Income Support Programs and Mortgage Outcomes: Evidence from State Variation

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Abstract

The housing crisis beginning in 2008 triggered an array of housing policy proposals, including extensive mortgage modification and even principal reduction programs. But a major driver of problems in the housing market can be attributed to variation in borrower income. Existing policies which augment income for economically distressed households may have the potential to efficiently provide support to households and prevent foreclosures and evictions. Using the 2004 and 2008 panels of the Survey of Income and Program Participation, we test the effects of state level changes in the earned income tax credit and unemployment insurance showing these policies reduce exits from homeownership, as well as lower rates of evictions for renters and foreclosures for owners. The results are suggestive that policymakers should not neglect income supports when considering housing-focused interventions.

1 Introduction

Record numbers of families became homeowners in the 2000s, boosting homeownership rates across traditionally underserved populations [1]. By 2008, that trend was reversed, including an unprecedented flood of mortgage foreclosures. As the

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housing market struggled, vulnerable owner and renter households alike faced dim prospects [6]. Policymakers in the United States responded, although in a rather ad hoc fashion [7]. A series of programs was proposed. In September 2008 the federal government effectively took over Fannie Mae and Freddie Mac in order to stabilize the secondary mortgage market. A month later the Emergency Economic Stabilization Act was signed, later amended by the American Recovery and Reinvestment Act (ARRA) of 2009 to provide direct relief to mortgage borrowers. A series of acronyms was created including HAMP (Home Affordable Mortgage Program), HARP (Home Affordable Refinance Program), HAFA (Home Affordable Foreclosure Alternatives), among others. The design and implementation of these programs has fallen fall short of expectations by most counts [8].

Of course, policy makers also attempted to expand income supports, especially through the ARRA. Burtless [2009] shows that the bulk of the ARRA efforts are in the form of income subsides. At its peak, direct income assistance made up $390 billion, or 67% of all stimulus monies (including a record increase to 99 weeks for unemployment insurance (UI)). Vroman [2010] estimates the UI system supported over 10 million unemployed workers and their families.

Whereas income support policies are not housing assistance policies, per se, they may assist families in retaining current housing or avoiding eviction. Housing policies are too often analyzed and discussed separately from issues of income supports and broader social policy. Yet housing expenses account for as much as half of many families' incomes and consumption. Housing is a long-term fixed investment that has implications for family stability and economic outcomes for families and children (for a discussion see [11]).

Only a few researchers [3, 5, 9, 12] have utilized panel data to analyze questions about the stability of housing. Reid [2004], using data from the 1976 through 1993 waves to the PSID, shows that low-income and minority homeowners are more likely to exit homeownership than white or middle-income homeowners. In addition, Boehm and Schlottman [2004] and Haurin and Rosenthal [2004] also show that low-

income and minority homeowners are more likely to return to renting and less likely to purchase a subsequent home. But these papers and others in this area have not examined the variation of income support policies across time and states which may also have an effect on housing outcomes.

In this paper we attempt to focus in income problems and the role of incomes supports. It appears few studies have addressed how existing (non-housing focused) social policies influence housing stability and thereby affect vulnerable populations. This study provides new information regarding how income policies supports housing outcomes. Income support programs help alleviate adverse consequences of declines in employment and earnings and, thereby, help to stabilize housing. Expanded UI and earned income tax credits (EITC) function in part as housing stability policies and could be used more strategically, and perhaps implemented more efficiently, than mortgage focused programs.

We begin by reviewing the variation we observe in UI and EITC programs, then describe the Survey of Income and Program Participation (SIPP) samples used, the methods and findings.

2　State Policy

2.1　Earned Income Tax Credit

The EITC is a refundable tax credit for low-income working individuals and families. The program was introduced in 1975 and was expanded substantially at the federal level over the 1990s. In 1990, for families with two or more children, the subsidy rate was 14 percent and the maximum credit was $953. In 2000, the subsidy rate increased to 40 percent and the maximum credit was $3,888. In 2010, more than 27 million taxpayers received the EITC, and the EITC payments exceeded $ 60 billion.

The amount of the EITC is determined by the taxpayer's earned income, marital status, and the number of EITC-eligible children in the tax unit. To be eligible for the EITC, taxpayers must have positive earned incomes. The EITC schedule

consists of three different region: phase-in, flat, and phase-out regions (Figure **??**). In a phase-in region, the credit amount increases as earned incomes increase. As earned incomes reach a flat region, taxpayers receive the maximum credit. Then, in a phase-out region, the credit amount gradually decreases to $0. The EITC amounts vary substantially by the number of children in a family. In 2010, the maximum credit is $457 for childless individuals, $3,050 for families with one child, $5,036 for families with two children, and $5,666 for families with three or more children. The maximum benefits of the federal EITC are shown in Table 1.

States also have started their own EITC programs. The number of states with state EITC increased from 5 states in 1990 to 24 states in 2010. The state EITC generosity varies across states substantially. State EITC is a supplement to the federal EITC, typically set as a percentage of the federal EITC. The percentage of the federal EITC ranges from 3.5 percent to 43 percent across states in 2010. State EITC parameters are presented in Table 2. We use the state variation in EITC benefits to identify the effects of the EITC program. To measure the state EITC generosity, we employ the maximum value of the combined federal and state EITC based on the number of children in their family.

