Home Ownership and Unemployment in the U.S.[1]

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A.J. Oswald (1997) has presented evidence of a positive relation between home ownership and unemployment rates. Oswald's argument is that homeowners are less mobile than private-sector renters and are less willing to move to jobs when they become unemployed owing to a variety of factors including the lump-sum costs associated with buying, financing, and selling a house. Oswald provides an impressive array of data indicating that countries/regions with ten percentage point higher ownership rates have two percentage point higher unemployment rates.[2] The data supporting this finding come from comparisons across both OECD countries and regions within countries (European regions and U.S. states).

Oswald (1999) contends that (1) the rise in ownership in Europe since 1960 explains the rise in European unemployment and (2) current differences in home ownership rates across countries account for much of current differences in their unemployment rates. If, in fact, this large positive relation is not spurious, one could argue that home owning creates negative externalities. For example, Wilson (1975) argues that the tensions arising from unemployment can push those with a predisposition for crime into actually committing crime. The unemployed also need more in the way of social services than the employed, and therefore impose social costs on society that they

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[2] That is, the regression of the change in the unemployment rate on the change in the ownership rate gives a coefficient of 0.2. His original regression for the U.S., which excluded Alaska and Hawaii, had this coefficient, but the addition of those two states reduced it to 0.125.

themselves do not internalize. The existence of a large negative externality arising from home ownership would raise questions regarding the intensity with which some countries have favored home ownership.[3]

Oswald's ownership-unemployment relation is somewhat surprising given what we know about how both of these variables correlate with age and how populations have aged since 1960. Older cohorts have both higher home ownership rates and lower unemployment rates than younger cohorts. Thus states/countries with older populations are likely to have both higher ownership rates and lower unemployment rates. Similarly, as state (or country) populations age, *ceteris paribus*, we would expect both increases in ownership rates and decreases in unemployment rates. That is, one would anticipate that the aging of populations over these decades would generate a negative, not positive, correlation between home ownership and unemployment rates. Thus, the partial ownership-unemployment relation, holding age constant, could be significantly greater than the two points of unemployment for ten points of ownership reported by Oswald.

We also expect that home ownership affects household heads and non-heads differently. When the household head (perhaps the sole earner and by definition the highest earner) becomes unemployed, being an owner is less likely to discourage movement to a new location because *not* moving is very costly. When a secondary worker in the owner household becomes unemployed the costs of not moving are not as

[3] A number of positive externalities appear to operate in the opposite direction. Kane (1994) finds that blacks are more likely to graduate from high school if their parents are homeowners and that both white and black high school graduates are more likely to enroll in college if their parents are owners. Similarly, Green and White (1997) find that children of homeowners stay in school longer than children of renters. They also report that daughters of homeowners are less likely to have children as teenagers than are daughters of renters. And DiPasquale and Glaeser (1998) deduce that owners are more civic-minded. This evidence in support of the formerly just-presumed benefits of home ownership provides a rational for subsidizing it. Selectivity bias could, of course, be a problem in any or all of these studies. For a discussion of this bias in the context of the ownership/unemployment relation, see our summary below.

large. We therefore expect that the effect of ownership on the unemployment rate is greater for non-household heads (or for the total population) than for household heads.

In this paper we scrutinize one piece of Oswald's evidence, the correlation of data from U.S. states. In order to abstract from state fixed-effects in levels, we analyze the cross sectional variation in changes in home ownership and unemployment rates between 1970 and 1990. The homeownership and unemployment rates are obtained from the Statistical Abstract of the U.S. Variations in these series by age class and by headship status are computed from the 5 in 100 samples of the 1970 and 1990 U.S Censuses.

The paper contains four parts. We begin with a brief discussion of the rationale for an ownership-unemployment relation. Next, we report some raw 1990 data for the states with the highest and lowest home ownership rates in 1990, with the largest and smallest changes in the unemployment rate between 1970 and 1990, and with 1990 populations over 10 million. The data include the percentages living in urban areas, living in the same house during the previous five years, and under the age of 35.

