THE IMPACT OF HOME OWNERSHIP ON THE DURATION OF UNEMPLOYMENT

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Abstract—Housing stock is one of the most important components of household wealth in the U.S. Public policy has vigorously promoted home ownership based on the belief that it strengthens the individual's commitment and contribution to the community. Yet it is possible that this social goal generates unanticipated consequences in the labor market. This study examines potential labor market influences of home ownership, focusing on the length of unemployment. Using a sample of unemployed workers from the 1986 *Panel Study of Income Dynamics*, this study concludes that for some unemployed, home ownership significantly reduces unemployment duration. This appears to occur through two channels. First, the burden of monthly mortgage payments stimulates more vigorous job search, and second, home equity aids job search through a wealth effect.

I. INTRODUCTION

Housing stock is one of the most important components of wealth in the United States. According to the Federal Reserve, housing stock accounted for 43.5 percent of non-financial assets and 29.5 percent of total assets in 1992, with 63.5 percent of households owning a home (Kennickell and Starr-McCluer 1994). Public policy has vigorously promoted home ownership based on the belief that it strengthens the individual's commitment and contribution to the community. The federal tax code, federal intervention in housing credit markets, and federal anti-discrimination laws have all contributed to the prominence of housing stock in asset holdings (Calomiris et al. 1994). Given the extensive public policy focus on housing, it is important that policymakers be cognizant of how housing status affects economic status via labor market outcomes, including the length of unemployment spells.

Past research has shown that there is wide variation in the amount of time unemployed workers take to find jobs. Identification of the causes of this variation is important for the development and implementation of government labor market policies. Many studies have focused on the impact of unemployment insurance and other government transfer payments on the length of job search (Feldstein 1975; Marston 1975; Ehrenberg and Oaxaca 1976; Meyer 1990). Other studies have addressed the role of individual worker characteristics such as age, education, health, geographic mobility, and marital status to explain observed dif-

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ferences in search time (Nickell, 1979; Kooreman and Ridder 1982; Folmer and Van Dijk 1985; Goss, Paul and Wilhite 1995).

The purpose of this study is to investigate the impact of housing status on the duration of unemployment in the U.S. Does the prominence of housing in the wealth portfolio have any implications for the U.S. labor market? For example, McCormick (1983) showed that home ownership had a significant impact on employment status in Great Britain. This paper extends McCormick's analysis by investigating the impact of home ownership on the duration of unemployment using U.S. data.¹ It is hypothesized that the effect of home ownership on job search time is complex and pulls in several directions. The remainder of this paper seeks to disentangle the complex relationship between home ownership and the length of unemployment. The relationship between home ownership and unemployment duration is especially important, given recent proposals to curtail government efforts to promote home ownership.²

II. HOMEOWNERSHIP, MORTGAGE DEBT AND THE DURATION OF UNEMPLOYMENT

The mechanism by which homeownership can affect unemployment duration is potentially complex. Housing stock is a relatively illiquid asset, characterized by high transactions costs and information externalities relating to asset values. This illiquidity potentially constrains mobility and extends search time. On the other hand, Henley et al. (1994) argued that home equity, by cushioning the expenses of job search and reducing future earnings risk, leads to an increase in labor market mobility, thereby reducing job search time. They tested for this wealth effect in a model of job tenure, but obtained ambiguous results. Thus, it is not clear how home equity might affect job search and duration, although its illiquidity would seem to run counter to the Henley hypothesis.

Likewise, mortgage payments could be expected to affect the duration of job search. Mortgage payments on housing debt introduce a fixed commitment to the homeowner that reduces the ability to decrease spending in the face of unemployment and lost income. Otherwise, the homeowner is faced with the prospect of defaulting on the mortgage and losing any equity present in the house. If the homeowner has little or no equity in the residence, then a possible response to unemployment is simply loan default. Those who have little housing equity but are paying on a mortgage might be expected to have greater mobility than other homeowners, since default or a distress sale would result in little loss of wealth for these unemployed workers. Homeowners without mortgage debt and relatively

greater levels of equity would have more flexibility to decrease spending during unemployment.