2.2   Unemployment Insurance

The UI program provides temporary benefits to eligible workers who become unemployed through no fault of their own. The basic constraints for UI are defined by the federal law, but states have flexibility to set eligibility rules, benefit amounts, and duration of insurance. Information on maximum benefit levels and duration for every 6 month is reported from the US Department of Labor. In 2010, the maximum weekly benefits range from a low of $235 in Mississippi to a high of $629 in Massachusetts.

We exploit the state variation in UI benefits to identify the effects of UI. In our main research, since we examine the probability of exiting homeownership at the monthly level, we use the maximum monthly benefit amount to measure the state

UI generosity. In another analysis about mortgage delinquency and eviction, we use annual information on mortgage payment problem and eviction. The maximum duration of UI receipt as well as monthly benefit levels are likely to affect results. In the analysis about mortgage delinquency and eviction, thus, we measure the state generosity of UI with the maximum total benefit amount defined as the maximum weekly benefit multiplied by the maximum weekly duration of benefit receipt.

3   Data

This paper uses data from the 2004 and 2008 panels of the Survey of Income and Program Participation (SIPP). The SIPP is a nationally representative longitudinal dataset, and collects monthly information on demographics, household composition, and homeownership. Using the information, we examine transitions in housing situations. The SIPP interviews sample members every 4 months (a wave), and follows original sample adults who are interviewed at the first wave. With the relatively short recall period of four months, the SIPP is useful to capture both short-term and long-term transitions in living arrangements. We use currently available waves of the 2008 SIPP panel (Waves 1 through 10), and the sample covers the period from October 2003 to November 2011.

For information on mortgage delinquency and eviction, we use the Adult Well-being Topical Module file of the SIPP. Each households are asked about whether they experienced problems on mortgage payment or eviction over the prior 12 months. The questions about mortgage delinquency and eviction are asked once in the 2004 panel, and twice in the 2008 panel. While our main analysis about exiting homeownership uses monthly information, the analysis about mortgage delinquency and eviction is based on annual information.

Our sample includes individuals who were heads of households in the first period of the sample, and were between 18 and 59 years old during the sample period. We focus on individuals who were observed owning their housing unit in the first

period, and track their housing situation over the sample period. We limit our sample to original sample adults who are interviewed in the first wave, because other individuals will not be followed if they move. Our sample is restricted to individuals employed in the first period, because they are more likely to be affected by EITC and UI policies. Also, to examine the effect of EITC for which relatively low-income families are eligible, we restrict our sample to families with incomes below 300% of the poverty line.[1] Our sample includes 211,895 individual-month observations of 6,163 individuals.

4 Empirical Specification

We first examine the effects of EITC and UI policies on exiting homeownership with a linear probability model. We estimate a model of the form:

$$Y_{ist} = \beta_1 EITC_{ist} + \beta_2 UI_{st} + E_{ist}\alpha + X_{ist}\delta + \gamma_s + \gamma_t + \epsilon_{ist}. \tag{1}$$

The dependent variable is whether a homeowner exits ownership. In the first period of the sample, all individuals in our sample owned the housing unit in which they were living. Y_{ist} has a value of 1, if an individual i exits homeownership and stays in a rental unit or stays for free at time t. To identify the impact of EITC and UI benefits, we use policy variation across states and over time. $EITC_{ist}$ is the maximum value of the combined federal and state EITC in the previous year based on the number of children in their family. UI_{st} is the maximum monthly value of unemployment insurance. E_{ist} is the logarithm of family earned income. We also include controls for demographic characteristics, X_{ist}. Demographic characteristics include age, a dummy variable for race (an indicator for white), dummy variables for education (indicators for less than a high school education and more than a high

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[1]We use monthly family-level poverty thresholds reported in the SIPP. The SIPP poverty thresholds are similar with the official U.S. Bureau of the Census thresholds, but slightly different because the SIPP poverty thresholds use month-to-month household composition [2].

school education, with high school education or GED as the reference category), dummy variables for marital status (indicators for married and cohabiting, with single as the reference category), the number of children in the family, and an indicator for multi-families in the household. To reflect economic conditions across states and over time, we include monthly state unemployment rates.

To control for effects of residential mortgage and financial burdens, we include loan-to-value (LTV) ratios and payment-to-income (PTI) ratios. The SIPP reports mortgage values, home values, and payments for residence in the Asset Module file. We calculate the LTV ratio based on reported values on mortgage and house price, and update the ratio using the change in state level House Price Index (HPI) from the Federal Housing Finance Agency (FHFA).

For LTV ratios, we include indicators for greater than .80 to .90 or less, and greater than .90 to .95 or less, and greater than .95, with .80 or less as the reference category. Payments for residence include monthly mortgage payments for owners, rents for renters, and utility costs. We estimate PTI ratios based on the reported values on those payments and current family incomes. For PTI ratios, we include indicators for greater than .25 to .42 or less, and greater than .42, with .25 or less as the reference category.

