

Duration of Rent Burden as a Measure of Need

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Abstract

A number of measures show that very-low-income households with a longer duration of severe rent burdens are more disadvantaged than other very-low-income renters who experience severe rent burdens for a shorter, or no, time. The rate of exit from severe rent burdened status is 56 percent in the first year of a spell, but falls to 32 percent in the second and later years. Renters with severe rent burdens in all years of a 3-year period were substantially more disadvantaged, according to a number of indicators, than those with fewer or no years of severe rent burdens. Very-low-income households with 1 or 2 years of severe rent burdens sometimes fell between those with 0 and 3 years, but by many measures they were quite similar to those with no rent burden in any of the three years, and by a few measures were actually less disadvantaged than very-low-income renters without any time in rent-burdened status. Various measures of disadvantage, such as nonemployment and the receipt of Supplemental Security Income (SSI) predict the persistence of rent burdens. Hence, targeting those with several years of severe rent burdens would target a needier population than targeting those with only a single rent-burdened year. At the same time, there are also some reasons not to direct assistance to the most needy population.

Introduction: 2003 Worst Case Needs Report

For the first time, the U.S. Department of Housing and Urban Development's (HUD's) *Report on the Significant Need for Affordable Housing in 2003* (formerly titled the *Worst Case Needs* report) included a discussion of rent burden dynamics. The main finding was that the rent-burdened population undergoes considerable turnover from year to year. HUD reported that among very-low-income renters who reported a severe rent burden (a rent burden above 50 percent of income) in 2001,

only about half (47.1 percent) continued to have a severe rent burden in 2002 (Martin, Susin, and Steffen, 2005: exhibit 3–10). It should be noted, though, that many renters may have continued to have affordability problems, particularly those whose rent burdens fell only modestly: to 40 to 50 percent of income (10.2 percent) or to 30 to 40 percent of income (12.7 percent). The rest ended their severely rent-burdened status by receiving housing assistance (8.5 percent), moving to owner-occupied housing (6.4 percent), or having their rent burden fall below 30 percent of income (15.2 percent).¹

The 2003 report cautioned against reaching firm conclusions because of the limited earlier literature on rent burden dynamics and because there were some indications of reporting problems regarding rent. Measurement error, in this case misclassification of severe rent burden status, often leads to larger problems in longitudinal analyses than in cross-sectional studies. The second and third sections of this article describe the data, revisit these data quality issues, and discuss the steps taken to minimize these problems.

To a large extent, the motivation for examining this measure is to identify a group of especially needy households to receive assisted housing. In addition, HUD considers those with severe rent burdens to have “worst case needs,” its traditional measure of the need for housing assistance. Although other groups, such as those living in substandard housing, are also considered to have worst case needs, the severely rent burdened make up the large majority. The fourth section of this article discusses the preferences and policies HUD uses to determine who will receive subsidized housing, one element of which is having a severe rent burden.

The fifth and sixth sections present new results on the dynamics of rent burdens, adding an additional year of data to the year-to-year transition analysis and presenting pseudo-hazard rates (the rate of exit from severe rent burden status after 1 year and after 2 or more years). The seventh and eighth sections present exploratory analyses describing the characteristics of those with persistent rent burdens, with the seventh section presenting summary statistics and t-tests and the eighth section providing a multivariate analysis.

The article concludes with a summary that includes a discussion of the logic behind targeting those with long-term rent burdens and a discussion of the potential uses of the logit models for targeting purposes.

Data Set

This article examines rent burdens in a national panel data set, the 2001 Survey of Income and Program Participation (SIPP). The SIPP follows approximately 40,000 households for 3 years, covering the period from February 2001 through January 2004. Households in the SIPP are interviewed every 4 months and are asked about their housing costs at the end of each year.²

The unit of analysis is the household, which is not easy to define in a longitudinal study because people can move in and out of a household over time. Here, we track the 2001 householder (a household member listed on the lease or mortgage) and consider households to consist of the people living in the same housing unit as this person, which can change over time. For example, in 2001 the household may consist of a mother and child, and this mother will be tracked for 3 years.

In 2001, household income will be the total income received by these two people. If the mother marries and moves into her husband's house in 2002, we continue to track the mother as the householder, and the 2002 household income will include the husband's income.

Much of the analysis here examines households that were renters, unsubsidized, and very low income and also had severe rent burdens. Very low income is defined by HUD as less than 50 percent of area median income (AMI). The SIPP does not identify areas (typically metropolitan statistical areas) as small as those used by HUD, so income limits defined by HUD for the metropolitan and nonmetropolitan portion of each state were used. A severe rent burden occurs when gross rent is more than 50 percent of income.