For individuals with home equity and mortgage debt, the fixed commitment of mortgage debt may motivate a more intensive job search, shortening the duration of unemployment, since the unemployed will be under increased financial pressure to make mortgage payments. The equity held in the house keeps them from defaulting on the mortgage. Supporting this relationship between mortgage debt and duration, McCormick (1983) found that in Great Britain the probability of being unemployed was significantly less for workers with mortgages when compared to those in subsidized housing or to those who owned their homes outright. He hypothesized that the need to pay monthly mortgage payments encouraged those with mortgages to be more aggressive in obtaining jobs once they were unemployed.

Home ownership may also affect duration by affecting information flows. Public subsidies for home ownership are sometimes justified on the grounds that home ownership strengthens an individual's community involvement. If home ownership generates stronger community commitments envisioned by housing policy, homeowners should have superior information-gathering networks. Home ownership may imply a stronger commitment to residing in a community and give greater incentive to invest in networking activities. The fact that homeowners are purchasing an illiquid asset with high transactions costs may suggest that such a commitment is being made. These information networks can be expected to provide information on local job opportunities, and this should decrease search time.

Any study examining the relationship between home ownership and labor market outcomes must explicitly control for the link between home ownership and personal characteristics. While we have identified several channels by which home ownership may influence labor market outcomes, there is the obvious concern that home ownership may simply be reflecting some unobserved characteristics that affect the success of job search. Perhaps home ownership is correlated with some personal characteristic that is desired by employers, such as a sense of responsibility or work diligence. Home ownership may also reflect a locational advantage in searching for employment. An additional concern is that minorities have a disproportionately low share of aggregate housing wealth (Kennickell and Starr-McCluer 1994). If this is the result of discrimination in housing markets that mirrors discrimination in labor markets, it will be difficult to interpret empirical results for housing variables included in models predicting labor market outcomes. Discrimination in housing also may limit geographic mobility or flexibility and thereby lengthen unemployment duration.

Another issue is whether the mortgage underwriting process is influenced by the same personal characteristics that affect labor market outcomes. In this case,

home ownership will be credited with an impact on unemployment duration that results from some other unrecognized factor. This is further complicated by the fact that the mortgage underwriting process will likely deny credit to individuals who have experienced unemployment, especially longer periods of unemployment. Since most households need credit to purchase housing, those with a checkered labor market history will be less likely to be homeowners. These considerations suggest a selectivity bias problem for empirical studies examining unemployment duration. That is, factors which encourage the unemployed to "select" homeownership also affect their duration of joblessness.

This discussion suggests a complex relationship between housing status and job duration, a relationship that appears to be largely overlooked by past research on the duration of joblessness. This study attempts to fill this gap in the literature. In light of current government policies promoting homeownership, it is important that research spotlight any unintended consequences from this policy. While it can be asserted that homeownership does not exert a separate influence on labor market outcomes, but instead simply proxies some unobserved influence, we have provided several possible explanations for how homeownership may exert an influence of its own.

The present study differs from the previously mentioned McCormick (1983) study in two key respects: (1) The focus here is on explaining unemployment duration, whereas McCormick addressed employment status. The McCormick study failed to determine if housing's impact was on the length of the unemployment spells or on the frequency of unemployment; and (2) This study addresses the situation in U.S. labor markets, whereas McCormick was analyzing British labor markets. The next section discusses the data used in the empirical tests.

III. THE DATA

A sample of unemployed workers from the 1986 *Panel Study of Income Dynamics (PSID)* provided by the Institute for Social Research at the University of Michigan is used as the primary data source in this study. Each year since 1968, the *PSID* has provided income, education, age, employment status, location and other demographic variables for over 6,000 families located throughout the U.S.