SIPP sample members are interviewed every 4 months with information about the preceding 4 months, and they tend to report any transitions between interviews rather than during an interview period. To correct this seam bias, we include a dummy which has a value of 1 if it is an observation at the last month of each interview period.

Next, to consider the endogeneity issue between family incomes and an exit from homeownership, we employ an instrument variable (IV) approach. We use maximum EITC benefits as an instrument variable for family incomes. The value of maximum EITC benefits is expected to have effects on exiting homeownership through family incomes as additional income sources. We use the exogenous variation in family incomes generated by EITC policy changes. We estimate the first stage of the IV

regression:

$$I_{ist} = \eta EITC_{ist} + X_{ist}\zeta + \theta_s + \theta_t + \mu_{ist}, \tag{2}$$

where I_{ist} is the logarithm of family income. The maximum value of the combined federal and state EITC in the previous year based on the number of children in their family ($EITC_{st}$) is used as an instrument. Given the instrument, the second stage of the IV regression is:

$$Y_{ist} = \hat{I_{ist}}\alpha + X_{ist}\delta + \gamma_s + \gamma_t + \epsilon_{ist}, \tag{3}$$

where Y_{ist} is a dependent variable that indicates whether a homeowner exits ownership. $\hat{I_{ist}}$ is the predicted value of the first-stage regression of family incomes on maximum EITC benefits.

Lastly, to study the direct channel through which EITC and UI policies affect the retention of homeownership, we examine the effect of EITC and UI benefits on mortgage payment problem and eviction. Following [10], we use two dependent variables about mortgage delinquency and eviction from the SIPP Topical Module file. To analyze the impacts of UI and EITC for workers and those laid off from work separately, we include interaction terms between benefit levels and a dummy for being unemployed in the previous year. We estimate a model of the form:

$$Z_{ist} = \lambda_1 EITC_{ist} + \lambda_2 UI_{st} + \lambda_3 L_{ist} + \lambda_4 EITC_{ist} * L_{ist} + \lambda_5 UI_{st} * L_{ist} + X_{ist}\phi + \rho_s + \rho_t + \nu_{ist}, \tag{4}$$

where Z_{ist} measures mortgage delinquency or eviction. For mortgage delinquency, Z_{ist} has a value of 1 if a family fails to pay the full amount of mortgage or rent over the previous 12 months. For the analysis of eviction, Z_{ist} equals 1 if a family was evicted from home over the previous 12 months. L_{ist} is an indicator for being laid off from work over the previous 12 months. λ_4 and λ_5 measure the effects of EITC and UI generosity on the probability of having problems on mortgage payment or being

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evicted for workers laid off from work.

5   Results

Table 3 presents descriptive statistics for homeownership status, family characteristics, and economic variables at the end of observation period for each sample member. In the first period of the sample, our sample is restricted to families which owned the housing units in which they were living. Most homeowners retained their homeownership over the three or four year sample period which each panel of the SIPP spans. 4% of the sample has exited their homeownership at the end of observation period. Since we focus on relatively low-income families with incomes below 300 percent of the poverty line, the sample has less advantageous characteristics. More than half of the sample has a high school education or less and 12% of the sample lives with other families in their housing unit. About 12% of the sample is in the highest LTV ratio bracket.

We estimate the linear probability model for the effects fo EITC and UI benefits on exiting homeownership, using ordinary least squares (OLS) regressions and individual fixed effect OLS regressions. We classify the sample into three groups by EITC region in which earned incomes of an individual is at the first period of the sample: phase-in, flat or phase-out, and beyond the phase-out region.

Table 4 shows results from standard OLS regressions for the total sample in Column (1) through (2) and sub-samples classified by EITC region in Columns (3) through (5). The results in Column (1) indicate that the EITC generosity has a negative effect on exiting homeownership. A 1% increase in the EITC benefits is associated with 0.35 percentage point decrease in the probability of exiting homeownership. Based on the coefficient estimate, an estimated elasticity of exiting homeownership with respect to the EITC generosity is -0.206 at the mean of the probability of exiting homeownership, 0.017. Family earned incomes negatively affect the probability that a family's head exits homeownership, and the income elasticity of exiting home-

ownership is -0.194. The coefficient estimate on the UI generosity is not statistically significant at the 10% level. To identify the effect of UI for laid-off workers, we include a dummy for whether a family has unemployed family members and an interaction term between maximum UI benefit level and the dummy for unemployment. The results in Column (2) show that if a family member is unemployed, the probability of exiting homeownership increases. Also, the coefficient estimate on the interaction term indicates that the increased UI generosity has a negative effect on the probability of leaving homeownership especially for families with unemployed members. The coefficient estimates on other control variables generally have the expected signs. Heads who are married or live with cohabiting partners are more likely to retain homeownership relative to single heads. Families with LTV ratios greater than .95 are more likely to leave homeownership. The coefficient estimates on PTI ratios suggest that the higher PTI ratios are negatively related with the probability of exiting homeownership, but not statistically significant at 10% level. The result could be interpreted as suggesting that families with high PTI ratios have other resources to cover payments related to housing.