The empirical estimates are reported in part three. First, we analyze changes in aggregate state unemployment and ownership rates between 1970 and 1990. After duplicating (nearly) Oswald's result, we illustrate the impacts of weighting the state observations by the fraction of total U.S. households in 1970 that resided in the respective states and of abstracting from the aging of the population between 1970 and 1990. We provide alternative estimates using unemployment rates for household heads and for the total population, anticipating that the impact will be stronger for the latter because the opportunity costs of not moving are greater when the principal earner is unemployed than

when other earners are unemployed.[4] Second, we estimate the relationship for six different age classes. We anticipate that the relationship will be weaker for both young households and old households. Young households have accumulated little wealth and have had less time to become attached to the geographic area than middle age households and thus are more likely to respond to unemployment by relocating. Older households' employment cannot be greatly affected by home ownership because their members are largely not in the labor force. (It is the wealth accumulation of older owners that allows them "not to move," not ownership per se. Older *wealthy* renters also wouldn't move.)

1. Why an Unemployment-Ownership Relationship?

A number of reasons might explain why the relationship holds. Two are tied to the mortgage financing of homes. First, people who lose their jobs are more likely to live in regions experiencing recessions—recessions that, in turn, can drive down the price of houses. This can make the house a highly illiquid asset (Stein (1993)). For example, in Texas in the middle 1980s, the sharp drop in oil prices led to both high unemployment and falling house values. This meant that many unemployed households had mortgage balances that exceeded the value of their houses. The only way these households could move was either to sell and pay the balance due to the lender, or to default. While the second of these is the more attractive option, it is still, nevertheless, unattractive. Second, if one of the proximate causes of recession, and therefore unemployment, is high interest rates, households could find themselves searching for a job at the very time when they are most "locked-in" to below-market mortgages (Hendershott and Hu (1982) and Quigley

[4] Unemployment of the head is also more likely to be the sort of "trigger event" described in Deng, Quigley and Van Order (1996) that leads to mortgage default. We discuss this at greater length below.

(1987)). For instance, a household that obtained a mortgage at six percent interest in the late 1960s might not have wished to move in the double-digit interest rate environment of the early 1980s.

The response to negative housing equity also explains why we would expect principal earners to be less influenced by tenure than other earners. Deng, Quigley and Van Order (1996) note that even in states with non-recourse mortgages, homeowners often fail to exercise the option to default even when it is financially optimal. The reason is that households often require a "trigger event," such as a loss of the principal earner's job or a divorce, before the household even notices that the value of the house is less than the mortgage balance. A full time worker who loses his/her job faces a trigger event, and therefore has an incentive to default (which obviously makes the owner mobile). On the other hand, if someone other than the principal earner loses a job, the owning household might decide it is in its best interest to "stick it out," make its (now financially more difficult) mortgage payments, and have the unemployed person look for a job locally.[5]

Oswald (1999) emphasizes a number of "indirect" effects. For example, areas with high home ownership rates have greater planning laws and restrictions on land development, discouraging business start-ups, and have greater congestion owing to owners commuting further than renters, increasing the cost of having a job. Of course, the primary reason for the ownership-unemployment relation is simply the larger costs of vacating a home (selling costs) versus moving out of an apartment.[6]

[5] Deng, Quigley and Van Order (1996) show that default is remarkably uncommon under any circumstances.

[6] There are, on the other hand, ways in which home owning might enhance labor mobility. Not the least of these is the fact that home ownership has historically provided households with a mechanism for

2. Data by State and Age Class

Before presenting empirical results, it is useful to examine some aggregate data for the fifty states and the District of Columbia and to show how such data vary across all states by age class. Table 1 gives 1990 data for the five states with the highest and lowest aggregate home ownership rates, as well as for Texas, Florida, Illinois and Ohio, which along with Pennsylvania (high ownership) and California and New York (low ownership) constitute all of the states with population over ten million. Data reported are the state percentages of households that are homeowners, are unemployed, live in urban areas, and had not moved in the previous five years, as well as total population and the percentage under age 35.

The five states with the highest ownership rates are less urban (especially Mississippi) than the national average and less mobile. Areas with the lowest ownership rates tend to be more urban,[7] but about average in terms of mobility (Alaska and California are more mobile that the national average, while New York is less). Finally, all the southern states listed here have above average unemployment rates, with West Virginia and Mississippi being far above average. Hawaii, in contrast, has an exceptionally low unemployment rate accompanying its low ownership rate.