The *PSID* is one of the most widely used micro data sets in sociological and economic research. Brown, Duncan, and Stafford (1996) have recently discussed the strengths and weaknesses of the *PSID* data. For labor market analysis, the use of *PSID* data provides two major advantages over the *Public Use Microdata Set (PUMS)*, generated from the decennial census, or the *Current Population Survey*

(CPS). First, with the use of the *PSID* the researcher can more accurately control for labor force status throughout the period of analysis. For example, with the *PSID*, the sample can be limited so that it includes only heads-of-household who were in the labor force for the period of analysis. This restriction cannot be adequately enforced with *PUMS* or *CPS*. Second, by tracking the worker's labor market status monthly, the *PSID* more accurately measures the length of unemployment than the other datasets.³ Neither *PUMS* or *CPS* allows the researcher to calculate accurately the length of unemployment duration and personal/human capital attributes of the unemployed.

The sample used in this study includes heads-of-household who were unemployed at some time in 1986.⁴ Workers were not required to be employed in 1986, but they did have to be in the labor market for the entire period. Worker labor market experiences were tracked each month throughout 1986 in order to calculate the duration of unemployment and reduce the number of censored unemployment spells. The estimation procedure, which is described later, was able to statistically accommodate workers who remained unemployed at the end of 1986.

Table 1 provides a statistical description of key variables used in this study. There are 1,134 observations in the data set, making it somewhat smaller in size than studies based on the *PUMS* or *CPS*. However, the reduced size is more than compensated for with the ability to track each unemployed worker for each month during the unemployment spell. By tracking monthly labor market status of the unemployed, this study more accurately models the relationship between unemployment duration and its determinants than other datasets that do not track the worker on a monthly basis.

Table 1 shows that homeowners on average have a shorter duration of unemployment than non-owners, 14.7 weeks versus 18.5 weeks, and this difference is statistically significant at the 95 percent confidence level. While the evidence at this simple level gives some measure of support for the argument that housing status influences unemployment duration, one must control for other factors affecting the duration of unemployment to more adequately estimate the relationship between homeownership and the length of unemployment. For this reason it will be necessary to test the relationship using multivariate analysis. The methodology is explained in the next section.

IV. A MODEL OF DURATION

The base model will be developed using findings from prior studies examining the duration of unemployment. It is assumed that the unemployed worker will

TABLE 1
PSID Sample Statistics

Variable	All	Homeowners	Non-Homeowners
Number of observations	1,134	370	764
Mean length of job search (Weeks) ¹	17.3 *	14.7	18.5
Mean age	38.9 *	41.6	37.5
Percent African-American	49.5 *	33.2	57.3
Percent college graduates	6.3	8.6	5.1
Percent female	28.8	12.7	36.6
Percent professional	4.9	6.2	4.3
Percent skilled	15.2 *	22.7	11.5
Percent with dependents under 18 years of age	54.3 *	65.4	49.0
Percent single	25.7 *	12.2	32.2
Percent with working spouse	28.0 *	48.6	18.1
Percent with non-wage income from assets	1.7	3.2	0.9
Median ratio of hourly unemployment compensation to hourly income. ²	7.64 *	7.75	7.58
Mean unemployment rate	7.2	7.3	7.1
Percent residing in metropolitan area	59.7 *	45.9	66.4

** indicates that difference between home owners and non-home owners is statistically significant at the 5 percent level.

1. Length of search is calculated only for those with completed spells of unemployment.

2. Equals (unemployment compensation/hours of unemployment) divided by hourly wage in last job.

engage in what is termed *systematic* search. Thus, the worker is assumed to look initially only into the most desirable or higher wage jobs that offer human capital endowment. As the unemployment spell lengthens, the worker examines less desirable opportunities. It is further assumed that the unemployed's human capital endowment depreciates as the worker remains unemployed.