Columns (3) through (5) of Table 4 show results for sub-samples classified by EITC region where the individual was in the first period. A 1% increase in the maximum EITC level is associated with about 0.6 percentage point decrease in the probability of exiting homeownership in both phase-in and flat or phase-out regions. The effect of EITC benefits on retaining homeownership is much smaller and not statistically significant for the sub-sample beyond the phase-out region. Since they are above the EITC-eligible earned income, we find the weaker impact of EITC generosity.

Table 5 presents results from OLS regressions with individual fixed effects. With the individual fixed effect model, we can control for unobserved time-invariant factors that affect the likelihood of leaving homeownership. The model is identified by variation within each individual over time. The results from the total sample in Column (1) show that an increase in the EITC generosity is associated with a decrease in

the probability of exiting homeownership. With the specification with the individual fixed effect, the coefficient estimate on EITC benefit level is larger than the standard OLS estimate. The estimated elasticity of exiting homeownership with respect to the EITC generosity is -0.553. The sub-sample results presented in Column (2) through (4) show that similarly with standard OLS results in Table 4, the effect of maximum EITC benefit level is larger for the sub-samples with EITC-eligible earned incomes. An increase in family earned incomes is associated with a decreased likelihood of an exit from homeownership. The income elasticity of exiting homeownership is -0.153 for the full sample.

Overall, the OLS estimates for the linear probability model imply that the increased generosity of the EITC helps families to retain homeownership. Maximum UI benefit level has a negative impact on the probability of leaving homeownership especially for families with unemployed members. Also, family earnings are the key factor that decreases the likelihood of exiting homeownership.

Next, we employ an IV approach to control for endogeneity of income. In this specification, we use maximum EITC benefits as an instrument for total family income (including any benefits received) . Table 6 shows the first-stage results of IV regressions for the total sample in Column (1) and sub-samples classified by EITC region in Columns (2) through (4). In all analyses, first-stage F-statistics are large enough to pass the weak identification test by exceeding 10, the critical value for weak instrument [13].

In Table 6, the coefficient estimates of family income on maximum EITC benefits indicate that for full and sub-samples, the increased generosity of EITC raises family incomes. A 1% increase in the EITC generosity leads to a 0.27 to 0.29% increase in family incomes for sub-samples in phase-in, flat, or phase-out regions.

Table 7 shows the second-stage results of IV regressions. The coefficient estimate on income in Column (1) shows that family incomes negatively affect the probability of exiting homeownership. The estimated income elasticity of leaving homeownership is -1.329. WIth the use of the EITC generosity as an IV, this estimated impact of

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family income is mainly from sub-samples with EITC-eligible earnings. Overall, the IV estimates suggest that the increase in maximum EITC benefits reduce the risk of exiting homeownership through the increase in family incomes.

Table 8 presents the estimates for the effect of EITC and UI benefits on mortgage delinquency and eviction. Since the information on mortgage payment problem and eviction is reported once or twice for each individual in the SIPP, the number of observations is smaller. For this analysis, we do not restrict the sample to families below 300% of the poverty line.

In the first two columns, the dependent variable is whether a family has a problem to pay for mortgage or rent over the prior year. The results in Column (1) indicate that the EITC and UI benefits have negative effects on the likelihood of mortgage delinquency, but statistically indistinguishable from zero. In Column (2), we include interaction terms between the generosity of programs and a dummy for being unemployed. The coefficient estimate on EITC benefits is negative and turns to be statistically significant. The result suggests that the EITC generosity reduces mortgage delinquencies especially for workers. The estimated elasticity of mortgage delinquency with respect to the EITC generosity is -0.054 at the mean of delinquency rates, 0.0703. The interaction term between the maximum UI benefits and unemployment status has a negative value, but not statistically significant.

In Column (3) and (4) of Table 8, we examine the impacts of EITC and UI on eviction. The results are similar with estimates for mortgage delinquency. The estimates indicate that EITC benefits negatively affect the probability of eviction. The effect of EITC benefits on eviction is mainly from workers who have not been laid off during the previous year. The estimated elasticity of eviction with respect to the EITC generosity is -0.034 at the mean of delinquency rates, 0.0234.

In Table 9, we restrict our sample to families which exit homeownership during the sample period, and examine the impact of the generosity of EITC and UI programs on eviction. Those families are more likely to suffer from housing problems and face the risk of eviction. In Column (1), the EITC benefits decrease the likelihood of being

evicted. With the inclusion of the interaction terms in Column (2), the estimates show that the increased UI generosity negatively affects the probability of eviction especially for unemployed households. We also classify families by family income as a percentage of the poverty line: below 125%, between 125 and 200%, and above 200% of the poverty line. The estimated effects of EITC and UI benefits on eviction come mainly from families with incomes between 125 and 200% of the poverty line. For the families with incomes between 125 and 200% of the poverty line, the increased EITC generosity reduces the likelihood of eviction, and the increased UI benefits reduce the risk of being evicted for families with unemployed heads.