Table 2 presents changes between 1970 and 1990 in unemployment and ownership rates and in the percentages living in urban areas and in the same house for the last five years, as well as in both the total population and the percentage of it under age 35, for states with the greatest rise (at least two percentage points) and largest fall (over one-half

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accumulating assets. Clearly, households with assets are better able to afford the costs endemic to job search than those without assets.

[7] Alaska is an exception, likely due to the young average age of its population. As is shown in Table 3, ownership rises sharply with age.

percentage point) in unemployment rates. These are the states that 'drive' or 'mitigate' the Oswald result. That is, the states with large increases in both unemployment and ownership (DC, Mississippi, Illinois and Alabama) or large decreases in both (Washington and Utah) 'force' a large regression coefficient. In contrast, those states with large increases in unemployment but small increases in ownership (Texas and Florida) or large decreases in unemployment but increases in ownership (Alaska, Hawaii, and Montana) reduce the regression coefficient.

Table 3 lists characteristics data for households by age class. Shown are the percentage distribution of households, the ownership and headship rates, the unemployment rate, and the labor force participation rate. We show both 1970 data and the changes between 1970 and 1990. As is well known, ownership and headship rates rise, especially sharply between ages 20 and 35 to 40, and are then relatively flat through about age 60. Ownership then declines moderately, while death of spouses acts to raise the headship rate rather abruptly again. Unemployment is a little higher for under age 25 households and for those over age 65 (few of whom are in the labor force). Labor force participation is flat through about age 55 after which it declines sharply. Labor force participation of the young and old (over age 55) fell substantially between 1970 and 1990. The response of younger households was due to youth spending more time in school; the response of the older households was likely due significantly to the expansion of social security and medicare benefits.

3. Empirical Estimates

All of our regressions explain changes in unemployment rates between 1970 and 1990 with changes in home ownership rates. Our results are reported in two parts. The first is for entire states; the second is for age classes within the states.

Impacts Using Aggregate Data

Table 4 reports the results of regressing the changes between 1970 and 1990 in the state unemployment rates on the changes in the home ownership rates. The first regression attempts to duplicate Oswald's estimates. The remaining estimates are obtained from 'population weighted' regressions that allow more populous states to have a greater impact on the estimated relationship than less populated states.[8] The 0.112 coefficient on the change in home ownership is close to Oswald's 0.125 coefficient, while the equation adjusted R^2 of 0.048 is a bit lower. The t-ratio of 1.9, like Oswald's, suggests the relation is almost statistically significant at the 0.05 level. When we weigh the observations by the fraction of total households that reside in the respective states, the relation disappears, with the coefficient on owning actually switching signs, although it is not significant. As we noted above this is because most of the outliers contributing to Oswald's relationship (D.C., Mississippi, Alabama, Utah and Washington) have small populations, while some of the outliers working against the relationship (Florida and Texas) have large populations.

Next we abstract from the impact of the aging of the population between 1970 and 1990 by recomputing the 1990 unemployment and home ownership rates from the age class rates using the age distributions of population (for unemployed) and households (for

home ownership) in 1970 as weights.[9] With this abstraction, the relationship again is positive, although the coefficient is only 0.05 and the t-ratio 1.2.

Equations 4-6 in Table 4 are similar to equations 1-3, except that unemployment rates are measured for household heads only. The hypothesis here is that higher home ownership is more likely to prevent unemployed non-household heads than unemployed household heads from relocating to find employment. For the unweighted total population and household regressions, our supposition is true: the t-statistic on the home owning coefficient falls from 1.9 for the population to 1.0 for household heads. On the other hand, when we hold age weights constant, the coefficient on the change in home ownership stays at 0.05, but the t-ratio for the household head regression rises to 1.7. Given the variety of t-statistics for equations 4-6 and that none of them is as great as 2.0, it is likely that the changes across the t-statistics are random.