The measure of housing costs used here is gross rent, meaning contract rent plus utility costs. Utility payments reported in the SIPP tend to be substantially higher than those in the American Housing Survey (AHS). The AHS is likely to be more accurate due to its much more detailed set of questions about utility costs and its much more elaborate editing procedures. For this reason, and in order to improve the comparability with the rest of the *Worst Case Needs* report, which is mainly based on the AHS, SIPP utility costs are adjusted to be consistent with the AHS. To make this adjustment, nine percentiles of utility amounts were calculated for each of nine census divisions in 2001.³ Then, the AHS percentiles were regressed on the SIPP percentiles. Finally, the SIPP utility amounts were replaced with the predictions from this regression. Where the regression procedure predicted a negative amount, that amount was replaced with 0.⁴

Cleaning Rent Data

The 2003 *Worst Case Needs* report raised concerns about the measurement of rent in the SIPP. In particular, the severe rent burden exit rate due to decreased rent seemed implausibly high. The first two data columns of exhibit 1 display exit rates, classified into the various ways in which rent burdens can be reduced. Of unsubsidized, very-low-income households with severe rent burdens in 2001, 13.3 percent ended their rent burdens 1 year later because of a decrease in rent. The rate of rent exits is about two-thirds the rate of income exits. Although this finding is consistent with Hill (2003), who also found a large role of rent changes in driving exits from severe rent burdens, it seems implausible. Furthermore, the exhibit also shows that about two-thirds of rent exits occurred without the householder moving. This circumstance is possible, even without the landlord explicitly reducing the rent, because gross rent includes utilities, but again it seems implausibly high.

A number of steps were taken to address this measurement problem. First, households in which rent was measured poorly were dropped. Specifically, these dropped households included those with rent not reported in any of the 3 years. Households that reported, inconsistently, that they paid a rent of \$0 but did not report paying "no cash rent" were treated as nonreporters. Also dropped were households that reported that the rent was shared among the residents (for example, roommates splitting the rent). Examining these observations indicated that the survey respondents often seemed confused about whether to report their share of the rent or the total rent for the housing unit. Among these cases, it was typical for rent to vary widely from year to year. It did not seem possible to design a procedure to correct these misreports, so all households that reported sharing the rent in any of the 3 years were dropped.

Exhibit 1**2002 and 2003 Status of Renter Householders With Very Low Incomes and Severe Rent Burdens in 2001**

	Consistent With 2003 Report (%)		Revised ^a (%)	
	2002	2003	2002	2003
Remained severely rent burdened (burden > 50%)	49.6	41.2	53.3	45.2
Exited from severe rent burden status	50.5	58.9	46.7	54.8
Reason for exit				
Rent decreased	13.3	13.9	8.1	10.0
Moved	4.2	5.5	2.8	3.9
Stayed	9.1	8.4	5.3	6.1
Income increased	19.7	22.2	23.3	23.7
Combination of rent and income	1.9	2.3	1.7	2.3
Assisted	7.2	7.4	6.8	7.3
In owner-occupied housing	7.1	11.7	5.7	10.0
Zero or negative income	1.2	1.4	1.3	1.5
Total	100.0	100.0	100.0	100.0
Households (in thousands)	3,443	3,443	2,791	2,791

^a Longitudinal imputation for rent and dropping those who shared rent with other household members or had rent imputed for all 3 years.

Notes: Sample consists of renter householders with very low income and severe rent burdens (rent greater than 50% of income) in 2001. Weighted counts should be considered underestimates since they are about 600,000 households below the more reliable Survey of Income and Program Participation cross-sectional counts (see text).

Second, households where rent was imputed in some years but not in others can experience large fluctuations in measured rent because the imputations do not take into account rent in the surrounding years. To correct for these fluctuations, a simple longitudinal imputation procedure was adopted for the purposes of this study. When rent was not reported, it was imputed based on reported rent in the surrounding years and inflation. For example, if rent was reported to be \$400 in 2001 but was not reported in 2002, the Census Bureau's imputed value for 2002 was replaced by $\$400 \times 1.016$ to reflect an inflation rate of 1.6 percent. Although this procedure probably creates rents that are excessively smooth, this stability seems likely to be closer to the truth than the excessively variable rents created by independent cross-sectional imputations.