Conclusions

This paper tests a simple premise: income support programs are potent housing policies. Expanding the budget constraint enables higher levels of consumption for all goods, including housing. While the magnitudes are arguably small, income support policies do help augment total family incomes for low-income households, and that income supports housing stability.

The scale of income support programs should not be diminished, but the amount of monetary support available is not substantial for any one household. The appeal of programs like HARP, HAMP and HAFA is in part due to the very rationed and targeted subsidies provided. In some cases a borrower may receive lower interest rates or loan principal forgiveness which has large direct economic savings over a period of 5 years or more. In the end, policymakers may have struck a balance between expanded income support in ARRA and more targeted mortgage programs. The rhetoric of policy makers often treated issues of income supports in entirely different discussions from those of housing supports, however. These results show that income supports can have impacts on housing outcomes and that policymakers may want to re-consider these strategies as part of a comprehensive response to the future housing crises.

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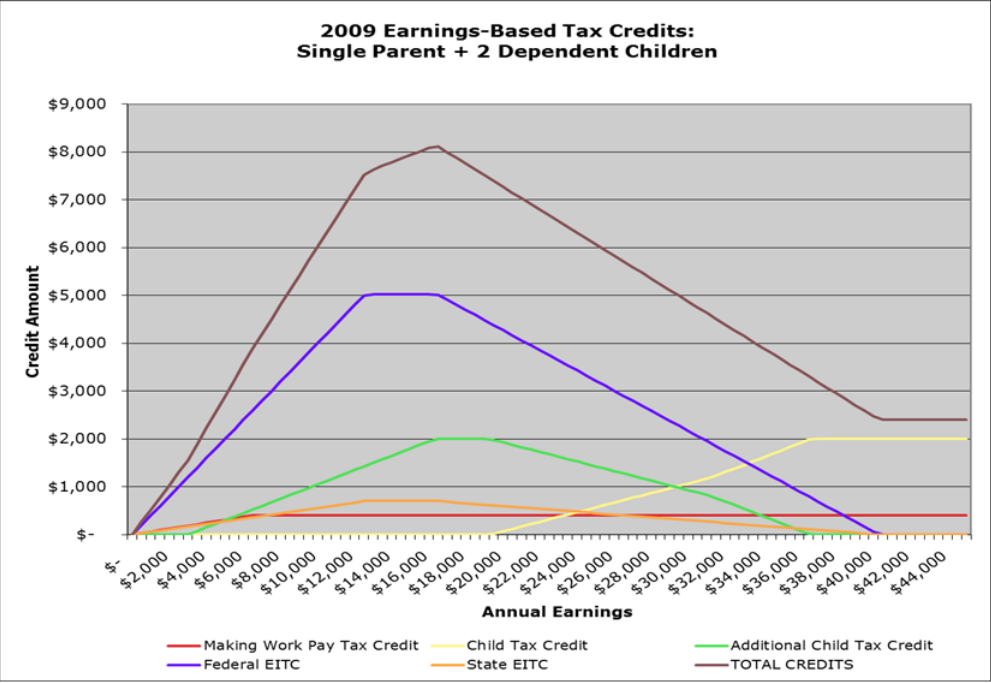
Figure 1: Tax Credits by Earnings

Table 1: Earned Income Tax Credit Parameters, 2003-2010

Calendar year	Maximum Credit ($ unadjusted for inflation)	Maximum Credit (2009 $)
2003		
No children	382	445
One child	2547	2969
Two children	4204	4901
2004		
No children	390	443
One child	2604	2957
Two children	4300	4883
2005		
No children	399	439
One child	2662	2924
Two children	4400	4833
2006		
No children	412	438
One child	2747	2923
Two children	4536	4826
2007		
No children	428	442
One child	2853	2952
Two children	4716	4880
2008		
No children	438	436
One child	2917	2906
Two children	4824	4806
2009		
No children	457	457
One child	3043	3043
Two children	5028	5028
Three children	5657	5657
2010		
No children	457	449
One child	3050	3000
Two children	5036	4953
Three children	5666	5572

Table 2: State Earned Income Tax Credits Based on the Federal EITC (Percentage of Federal Credit)

Tax Year	DE	DC	IL	IN	IA	KS	LA	ME	MD	MA	MI	MN	NE	NJ	NM	NY	NC	OK	OR	RI	VT	VA	WA	WI 1	2	3+
2003		25	5		6.5	15		4.92	18	15		33		20		30		5	5	25	32			4	14	43
2004		25	5	6	6.5	15		4.92	20	15		33		20		30		5	5	25	32			4	14	43
2005	20	35	5	6	6.5	15		5	20	15		33	8	20		30		5	5	25	32	20		4	14	43
2006	20	35	5	6	6.5	15		5	20	15		33	8	20		30		5	5	25	32	20		4	14	43
2007	20	35	5	6	7	17		5	20	15	10	33	8	20	8	30		5	5	25	32	20		4	14	43
2008	20	40	5	6	7	17	3.5	5	25	15	10	33	10	22.5	10	30	3.5	5	6	25	32	20		4	14	43
2009	20	40	5	9	7	17	3.5	5	25	15	20	33	10	25	10	30	5	5	6	25	32	20		4	14	43
2010	20	40	5	9	7	18	3.5	5	25	15	20	34	10	20	10	30	5	5	6	25	32	20	10	4	14	43