As noted earlier, previous studies have identified a number of factors influencing unemployment spells. One consideration is the personal characteristics of the unemployed. The distribution of wages and duration of unemployment are expected to differ across individuals due to variation in levels of human capital investment or differences in search costs. Age, gender, and race have been found to have an impact on duration. Generally, it has been found that older workers, females, and minorities (especially African-Americans) experience longer periods

of unemployment (Wielgosz and Carpenter 1987; Barnett et al. 1989; Yoon 1981).

Longer search time for these groups may be the result of discrimination. It will take those subject to discrimination more time to find a non-discriminating employer. Discrimination would also lower the incentive to search aggressively by lowering the probability of a favorable search outcome. A lower probability of finding a job lowers the expected return from job search activities, dampening such activity and producing a longer unemployment duration. On the other hand, this substitution effect could be offset by an income effect that induces a more vigorous search, especially from those with low levels of wealth. Older workers have an additional disincentive, since they have a shorter expected period in the workforce, lowering the net present value of future work. The number of dependents in the household may also have an effect on job search intensity and, consequently, the length of search. If the unemployed worker provides the means of support for others, job search intensity can be expected to increase (Hunt 1993).

It has also been found that schooling has an influence on duration, with several studies concluding that education reduces the period of unemployment (Burdett, Kiefer and Sharma 1985; Schaeffer 1985). Schaeffer argues that higher education typically leads to higher wages and higher opportunity costs of unemployment. This greater incentive to search aggressively, combined with better sources of information and information networks, can be expected to expedite the job search process. Burdett, Kiefer and Sharma (1985) find that education has a positive impact on re-employment probabilities. However, Schwartz (1976) argues and finds that due to the lower density of job openings for the more highly educated, duration models show a positive link between the spell of unemployment and education. Thus, although education levels are expected to affect the duration of unemployment in empirical models, the direction of this impact is difficult to gauge in advance.

Factors influencing the income situation of the household may also affect search time. If the household is receiving transfer payments such as unemployment insurance, this may relieve financial stress and reduce search intensity (Feldstein 1975; Marston 1975; Ehrenberg and Oaxaca 1976; Meyer 1990). If a wage-earning spouse is present in the household, this source of income may reduce the financial exigency of the situation and reduce the intensity of job search, thus lengthening the duration of unemployment. Other studies have investigated how spousal labor supply can serve as insurance against spells of unemployment (Gruber and Cullen 1996; Lundberg 1985; Heckman and MaCurdy 1980; and Ashenfelter 1980). These studies generally find a very weak "added work effect" and conclude that the spousal labor response makes up for only a

small share of the decrease in family income. Gruber and Cullen (1996) attribute this to the existence of unemployment insurance.

Local area labor market conditions may also affect unemployment spells. If the local labor market is tight (as measured by a low unemployment rate), then it should be easier for the unemployed worker to locate a new job, and duration should decrease (Nickell 1979). In addition, if the worker resides in a large metropolitan area where job density is higher and there is a broader array of employment opportunities, the expected outcome of job search may be judged to be more favorable and the worker more motivated to search for employment (Schwartz 1976).

To these considerations must be added the potential impact of home ownership on duration. To explore these job search dimensions, we consider a model where unemployment duration is influenced by vectors of human capital endowments, life cycle factors, labor market parameters, and housing status variables. This suggests a hazard model of the following form:

$$h(x,t) = \exp\{x'\beta\} \alpha t^{\alpha-1} \quad \alpha > 0 \quad (1)$$

and a duration model of the form:

$$E[T] = \exp\{x'\beta/\alpha\} \Gamma[(\alpha+1)/\alpha] \quad (2)$$

where $E[T]$ is the estimated mean unemployment duration and Γ is the gamma function.