Impacts Using Age-Class Data

In Table 5, we present household-weighted estimates for the six age classes shown in Table 3. As noted, the data are computed from the five percent Census Public Use micro sample. Impacts of the change in ownership rates on unemployment rates are reported for both household heads (Panel A) and for the entire labor force (Panel B). As expected, the results are inferior for the two youngest and the oldest age classes. For household heads in these three age classes, two of the three coefficients are negative and none has a t-ratio as large as unity. In contrast, for the three middle age classes, the

[8] We expect that this weighting would increase the impact because when Oswald added Alaska and Hawaii, two small states, to his sample the estimated home ownership effect fell by nearly 40 percent (from 0.2 to 0.125).

[9] For example, the 1990 home ownership rate is computed as $\Sigma own90_i hh70_i$, where i runs from 1 to 6, covering the age classes of under 25, 25-34, 35-44, 45-54, 55-64, and 65 plus, own90 is the 1990 age-class ownership rate and hh70 is the 1970 household share.

coefficients range from 0.06 to 0.11 with t-ratios ranging from 1.3 to 2.1. For these three age classes combined, the coefficient is 0.055 with a t-ratio of 1.6.

Also as expected, the relationship is stronger for the total population than for household heads only; home ownership is more likely to deter secondary workers from moving to find employment than primary workers. For the three middle age classes, the coefficients range from 0.11 to 0.24 with t-ratios from 1.8 to 3.0. For the three age classes combined, the coefficient is 0.18 (very close to Oswald's general 0.2 result) with a t-ratio of 3.1.

Table 6 tests for a relation between home ownership and labor force participation rates. The relationship is negative for all age classes. While most t-ratios are greater than unity, only that for the over 65 age class is greater than two. We are uncertain as to what to make of these results. It seems likely that higher ownership and lower labor force participation are being driven by a third variable, wealth, rather than one of these variables causing the other.

4. Summary and Future Work

We have confirmed Oswald's finding that, at least for the most plausible middle (35 to 64) age classes, home ownership seems to constrain labor mobility and thus leads to higher unemployment. Our results for the total population also suggest that non-household heads are more constrained than household heads. Moreover, the relationship (for this half of total households only) is close to the Oswald result of ten percentage points of additional ownership leading to a two percentage point higher unemployment rate.

Unfortunately, this result is subject to possible selectivity bias. A long literature shows that tenure choice is a function of the relative user costs of owning and renting (see Hendershott and Shilling (1982)). Generally speaking, tenure choice models take into account the flow costs of housing: the after-tax costs of maintenance, depreciation, and financing. Owning also requires a series of sunk costs, including mortgage origination fees, title searches, appraisals, and costs of eventual sale. Those who have long expected lengths of stay will tend to have lower user costs for owning, and thus are more likely to be owners, than those with short expected lengths of stay. This is because long term owners can amortize their fixed costs over a longer period than short term owners can.

Given these lump-sum costs, only households with significant expected lengths of stay would be expected to be owners (Haurin and Lee (1989)), Haurin, Hendershott and Wachter (1997) and Henderson and Ioannides (1989)).[10] In fact, homeowners wait 14 years between moves on average, while renters wait only four years (Henderson and Ioannides (1989)). Put another way, by 1995 only 27 percent of 1991 owners had moved, while 85 percent of 1991 renters had.

The result of this, of course, is that households that plan to be mobile are less likely to choose owning than households that plan to stay put. Consider two reasons for longer expected lengths of stay, a good job and a stable extended household. If the household loses its job and its reason for a long expected length of stay was a stable extended household, it may not move to find new employment. This behavior simply reflects characteristics inherent to the owner, rather than something "caused" by tenure

[10] While Haurin Hendershott and Wachter (1997) do not make their user cost variable dependent on the expected length of stay, they enter a proxy for the expected length of stay as an independent variable in their tenure choice estimation and find that the longer the expected length of stay, the greater the likelihood of ownership.

status. On the other hand, if the household loses its job and its reason for a long expected length of stay was the job, it will move unless the fact of owning a house causes it not to do so. Only in the latter case is ownership causing continued unemployment. Estimating our relationship with twenty-year changes reduces the selectivity problem but does not eliminate it because expectations regarding the stability of households may have changed.