Table 3: Descriptive statistics at the end of obervation period

	Total	
Not owning	0.040	(0.197)
[for the whole sample period:	0.017	(0.128)]
Age	43.68	(8.829)
White	0.654	(0.476)
High school education	0.442	(0.497)
More than high school education	0.451	(0.498)
Married	0.612	(0.487)
Cohabiting	0.049	(0.215)
Number of children	1.201	(1.306)
Multi-family in the HH	0.122	(0.328)
LTV>.80 and <=.90	0.088	(0.284)
LTV>.90 and <=.95	0.033	(0.178)
LTV>.95	0.122	(0.328)
PTI>.25 and <=.42	0.253	(0.435)
PTI>.42	0.250	(0.433)
State unemployment rate	6.548	(2.423)
log(Family income)	7.873	(1.648)
Number of Individuals	6163	

Table 4: Probability of exiting homeownership using OLS

Dependent Variable:	Total	Total	Phase-in	Phase-out	Beyond
Not owning	(1)	(2)	(3)	(4)	(5)
log(Maximum EITC)	-0.0035**	-0.0038**	-0.0060*	-0.0057*	-0.0008
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
log(Maximum UI)	0.0189	0.0229	-0.0107	0.0202	0.0394
	(0.017)	(0.017)	(0.047)	(0.024)	(0.029)
Unemployed		0.1346**			
		(0.068)			
Unemployed*log(Max UI)		-0.0172*			
		(0.009)			
log(Family earned income)	-0.0033***	-0.0028***	-0.0035***	-0.0037***	-0.0026**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age	-0.0008***	-0.0009***	-0.0013***	-0.0010***	-0.0005**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
White	-0.0034	-0.0029	0.0019	-0.0018	-0.0050
	(0.003)	(0.003)	(0.007)	(0.004)	(0.005)
Less than high school	-0.0007	-0.0017	-0.0056	-0.0024	0.0030
	(0.004)	(0.004)	(0.007)	(0.006)	(0.007)
More than high school	0.0002	0.0004	-0.0027	-0.0012	0.0020
	(0.002)	(0.002)	(0.005)	(0.003)	(0.004)
Married	-0.0092***	-0.0114***	-0.0223***	-0.0046	-0.0095**
	(0.003)	(0.003)	(0.007)	(0.004)	(0.005)
Cohabiting	-0.0102**	-0.0097**	-0.0458**	-0.0082	-0.0017
	(0.005)	(0.005)	(0.019)	(0.007)	(0.007)
Number of children	-0.0005	-0.0004	-0.0013	-0.0006	-0.0009
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Multi-families in the HH	-0.0030	-0.0032	0.0155	-0.0057	-0.0063
	(0.004)	(0.004)	(0.015)	(0.005)	(0.005)
LTV>.80 and <=.90	-0.0013	-0.0013	0.0090	-0.0110***	0.0026
	(0.003)	(0.003)	(0.009)	(0.004)	(0.005)
LTV>.90 and<=.95	-0.0012	-0.0013	-0.0028	-0.0014	-0.0009
	(0.003)	(0.003)	(0.008)	(0.006)	(0.005)
LTV>.95	0.0110**	0.0110**	0.0235*	0.0025	0.0141*
	(0.004)	(0.004)	(0.013)	(0.005)	(0.008)
PTI>.25 and <=.42	-0.0029	-0.0032	-0.0078*	0.0037	-0.0060*
	(0.002)	(0.002)	(0.004)	(0.003)	(0.003)
PTI>.42	-0.0025	-0.0028	-0.0112*	0.0052	-0.0056
	(0.003)	(0.003)	(0.006)	(0.004)	(0.005)
State unemployment rate	-0.0003	-0.0004	-0.0004	-0.0010	0.0003
	(0.001)	(0.001)	(0.003)	(0.001)	(0.002)
Observations	211,895	211,895	41,334	84,538	86,023
R-squared	0.026	0.027	0.057	0.033	0.030

Notes: Robust standard errors are given in parentheses. Standard errors are clustered at the individual level. * p<0.10, **p<0.05, and ***p<0.01

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Table 5: Probability of exiting homeownership using fixed effect OLS