Age, *Female*, *AfAmer*, *ColGrad*, *HSGrad*, *Prof*, and *Skilled* represent the human capital variables included in x' . The definitions for these variables and all other explanatory variables are listed in Table 2. *Age*, *Female* and *AfAmer* are expected to exhibit a positive relationship with duration. *ColGrad* indicates whether the worker graduated from college and its impact on the length of unemployment is not known in advance. *Prof* and *Skilled* control for the level of worker skills and are expected to negatively affect unemployment duration. *Prof* indicates whether the worker was in the professional worker category (SIC less than 200) and *Skilled* indicates whether the worker was in the skilled worker category (SIC between 400 and 600).

Depend, *Single*, *SpWork*, and *AssetInc* represent life cycle factors present in x' . *Depend* indicates whether the household has dependents under eighteen years of age and is expected to be inversely related with unemployment duration. *Single* controls for whether the worker is unmarried and is expected to positively affect job search length. *SpWork* indicates the presence of a wage-earning spouse in the household and is expected to show a positive relationship with unemployment

TABLE 2
Definition of Independent Variables

Age	age of head of household in 1986.
AfAmer	=1 if head of household African American; = 0 otherwise.
ColGrad	= 1 if worker is a college graduate; = 0 otherwise.
Female	= 1 if worker is female; =0 otherwise.
Prof	= 1 if worker is classified as professional worker (SIC < 200); = 0 otherwise.
Skilled	= 1 if worker is classified as craft worker (400 < SIC < 600); = 0 otherwise.
Depend	=1 if dependent child in household; = 0 otherwise.
Single	=1 if unemployed worker is not married; = 0 otherwise.
SpWork	=1 if spouse working at time of 1986 interview; = 0 otherwise.
AssetInc	logarithm of 1986 income derived from assets (non-wage).
Ratio	logarithm of the ratio of hourly unemployment compensation to hourly wage in last job.
UnRat	unemployment rate in county of residence at time of 1986 interview.
SMSA	=1 if household residing in SMSA; = 0 otherwise.
Mort	= 1 if household making mortgage payments; = 0 otherwise.
Equity	logarithm of home equity. Home equity is calculated by subtracting the balance of the mortgage from the appraised value of the house as established by the homeowner.

duration. *AssetInc* represents non-wage income earned from financial assets. It is expected that this variable will have a positive relationship with duration.

UnRat, *SMSA*, and *Ratio* introduce the impact of labor market effects on duration. *SMSA* indicates whether the household resided in an SMSA and is expected to have a negative relationship with duration. *UnRat* measures the tightness of the labor market and is expected to be positively related with the length of unemployment. *Ratio* is the logarithm of the income replacement ratio which is calculated by dividing 1986 hourly unemployment compensation by 1986 pre-unemployment hourly income. Hourly unemployment compensation is calculated by dividing total unemployment compensation received by the worker by the number of hours of unemployment. The lower the net income loss from unemployment, the less incentive to search for employment, so there is an expected positive relationship between *Ratio* and duration.

Finally, housing status is hypothesized to affect the length of joblessness. *Home* indicates whether the individual is a homeowner. The data from Table 1 show that homeowners have on average a shorter spell of unemployment than do

non-owners. This implies that, at least superficially, homeowners experience a shorter duration than non-homeowners.

V. MODEL ESTIMATION

An important econometric concern arising in the estimation of unemployment duration models results from the use of right-censored dependent variables. At the end of the sample period, some workers are still unemployed. In the data set used for this study, 268 of the 1,134 observations remained unemployed at the end of the period. Thus, for these workers the dependent variable, unemployment duration, is right-censored. Right-censoring leads to an upward asymptotic bias in the estimated hazard rate, or an underestimate of the completed spell of unemployment when using ordinary least squares (Lancaster 1979).