The second two data columns of exhibit 1 indicate that after editing the data in this manner, the percentage of households that eliminated their 2001 severe rent burdens because of a decrease in rent in 2002 fell from 13.3 to 8.1 percent. The frequency of rent exits that occurred without the household moving fell proportionally, from 9.1 to 5.3 percent. The percentage of households remaining rent burdened from 2001 to 2002 rose from 49.6 to 53.3 percent. The weighted sample size fell from 3,443,000 households to 2,791,000, meaning that 19 percent of the sample was dropped. Overall, even after a substantial reduction in the sample, outcomes other than rent exits change only modestly, suggesting that misclassification errors do not bias the results too much.

It is important to keep in mind that the weighted counts reported in this study are underestimates of the true population, because households that shared rent or never reported it were dropped from this analysis. In addition, the full-sample estimate of 3,443,000 very-low-income households is itself considerably lower than the cross-sectional estimate of 4,049,000 households (not reported in the exhibits). Part of this discrepancy can be attributed to the fact that some householders leave the sample universe (for example, by death, leaving the country, or becoming institutionalized) over the 3 years of the SIPP survey. These cases are counted in the cross-sectional estimate but not in the longitudinal estimate presented in exhibit 1. Nonetheless, much of this discrepancy is probably caused by problems with the longitudinal weights. These weights are intended to adjust for sample attrition, inflating the smaller sample present in all 3 years to add up to the same totals as the larger cross-sectional samples. These are general-purpose weights, however, designed to apply to the whole sample, and they may well not apply to the small subset of the whole sample analyzed here. That is, the weights adjust for the probability of attrition, but this probability may be considerably different for very-low-income, unsubsidized renters than for the rest of the sample. Hence, this study emphasizes percentages and regression coefficients rather than weighted counts.⁵

Priorities for Housing Assistance

Assisted housing is not an entitlement; only about 4.3 million HUD-subsidized units are available. Housing assistance is means tested, but the income limits are high enough to cover several times more households than can actually be provided with subsidized housing. In the absence of binding income limits, housing assistance is rationed through a complicated set of preferences, waiting lists, and less formal mechanisms.

Until 1996, HUD gave priority (called “federal preferences”) to households paying more than half their income in rent; those who had been involuntarily displaced, and those living in substandard housing, including those living in homeless shelters. Since 1996, federal preferences have been dropped, and local authorities are now free to adopt their own criteria for choosing among eligible applicants, subject only to federal income limits. In the voucher program, newly assisted households must have incomes below 50 percent of area median income (AMI), and local public housing authorities are required to allocate 75 percent of subsidies to households with incomes below 30 percent of AMI (roughly the poverty level). The other assisted housing programs have less stringent income limits: 40 percent of newly available units must be allocated to households with incomes below 30 percent of AMI, and none can be allocated to all households with incomes above 80 percent of AMI.

In 1999, 40 percent of public housing authorities, controlling 50 percent of housing assistance, continued to use the old federal preferences, usually in combination with other preferences. Other typical preferences include the elderly, disabled people, victims of domestic violence, and enrollees in self-sufficiency programs (often job training). Another 15 to 29 percent (depending on the program) of public housing authorities used only income limits and a waiting list administered on a first-come, first-served basis to allocate housing assistance. The remainder used some other need-based preferences but not the former federal preferences (Devine et al., 2000). In almost all cases, even households that qualify for a preference receive housing assistance only after time on a waiting list.

Finally, two other less formal screening mechanisms play a role. First, applicants must be familiar enough with HUD programs to apply for them and put their name on a waiting list, and they must be available when their names rise to the top of the list. Recipients of other aid programs, for example, are likely to be more familiar with subsidized housing programs. Second, many recipients of housing assistance receive vouchers that can be used to pay for rent in the private market. These households must find landlords willing to rent to them within several months or else give up their voucher. One study found that more disadvantaged households are somewhat less likely to succeed in finding housing through this program (Shroder, 2002).

Persistence of Rent Burdens

Reasons for Ending Rent Burden Status

The first row of exhibit 2 presents the 2-year experiences of unsubsidized very-low-income renters with severe rent burdens in 2001. One year later, there was significant turnover, and only 53.3 percent of this group still had a severe rent burden. The most common method of exit was an increase in household income, with 23.3 percent—about half of leavers—increasing their incomes by enough to eliminate their severe rent burdens, even if their rent stayed the same.

