' calculations based on data from the Federal Housing Finance Agency, House Price Index, from Haver Analytics; and U.S. Census Bureau, 1984–2010 *Survey of Income and Program Participation*.

fourth, fifth, and sixth columns of figure 2, we compare the average four-month state-to-state migration rates during economic expansions and recessions in the period 1984–2001. We find that four-month homeowner migration rates were about 0.0006 lower during the 1991 and 2001 recessions than during the 1980s and 1990s expansions—the same difference as that between the 2005–07 and December 2008–July 2010 periods. Renter mobility rates in the earlier periods also behaved fairly comparably with those of the current episode. Indeed, given the extent of the downturn in 2008–09, the decline in homeowner and renter mobility was rather tame this time around.[10]

It is possible that the renter–owner comparison still masks differences in mobility patterns based on the magnitude of the local housing bust. In particular, if house lock is important, it should adversely affect those households residing in states with large house price declines. But the top half of figure 3 shows this is not the case. During 2009 and early 2010, homeowner state-to-state mobility rates decreased more for households residing in states that experienced better home price performance (i.e., small-price-decline states). Indeed, we separately looked at the five states that experienced the largest housing price declines between 2007 and 2010 (California, Florida, Nevada, Arizona, and Rhode Island) and still found no evidence that homeowners were migrating out of these states at a historically unusual rate.

Finally, we found no evidence that homeowner households with a head out of work were especially unlikely to move across states during December 2008–July 2010 (see the bottom half of figure 3). This result casts further doubt on the importance of house lock as an explanation for the high unemployment rate in 2009–10.

Two brief caveats

With the current data, we are restricted to using state as the definition of a local labor market. But in large states, there may be many separate local labor markets. Preliminary evidence from the SIPP suggests that homeowner in-state migration fell during 2009 and early 2010, while renter in-state migration fell less. If homeowner in-state moves within a local labor market were not completed, the decisions to stay put would have little bearing on geographic mismatch and the unemployment rate. However, if homeowner in-state moves between distant labor markets (e.g., San Francisco and San Diego in California) were not completed, the decisions to stay put might suggest some role for house lock after all.

Another issue is that while we do not see a lot of evidence of geographic mismatch driven by house lock in the data through mid-2010, the unemployment rate was still around 9.5% that summer. Once the demand for labor picks up, it may very well be that concerns about geographic (as well as sectoral or skills) mismatch will come to the fore.

Conclusion

Unemployment may be high partly because of the inability of employers to find suitable workers. Part of this mismatch may be geographic in nature: Available workers may not reside where jobs vacancies are. Some observers have speculated that house lock is a major factor in recent mismatch.

We find that state-to-state migration rates among homeowners fell roughly in line with those of renters during the

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latest recession and early recovery period and roughly in line with previous recessions. Moreover, there is little evidence that migration varied based on the magnitude of a state's recent house price decline or the employment status of the household head. Given our findings and the significant amount of other current evidence, we conclude that there is little empirical evidence that house lock has been an important driver of the recent high unemployment rate.

[1] See, e.g., Sam Schulhofer-Wohl, 2010, "Negative equity does not reduce homeowners' mobility," Federal Reserve Bank of Minneapolis, working paper, No. 682, December; and Ayşegül Şahin, Joseph Song, Giorgio Topa, and Giovanni L. Violante, 2011, "Measuring mismatch in the U.S. labor market," Federal Reserve Bank of New York, working paper, May. A contrasting view is in Fernando Ferreira, Joseph Gyourko, and Joseph Tracy, 2010, "Housing busts and household mobility," *Journal of Urban Economics*, Vol. 68, No. 1, July, pp. 34–45.

[2] However, see Daniel Aaronson, Scott Brave, and Shani Schechter, 2009, "How does labor adjustment in this recession compare with the past?," *Chicago Fed Letter*, Federal Reserve Bank of Chicago, No. 263, June.

[3] See Gadi Barlevy, 2011, "Evaluating the role of labor market mismatch in rising unemployment," *Economic Perspectives*, Federal Reserve Bank of Chicago, Vol. 35, Third Quarter, pp. 82–96, forthcoming; and Marcelo Veracierto, 2011, "Worker flows and matching efficiency," Federal Reserve Bank of Chicago, mimeo, May. This research describes the theoretical and empirical underpinnings between job openings and the unemployment rate and discusses their implications for measuring the extent of mismatch between workers and employers.

[4] See, e.g., Raven Molloy, Christopher L. Smith, and Abigail Wozniak, 2011, "Internal migration in the United States," Finance and Economics Discussion Series, Board of Governors of the Federal Reserve System, working paper, No. 2011-30, May.

[5] We do not use the 1989 SIPP because of fairly significant differences in design compared with those of other SIPP.

[6] We do not know whether a sample attrition is associated with a move, however.

[7] Before 2004, some of the earlier SIPP panels grouped smaller states together. Excluding these states from the analysis does not substantially change the results.

[8] The aggregate annual state-to-state migration rate is roughly three times the weighted average of the four-month homeowner and renter rates plotted in figure 1. The weights are the shares of homeowners and renters.

[9] In this article, we use recessions and expansions as defined by the National Bureau of Economic Research.

[10] This may be related to a declining secular trend in state-to-state migration among homeowners and renters in the SIPP—a phenomena described by Molloy, Smith, and Wozniak (2011) using other data sets.