One method of disentangling the characteristics of households that own from characteristics that are caused by owning would be to use Heckman's (1979) selectivity correction technique with an individual household database to estimate a two-stage model of how tenure might influence employment. The 1968-93 Panel Survey of Income Dynamics, which gives information about tenure, household, and labor mobility characteristics for roughly 6,000 (initially) households, is such a database. Undertaking such an analysis is especially important because the ownership-unemployment relationship is unlikely to be fully convincing to most until it is established using household level data.

In such an analysis, one would begin with a probit model of tenure choice (see Goodman (1989), Haurin, Hendershott, and Kim (1994), and Green (1996)). One of the variables to explain tenure choice would be the flow user cost of owning relative to that of renting. This variable is exogenous to the household (unlike the user cost including fixed costs amortized over the individual household's expected length of stay), and yet causes tenure choice. The fitted value for tenure choice produced by this equation could then be used as a variable to explain household unemployment. This should largely purge the model of the selection problem because the fitted value for tenure will not be correlated with idiosyncratic household characteristics.

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Table 1: Data for States with the Highest and the Lowest Home Ownership Rates in 1990 (data from statistical Abstract, 1993. Table 1240, 37, 30, 658 and 31)

States with Highest Ownership	Ownership Rate	Unemployment Rate	% Living in Urban Area	% In Same House as '85	Population (Millions)	% under 35
West Virginia	74.1	8.3	69	64	1.8	50
Minnesota	71.8	4.8	70	56	9.3	55
Mississippi	71.5	7.5	47	59	2.6	56
Michigan	71	7.1	70	57	9.3	54
Pennsylvania	70.7	5.4	69	63	11.9	50
States with Lowest Ownership						
DC	38.4	6.6	100	54	0.6	53
New York	52.2	5.2	84	62	18	53
Hawaii	53.9	2.8	89	51	1.1	55
California	55.6	5.6	93	44	29.8	57
Alaska	56.1	6.9	68	41	0.5	62
Other Populous States						
Texas	60.9	6.2	80	49	17	58
Florida	67.2	5.9	85	45	12.9	48
Illinois	64.2	6.2	85	56	11.4	54
Ohio	67.2	5.7	74	58	10.8	53
National Average	64.2	5.5	75	53	5	54

Table 2: Median Data State with Largest and Smallest Change in Unemployment Rates between 1970 and 1990.

Over Two Point Rise Unemp.	Change in Unemployment	Change in Ownership	Change in Urban Areas	Change in % in Same House	Change in Population	Change in % under 35
DC	4	10.7	0.0	-10.0	-19.8	-5.8
Mississippi	2.7	5.2	2.6	-9.1	15.9	-4.7
Texas	2.6	-3.8	0.9	-6.1	51.2	-2.7
Florida	2.5	-1.4	4.9	-4.4	88.9	-4.7
Illinois	2.2	4.8	1.6	-6.4	2.7	-3.7
New Hampshire	2.2	0.0	-5.0	-0.8	49.5	-3.9
Alabama	2	3.8	2.1	-7.7	17.1	-6
Over One-Half Point Decline Unemp.						
Alaska	-3.4	5.8	19.4	-16.9	80.9	-9.3
Washington	-3.4	-4.2	3.8	-4.7	42.6	-5.4
Utah	-1.6	-1.2	7.2	-4.9	61.6	-1.7
Hawaii	-0.8	7.0	6.4	-9.4	43.2	-9.3
Montana	-0.8	1.6	-0.6	-6.0	14.5	-6.9
Nebraska	-0.6	0.1	4.8	-6.6	6.0	-3.6
Large States						
California	-0.5	0.7	2.0	-4.6	48.7	-2.0
New York	0.8	4.9	-1.1	-7.3	-1.5	-3.0
Pennisylvania	1.4	1.8	-2.5	-4.8	0.6	-4.4
National	0.7	0.7	1.2	-4.9	22.3	-4.3

Table 3

Data by Age Class, 1970 and Change from 1970 to 1990

Age of Head	HH 1970	HH 1990	Ownership 1970	Change 70-90	Heads Headship 1970	Change 70-90
< 25	7.4	5.4	22	-5.5	12.6	1.3
25 - 34	18.3	21.9	51	-4.5	46.8	0.5
35- 44	18.4	22.1	69	-1.7	51.3	3.8
45 - 54	19.4	15.5	75	2.4	52.6	5.4
55 - 64	17	13.4	74	7.1	58.4	1.1
65 +	19.5	21.5	70	5.7	63.1	1.5