Censored data is not unusual in economic studies, and techniques have been developed to calculate consistent estimates. Here, the bias issue is addressed by including a censoring indicator in the likelihood function, which is estimated assuming a Weibull survival distribution. With the use of the Weibull survival model [Equation (2)], the researcher controls for heterogeneity among the unemployed with respect to human capital endowments, life cycle factors, labor market parameters, housing characteristics, and right censoring of the dependent variable.⁵

In the Weibull specification of Equation (2) α is flexible and allows for duration dependence. Lancaster (1979), among others, was able to reject the hypothesis of no-duration dependence in the hazard function and concludes that the likelihood of obtaining a job is lower during any time period for those who have experienced longer periods of unemployment.⁶ However, only a monotonic variation in the duration function is allowed.⁷ The assumption of a Weibull distribution is one of the most common in empirical research examining unemployment spells [Examples include Lancaster (1979); Atkinson et al. (1984); Lynch (1985); Miller and Volder (1987); Podgursky and Swaim (1987)].

A second econometric concern with unemployment duration models is the problem of selectivity bias. In this case, the selectivity bias arises from home ownership in that the same characteristics that lead to home ownership also affect the spell of unemployment. That is, the error term in the duration model is correlated with the housing status variable producing biased estimates for the parameters in the duration model. To correct for this problem of selectivity bias, we employ the method used by Lee (1978) and estimate a probit model with a binary housing status variable (owner/non-owner) as a dependent variable. The Inverse Mill's Ratio (λ) from this estimated regression is then inserted into the

duration model. Following this procedure, separate models of duration are estimated for non-owners and for homeowners and presented in Table 3.⁸

TABLE 3
Impact of Independent Variables on Unemployment Duration

Variable	Non-owners		Homeowners	
	Coefficient	T-ratio	Coefficient	T-ratio
Intercept	2.461 ^a	7.714	-5.146	-1.534
Age	0.012	1.280	0.078 ^b	2.306
AfAmer	0.142	0.964	-0.790 ^c	-1.818
ColGrad	-0.004	-0.018	0.513 ^c	1.767
Female	0.049	0.319	-1.446 ^b	-2.245
Prof	-0.454 ^b	-1.988	-0.364	-1.086
Skilled	-0.296 ^c	-1.771	0.247	0.921
Depend	-0.200	-1.565	0.508 ^b	2.424
Single	-0.620 ^a	-3.199	-0.915	-1.210
SpWork	-0.436	-1.558	1.331 ^c	1.840
AssetInc	-0.023	-0.346	-0.014	-0.275
Ratio	0.025 ^c	1.912	0.069 ^a	3.676
UnRat	0.082 ^a	4.168	0.092 ^b	2.517
SMSA	0.161	1.009	-0.105 ^b	-2.189
λ	0.535	0.685	4.111 ^b	2.083
α		0.941		0.935
Log-Likelihood (unrestricted)		-1125.8		-540.1
Log-Likelihood (β 's = 0)		-1160.2		-565.9
χ^2		68.8		51.5
Significance		$0.321 * 10^{-13}$		$0.321 * 10^{-13}$

"a," "b," or "c" indicates that coefficient is statistically significant at the 1 percent, 5 percent or 10 percent level respectively.

Following Lee (1978), a test for the importance of home ownership on duration can be performed by estimating the expected duration for homeowners and non-owners from the respective regressions in Table 3. By inserting mean values of regressors for homeowners into regression parameter estimates in column (2) for non-homeowners, one can obtain estimates of how homeownership affects the duration of joblessness. In this case it is estimated that for this sample, homeownership reduces the length of unemployment by approximately 11.6 weeks. Alternatively, by substituting mean values of regressors for non-homeowners into parameter estimates for homeowners, it is found that homeownership reduces the duration of unemployment by 17.8 weeks. Thus, from estimates presented in Table 3, it is estimated that homeownership reduces the length of unemployment in the range of 11.6 to 17.8 weeks. The question becomes whether homeownership reduces search length due to increased pressure to

meet mortgage payments, via a wealth influence, or from improved information flows.⁹

In order to test for the impact of mortgage payments and home equity on duration, the variables *Mort* and *Equity* are inserted in the model for homeowners only, again controlling for selectivity bias. Both variables are included so that we can test for the separate effects of (1) the burden of monthly mortgage payments and (2) the wealth effect of home equity. Recall that McCormick (1983) argued that the burden of monthly payments would stimulate a more aggressive job search while Henley et al. (1994) suggested that home equity would shorten job search through a wealth effect that enhances mobility and job search activity. However, since home equity is an illiquid store of wealth, home equity may increase duration by decreasing mobility. The sign of the equity variable is an empirical question.