Even after the data cleaning discussed above, 8.1 percent of the severely rent burdened left that status due to a fall in gross rent (including utility payments). That is, their rent fell by enough to put them below the 50-percent threshold, even if their income had remained the same.⁶

The rest ended their rent burden status for other reasons, including because they began receiving housing assistance (6.8 percent), they bought their own home (4.1 percent), they moved into someone else's owner-occupied housing (1.6 percent), or their incomes fell to \$0 or less (1.3 percent).⁷

The second row of exhibit 2 presents the 3-year experiences of the same group (unsubsidized, very-low-income renters with severe rent burdens in 2001). In 2003, 45.2 percent still had severe rent burdens, although some may have temporarily left that status in 2002. The breakdown into the other reasons for exiting from severe rent burden status was generally similar to the 2001/2002 comparisons, with the main exception being that the percentage of those who own their own homes doubled in 2003.

It is also notable that the percentage with housing assistance increased only slightly from 2002 to 2003. It would be naive to interpret this comparison as the difference between those in the initial stages of a rent burden spell and those in the later stages. It could be, for example, that the typical person with a rent burden in 2001 was in the fifth year of a spell, while the typical person who remained rent burdened 1 year later was in the sixth year.

Exhibit 2

Type of Exit From Severe Rent Burden Status in Specified Year Conditional on Status in Earlier Year

Outcome Year	Remained Severely Rent Burdened	Exited From Severe Rent Burden	Type of Exit From Severe Rent Burden Status						Households (1,000s)	
			Rent Decreased	Income Increased	Combination of Rent and Income	Assisted Owner ^a	In Owner-Occupied Housing ^b	Zero or Negative Income		
Severe rent burden in 2001	53.3	46.7	8.1	23.3	1.7	6.8	4.1	1.6	1.3	2,791
Severe rent burden in 2001	45.2	54.8	10.0	23.7	2.3	7.3	8.2	1.7	1.5	2,791
Pseudo hazard rates										
1 year with a severe rent burden (rent burden 50% or less in 2001; severe rent burden in 2002)	44.3	55.8	7.3	34.4	2.6	3.0	4.5	0.0	4.0	651
2 or more years with severe rent burden (severe rent burden in both 2001 and 2002)	67.8	32.3	5.2	14.3	1.2	5.5	4.1	0.6	1.4	1,489

^a Householder or spouse owns housing unit.

^b Someone else's owner-occupied housing unit.

Notes: All sample members are unassisted very-low-income renters in the base year and are renters in 2001. Sample and data are revised as in exhibit 1.

Pseudo-Hazard Rates Describing the Reason for Exit From Rent Burden Status

The bottom panel of exhibit 2 presents a simple analysis of rent burden spells, rather than annual transitions, in the form of “pseudo” hazard rates. The first row is a true hazard, while the second is not. The first row presents the 2-year experiences of those who first became rent burdened in 2002. That is, they were not rent burdened in 2001 (although they had very low incomes). Of this group, 44.3 percent continued to be rent burdened into the second year of their spell (a 55.7-percent hazard rate). The second row presents the 2-year experiences of those with severe rent burdens in both 2001 and 2002. This is not a true hazard rate because we know only that this group had 2 or more years with high rent burdens; it is likely that many had been rent burdened for a number of years. One year later, 67.8 percent of this group still had severe rent burdens, meaning the hazard rate (more exactly, the pseudo-hazard rate) had fallen to 32.2 percent.

The natural interpretation of this falling hazard rate is that the pool of those who begin rent burden spells is heterogeneous. That is, certain types of people are prone to short spells (perhaps those with unstable incomes). After a year, most of these types leave, and the pool of those with severe rent burdens consists mainly of those with more severe disabilities (perhaps those with lower permanent incomes). This heterogeneity suggests that it may be possible to determine at the beginning of a spell who will be likely to have a long-term rent burden.

The usual alternative interpretation of falling hazard rates is duration dependence, meaning that something about the spell itself causes the exit rate to fall. Here, however, no compelling theory suggests duration dependence; perhaps many years of rent burdens use up savings, making it harder to find a job or put together a security payment for a cheaper apartment. In addition, these figures are not adjusted for background characteristics, so plenty of heterogeneity remains to explain differing hazard rates.

Comparing the reasons for exits after the first year and exits after 2 or more years is also instructive. Here, we see that income exits are much more common after the 1st year (34.4 percent of those with 1 year of severe rent burden) than after 2 or more years (14.3 percent). Exit rates to homeownership are about the same. In combination with the finding from the top panel of exits to ownership doubling after a second year (see exhibit 2), this finding suggests that severely rent-burdened, very-low-income renters do not become homeowners quickly after an increase in income, but instead wait 1 year or more to purchase homes.