Household Heads

	Unemployment 1970	Change 70-90	1970 LF Participation	Change 70-90
< 25	3.5	2.7	83	-5.6
25 - 34	2.5	1.7	91	-3
35- 44	2.1	1.4	92	-2.4
45 - 54	2.3	1.1	89	-2.8
55 - 64	2.4	0.2	75	-13
65 +	0.9	-0.3	21	-6.8

Total

Population

	Unemployment 1970	Change 70-90	1970 LF Participation	Change 70-90
< 25	11.1	0.1	59.8	7.5
25 - 34	4.2	1	69.7	13.9
35- 44	3.1	0.7	73.1	12.1
45 - 54	2.8	0.4	73.5	7.2
55 - 64	2.7	0.6	61.8	-4.9
65 +	3.2	-0.2	17	-5.2

Table 4: Aggregate (all ages) State Regressions of changes in Unemployment Rates on Changes in Home ownership Rates, 1970 - 1990 (Household weighted)

Unemployment Measure	Constant	Coeff. on HO	Adj Rsqr
1. Total Population	0.004	0.112	0.05
(Oswald Replication)	(2.2)	(1.9)	
2. Total population	0.008	-0.068	-0.14
(weighted)	(4.5)	(1.1)	
3. Total population	0.009	0.050	0.06
(Constant Shares)	(9.0)	(1.2)	
4. Household Heads	0.008	0.031	0.00
(Unweighted)	(7.1)	(1.0)	
5. Household Heads	0.006	0.000	-0.13
(Weighted)	(4.8)	(0.0)	
6. Household Head	0.009	0.060	0.04
(Constant Shares)	(9.0)	(1.7)	

Table 5: Age-Class State Regressions of Change in Unemployment Rates on Chnages in House Ownership Rates, 1970-1990, (Household Weighted)

A. Household Heads Only

Age-Class	Constant	Coeff. On HO	Adj Rsqr
< 25	0.032	-0.061	-0.01
	(7.0)	(0.9)	
25 - 34	0.02	0.015	-0.01
	(10.2)	(0.5)	
35- 44	0.017	0.065	0.06
	(12.3)	(2.1)	
45 - 54	0.011	0.063	0.01
	(6.4)	(1.3)	
55 - 64	-0.004	0.109	0.07
	(1.3)	(2.1)	
65 +	-0.005	-0.220	-0.02
	(1.1)	(0.8)	
35 - 65	0.045	0.051	0.03
	(3.4)	(1.6)	

B. Whole Labor Force Population

Age-Class			
< 25	0.028	0.019	0.00
	(8.3)	(0.3)	
25 - 34	0.021	0.027	0.00
	(8.7)	(0.8)	
35- 44	0.02	0.110	0.09
	(9.9)	(2.5)	
45 - 54	0.018	0.111	0.08
	(9.9)	(1.8)	
55 - 64	0.09	0.200	0.13
	(1.2)	(3.0)	
65 +	0.03	0.031	0.00
	(9.38)	(0.5)	
35 - 65	0.014	0.180	0.14
	(7.88)	(3.1)	

Table 6: Age-Class State Regression of Changes in Labor Force Participation Rates on Changes in Home Ownership Rates, 1970-1990 (Household Weighted)

Age-Class	Constant	Coeff on HO	Adj Rsqr
< 25	0.061	-0.150	0.01
	(7.7)	(1.2)	
25 - 34	0.032	-0.072	0.02
	(10.0)	(1.4)	
35- 44	0.024	-0.033	-0.01
	(9.5)	(0.6)	
45 - 54	0.032	-0.058	-0.01
	(10.2)	(0.9)	
55 - 64	0.137	-0.139	-0.06
	(11.5)	(1.0)	
65 +	0.097	-0.145	0.08
	(15.6)	(2.3)	
35 - 65	0.064	-0.106	0.02
	-20.5	(1.4)	