The results of the new model are presented in Table 4. *Mort* has the expected negative sign and is significant at the 99 percent level, supporting the hypothesis that homeowners making monthly mortgage payments have a lower duration due to the pressure of monthly payments. *Equity* has a negative sign, indicating that duration is shortened through a wealth effect. Note that *SpWork* and *AssetInc* are not significantly different from zero in this expanded regression. These variables reflect liquidity and alternative sources of income that might be expected to lengthen duration. It is surprising to find that the illiquid housing wealth helps to decrease duration, while the income of spouses and income for other assets do not impact duration. The result for *SpWork* is consistent with other findings in the literature previously noted, and not surprising, given the robust results for the *Ratio* variable.

The size of the estimated coefficients for the *Mort* and *Equity* variables in Table 4 suggest that the impact of housing status on the duration of unemployment is substantial. They indicate that the estimated duration for mortgage debtors is 18.4 weeks, compared to 30.0 weeks for homeowners without mortgage debt.¹⁰ These results are summarized in Table 5, where duration estimates are calculated from the parameters derived in Equation (2) for all unemployed controlling for *Mort* and *Equity* and with the respective control variables set to their sample means.

The findings suggest that the burden of monthly mortgage payments has a pronounced effect on duration. The sizable difference between homeowners with and without mortgage debt also suggests there are no special informational advantages for homeowners over non-owners. Instead, the results indicate that it is the burden of monthly mortgage payments which reduces the length of job search.¹¹

TABLE 4
Impact of Independent Variables on Unemployment Duration of Homeowners

Variable	Coefficient	T-Ratio
Intercept	-2.290	-0.658
Age	0.061 ^c	1.749
AfAmer	-0.573	-1.263
ColGrad	0.543 ^c	1.917
Female	-1.124 ^c	-1.674
Prof	-0.243	-0.734
Skilled	0.240	0.891
Depend	0.515 ^b	2.463
Single	-0.541	-0.693
SpWork	1.055	1.411
AssetInc	-0.050	-0.898
Ratio	0.056 ^a	3.046
UnRat	0.074 ^b	2.027
SMSA	-0.735	-1.472
Mort	-0.507 ^a	-3.473
Equity	-0.091 ^a	-2.835
λ	3.019	1.467
α		0.957
Log-Likelihood (unrestricted)		-531.95
Log-Likelihood (βs= 0)		-560.11
χ ²		56.32
Significance		0.321*10 ⁻¹³

"a," "b," or "c" indicates that coefficient is statistically significant at the 1 percent, 5 percent or 10 percent level respectively.

TABLE 5
Estimated Unemployment Duration for Homeowners

Mortgage Holders (Equity = \$34,502)	18.4
Non-Mortgage Holders (Equity = \$34,502)	30.0 ^a
All Homeowners	21.6

"a" indicates that duration differs from all homeowners at the 95 percent level of confidence.

The coefficient for the *Equity* variable in Table 4 indicates housing equity has a significant influence on duration, with homeowners with no equity experiencing an estimated unemployment duration of 27.1 weeks. Duration for homeowners with equity of \$50,000 is estimated to be 12.4 weeks. The relationship between estimated duration and equity is plotted in Figure 1 for those with mortgage debt and for those with no mortgage. The figure suggests that a relatively small amount of equity can sharply diminish duration, presumably because of enhanced job search opportunities.