Dependent Variable:	Total	Phase-in	Phase-out	Beyond
Not owning	(1)	(2)	(3)	(4)
log(Maximum EITC amount)	-0.0094**	-0.0143*	-0.0105*	-0.0039
	(0.004)	(0.007)	(0.006)	(0.006)
log(Maximum UI amount)	-0.0096	-0.0236	0.0409	-0.0645
	(0.032)	(0.049)	(0.049)	(0.055)
log(Family earned income)	-0.0026***	-0.0020**	-0.0035***	-0.0018*
	(0.001)	(0.001)	(0.001)	(0.001)
Less than high school education	-0.0357**	-0.0499	-0.0517*	0.0044
	(0.018)	(0.044)	(0.029)	(0.013)
More than high school education	-0.0149	-0.0022	-0.0309	0.0077
	(0.022)	(0.029)	(0.021)	(0.062)
Married	-0.0207	-0.0515	-0.0031	-0.0311
	(0.013)	(0.042)	(0.017)	(0.021)
Cohabiting	-0.0132	-0.0406	0.0134	-0.0238
	(0.016)	(0.044)	(0.020)	(0.025)
Number of children	-0.0006	0.0024	0.0024	-0.0065
	(0.003)	(0.007)	(0.005)	(0.007)
Multi-families in the HH	-0.0036	-0.0107	0.0003	-0.0088
	(0.008)	(0.013)	(0.015)	(0.011)
LTV>.80 and <=.90	-0.0076	0.0009	-0.0043	-0.0152*
	(0.005)	(0.013)	(0.007)	(0.009)
LTV>.90 and <=.95	-0.0136*	-0.0061	0.0017	-0.0295**
	(0.007)	(0.016)	(0.010)	(0.012)
LTV>.95	-0.0117	-0.0016	-0.0038	-0.0223
	(0.009)	(0.023)	(0.012)	(0.015)
PTI>.25 and <=.42	-0.0027	-0.0027	0.0023	-0.0074*
	(0.002)	(0.004)	(0.004)	(0.004)
PTI>.42	-0.0069**	-0.0064	-0.0062	-0.0081
	(0.003)	(0.005)	(0.006)	(0.006)
State unemployment rate	-0.0009	-0.0009	-0.0021	-0.0000
	(0.001)	(0.002)	(0.002)	(0.002)
Observations	211,895	41,334	84,538	86,023
R-squared	0.108	0.159	0.122	0.138
Number of individuals	6,237	1,284	2,464	2,489

Notes: Robust standard errors are given in parentheses. * p<0.10, **p<0.05, and ***p<0.01

Table 6: First-stage results of IV regressions

Dependent Variable:	Total	Phase-in	Phase-out	Beyond
log(Family Income)	(1)	(2)	(3)	(4)
log(Maximum EITC amount)	0.1939***	0.2697***	0.2863***	0.2155***
	(0.018)	(0.064)	(0.028)	(0.021)
Age	0.0058***	0.0113*	0.0088***	0.0020
	(0.002)	(0.006)	(0.002)	(0.002)
White	0.0338	0.1032	0.0798**	0.0139
	(0.031)	(0.108)	(0.037)	(0.042)
Less than high school education	-0.2045***	-0.3790**	-0.1244***	-0.1616***
	(0.044)	(0.179)	(0.043)	(0.062)
More than high school education	0.0809***	0.1988**	0.0715**	0.0772**
	(0.027)	(0.086)	(0.033)	(0.036)
Married	0.5973***	1.1055***	0.5815***	0.5045***
	(0.029)	(0.103)	(0.033)	(0.037)
Cohabiting	-0.2128***	-0.2542	-0.0871	-0.1241
	(0.079)	(0.271)	(0.118)	(0.091)
Number of children	-0.0230*	-0.0188	-0.0590***	-0.0116
	(0.013)	(0.053)	(0.014)	(0.016)
Multi-families in the HH	0.0660	-0.0713	-0.0242	0.0729
	(0.044)	(0.159)	(0.054)	(0.060)
LTV>.80 and <=.90	0.1228***	0.1387	0.0612*	0.0942**
	(0.034)	(0.126)	(0.035)	(0.042)
LTV>.90 and <=.95	0.1319***	0.2632*	0.0640	0.0600
	(0.044)	(0.136)	(0.055)	(0.064)
LTV>.95	0.0569	0.1979	0.0091	0.0079
	(0.039)	(0.135)	(0.047)	(0.047)
State unemployment rate	0.0003	0.0528	-0.0159	0.0075
	(0.013)	(0.042)	(0.017)	(0.017)
Observations	214,533	42,618	85,086	86,829

Notes: Robust standard errors are given in parentheses. Standard errors are clustered at the individual level. * p<0.10, **p<0.05, and ***p<0.01