Figure 1
Estimated Duration Versus Equity

Results presented in Tables 3, 4 and 5 suggest that home ownership has a significant impact on unemployment duration. It is hypothesized that this impact works through two channels. First, the burden of making monthly mortgage payments motivates unemployed workers to search more intensively, shortening their spell of unemployment. Second, housing wealth shortens the length of job search, perhaps by providing for the expenses of job search and future earnings uncertainty, thereby increasing flexibility.

VI. SUMMARY AND CONCLUSIONS

Housing stock is one of the most important components of wealth in the United States, in part because of public policy that encourages homeownership. We find evidence that suggests this policy affects the labor market by shortening the duration of unemployment for homeowners. It is estimated that homeownership reduces the duration of joblessness in the range of 11.6 to 17.8 weeks. It is hypothesized that homeownership lowers duration through two channels. First, the burden of monthly mortgage payments appears to stimulate a more vigorous job search. Second, home equity aids job search through a wealth effect. These findings are consistent with those reported by McCormick (1983) and Henley et al. (1994) for Great Britain. McCormick found that mortgage holders are less likely to be unemployed, while Henley et al. found some evidence that home equity decreases job search duration. It is important to note that the influence on unemployment duration does not arise from ownership *per se*, but from the discipline of monthly mortgage payments for mortgage holders and the ability of housing wealth to aid job search.

These results have several implications for policymakers. First, any policy that affects the proportion of heads of household holding mortgage debt may have an effect on the natural unemployment rate. Specifically, an increase in mortgage debt holding will decrease the duration of unemployment and thereby decrease the natural rate of unemployment. Federal Reserve data show that from 1983 to 1989 the proportion of households with mortgage debt rose, but then fell from 1989 to 1992. (Kennickell and Shack-Marquez 1992; Kennickell and Starr—McCluer 1994) Second, relatively modest amounts of housing equity can increase mobility, and there may be some benefit to wide distribution of this form of wealth-holding. Third, if public resources for worker retraining and labor market counseling are scarce, then policymakers may want to consider targeting those resources to groups other than mortgage debt holders or those with significant housing equity. These groups appear to be more likely than other groups to find new employment on their own.

ENDNOTES

1. Data from the 1992 *Current Population Survey* indicate a connection between unemployment and homeownership. Data show that states with a rate of ownership above the U.S. median among the work force experienced a median unemployment rate of 6.7 percent, while states with a rate of homeownership below the median experienced an unemployment rate of 7.4 percent. These statistics are only suggestive, of course, since they do not account for other factors that might have an impact on both the frequency and length of unemployment.

2. Recent proposals have suggested removing the deduction for home mortgage interest and property taxes, eliminating or curtailing GSE status of agencies active in the secondary mortgage market, and easing *Community Reinvestment Act* requirements for lenders.

3. Though the CPS does sample the unemployed worker for several consecutive months, no observation remains in the sample for more than four months of his/her period of unemployment.

4. In 1986, real gross domestic product was growing at a 3 percent rate, the unemployment rate was falling, the labor force participation rate was rising, and the level of employment was increasing.

5. The statistical package LimDep is used for all subsequent estimations.

6. This outcome is expected, since human capital endowments are measured at the beginning of the period but are expected to depreciate over the period of unemployment.

7. The Weibull is a flexible version of the exponential distribution. In the exponential distribution, duration after elapsed time t is independent of time (a "memory-less" distribution).

8. This procedure is similar to that outlined by Heckman (1979).

9. This compares with a duration of 18.4 weeks for non-owners and 14.6 for homeowners when estimated as the simple mean and all censored spells are excluded (see Table 1).

10. Estimated duration is derived from regression parameter estimates with all control variables set to their sample mean values.

11. In an alternative estimation not presented, it was found that there was no statistical difference in the estimated relationship between homeownership and unemployment duration in metropolitan versus non-metropolitan areas. Due to the relatively small sample, regional differences in the estimated relationship could not be reliably tested for.

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