Table 7: Second-stage results of IV regressions

Dependent Variable:	Total	Phase-in	Phase-out	Beyond
Not owning	(1)	(2)	(3)	(4)
log(Family income)	-0.0226***	-0.0253**	-0.0290**	-0.0067
	(0.008)	(0.013)	(0.012)	(0.012)
Age	-0.0007***	-0.0009**	-0.0008***	-0.0005*
	(0.000)	(0.000)	(0.000)	(0.000)
White	-0.0026	0.0039	0.0001	-0.0045
	(0.003)	(0.008)	(0.004)	(0.005)
Less than high school education	-0.0048	-0.0141	-0.0054	0.0020
	(0.005)	(0.009)	(0.007)	(0.008)
More than high school education	0.0020	0.0017	0.0014	0.0023
	(0.002)	(0.005)	(0.004)	(0.004)
Married	0.0020	0.0028	0.0078	-0.0070
	(0.006)	(0.016)	(0.008)	(0.009)
Cohabiting	-0.0142***	-0.0475**	-0.0118	-0.0022
	(0.005)	(0.021)	(0.007)	(0.007)
Number of children	-0.0008	-0.0014	-0.0016	-0.0009
	(0.001)	(0.002)	(0.002)	(0.002)
Multi-families in the HH	-0.0019	0.0138	-0.0068	-0.0060
	(0.004)	(0.016)	(0.005)	(0.005)
LTV>.80 and <=.90	0.0005	0.0104	-0.0091**	0.0024
	(0.003)	(0.009)	(0.004)	(0.006)
LTV>.90 and <=.95	0.0008	0.0017	0.0008	-0.0013
	(0.004)	(0.009)	(0.006)	(0.005)
LTV>.95	0.0114**	0.0254**	0.0034	0.0131*
	(0.004)	(0.012)	(0.005)	(0.007)
State unemployment rate	-0.0005	0.0010	-0.0017	-0.0003
	(0.001)	(0.003)	(0.002)	(0.002)
Observations	214,533	42,618	85,086	86,829

Notes: Robust standard errors are given in parentheses. Standard errors are clustered at the individual level. * p<0.10, **p<0.05, and ***p<0.01

Table 8: Mortgage Delinquency and Eviction

Dependent Variable:	Delinquency	Delinquency	Eviction	Eviction
	(1)	(2)	(3)	(4)
Unemployed over the prior 12 months	0.0788***	0.3032	0.0028**	0.0696
	(0.006)	(0.238)	(0.001)	(0.059)
log(Max UI amounts)	-0.0100	-0.0074	-0.0030	-0.0024
	(0.025)	(0.025)	(0.004)	(0.004)
log(Max EITC amounts)	-0.0030	-0.0038*	-0.0008**	-0.0008**
	(0.002)	(0.002)	(0.000)	(0.000)
Unemployed * log(Max UI)		-0.0313		-0.0066
		(0.025)		(0.006)
Unemployed * log(Max EITC)		0.0077		-0.0007
		(0.006)		(0.001)
Age	-0.0006***	-0.0006***	0.0000	0.0000
	(0.000)	(0.000)	(0.000)	(0.000)
White	-0.0396***	-0.0396***	-0.0026***	-0.0026***
	(0.004)	(0.004)	(0.001)	(0.001)
Less than high school education	0.0144	0.0143	0.0036*	0.0036*
	(0.009)	(0.009)	(0.002)	(0.002)
More than high school education	-0.0279***	-0.0279***	-0.0004	-0.0004
	(0.003)	(0.003)	(0.001)	(0.001)
Married	-0.0323***	-0.0322***	-0.0010*	-0.0010*
	(0.004)	(0.004)	(0.001)	(0.001)
Cohabiting	-0.0126	-0.0128	0.0048*	0.0048*
	(0.011)	(0.011)	(0.003)	(0.003)
Number of children	0.0150***	0.0149***	0.0007*	0.0007*
	(0.002)	(0.002)	(0.000)	(0.000)
Multi-family in the HH	0.0219***	0.0220***	0.0000	0.0000
	(0.008)	(0.008)	(0.001)	(0.001)
State unemployment rate	0.0091***	0.0090***	0.0010***	0.0010***
	(0.002)	(0.002)	(0.000)	(0.000)
Total Observations	33,219	33,219	33,219	33,219
R-squared	0.039	0.040	0.006	0.006

Notes: Robust standard errors are given in parentheses. Standard errors are clustered at the individual level. * p<0.10, **p<0.05, and ***p<0.01

Table 9: Eviction by Income Level

Dependent Variable:	Total		0-125%		125-200%		200+%	
Eviction	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployed over the prior 12 months	0.0081	1.0593**	-0.0003	1.4611	0.0106	3.9498*	0.0111	0.4188
	(0.009)	(0.432)	(0.023)	(1.164)	(0.033)	(2.276)	(0.011)	(0.327)
log(Max UI amounts)	-0.0148	-0.0027	-0.1577	-0.0977	0.0062	0.2029	-0.0047	-0.0059
	(0.043)	(0.043)	(0.149)	(0.155)	(0.172)	(0.209)	(0.050)	(0.051)
log(Max EITC amounts)	-0.0135*	-0.0100	0.0132	0.0249	-0.0567**	-0.0530*	-0.0072	-0.0048
	(0.007)	(0.007)	(0.021)	(0.029)	(0.028)	(0.028)	(0.008)	(0.008)
Unemployed * log(Max UI)		-0.0985**		-0.1374		-0.3970*		-0.0328
		(0.044)		(0.124)		(0.237)		(0.030)
Unemployed * log(Max EITC)		-0.0177		-0.0248		-0.0373		-0.0129
		(0.013)		(0.029)		(0.039)		(0.016)
Observations	1,670	1,670	211	211	222	222	1,237	1,237
R-squared	0.065	0.071	0.299	0.305	0.228	0.265	0.080	0.081

Notes: Robust standard errors are given in parentheses. Standard errors are clustered at the individual level. * $p<0.10$, **$p<0.05$, and ***$p<0.01$