Two- and Three-Year Outcomes for the Severely Rent Burdened and Other Groups

The top panel of exhibit 3 shows outcomes in 2002 for unsubsidized, very-low-income renters in 2001, broken down by rent burden status. The middle panel presents 2003 outcomes for the same groups of renters in 2001. Three findings are worth noting. First, 17.4 percent of those with moderate rent burdens of 30 to 50 percent in 2001 had severe rent burdens 1 year later. About the same percentage had severe rent burdens 2 years later. Because 50 percent of income is an arbitrary cutoff, it is likely that some of these householders had quite similar characteristics as those with 2 consecutive years of rent burdens. That is, focusing on multiple years of rent burdens as a measure of need (or any sharp cutoff) is likely to miss those close to the cutoff, who may be just as needy.

Exhibit 3**Rent Burden Outcome in Specified Year Conditional on Status in Earlier Year**

	Outcome Year	Outcome		Status of Those Not Severely Rent Burdened in Outcome Year						
		Severely Rent Burdened	Not Severely Rent Burden	Rent Burden 30–50%	No Rent Burden	Owner ^a	Owner-Occupied Housing ^b	Assisted	Zero or Negative Income	Households (1,000s)
2001 to 2002										
Severe rent burden in 2001	2002	53.3	46.7	24.4	8.6	4.1	1.6	6.8	1.3	2,791
Rent burden 30–50% in 2001	2002	17.4	82.6	45.2	23.8	5.0	1.5	6.8	0.3	2,537
Rent burden less than 30% in 2001	2002	7.4	92.6	11.8	60.5	7.5	0.9	11.5	0.3	2,228
2001 to 2003										
Severe rent burden in 2001	2003	45.2	54.8	20.7	15.3	8.2	1.7	7.3	1.5	2,791
Rent burden 30–50% in 2001	2003	16.5	83.5	39.3	26.0	8.5	1.2	8.2	0.4	2,537
Rent burden less than 30% in 2001	2003	9.0	91.1	10.8	54.4	11.3	1.5	12.1	1.0	2,228
2003 outcomes of 2002 leavers										
One year without a severe rent burden (severe rent burden in 2001; rent burden 50% or less in 2002)	2003	19.9	80.1	29.2	29.2	14.6	3.5	1.7	1.9	1,114

^a Householder or spouse owns housing unit.^b Someone else's owner-occupied housing unit.

Notes: All sample members are unassisted, very-low-income renters in the base year and are renters in 2001. Sample and data are revised as in exhibit 1.

Second, the number of very-low-income renters entering severe rent burden status is roughly half the number of those leaving. This calculation implies that many very-low-income, rent-burdened households had not been very low income in the previous year.⁸ This group (those with severe rent burdens in one year but relatively high incomes a year earlier) may be likely to have short rent burden spells.

Third, in both of the first two panels, those without rent burdens in 2001 are actually more likely to start receiving housing assistance 1 or 2 years later than those with severe rent burdens. For example, 7.3 percent of those with severe rent burdens receive assistance 2 years later, while 12.1 percent of those with rent burdens below 30 percent began receiving assistance. As discussed above, rent burdens are not the only criteria for receiving housing assistance, a point this exhibit makes dramatically clear.

The bottom panel of exhibit 3 shows 2-year outcomes for leavers, meaning those who had severe rent burdens in 2001 but not in 2002. By 2003, nearly 20 percent of this group again had severe rent burdens, which should remind us of the dangers of using an arbitrary cutoff. This group, which did not have severe rent burdens in 2002, did have such burdens in both the previous and following years. Of course, most of leavers (80.1 percent) remained without severe rent burdens. Also notable is the fact that 14.6 percent became homeowners in the second year after ending their severe rent burden spell, more than triple the homeownership rate after 1 year.

Background Characteristics by Years With Rent Burdens

Exhibit 4 presents the background characteristics, measured in 2001, of very-low-income renter households that were never subsidized from 2001 to 2003. The first column shows the levels of the characteristics for those who never had severe rent burdens. The other three columns show the differences between the first group and those with 1, 2, or 3 years of severe rent burdens. The general finding is that those with 3 consecutive years of rent burdens were considerably more disadvantaged than those with 2 years or less of rent burdens. In fact, those households with 1 or 2 years of rent burdens were in some ways less disadvantaged than those that were never rent burdened.

In the program receipt panel, households with 3-year burdens received Supplemental Security Income (SSI), welfare, food stamps, and Medicaid at statistically significant higher rates than those with no rent burden. Many of these differences are large: more than twice as high a rate for receipt of SSI and welfare and almost twice as high a rate for receipt of food stamps (16 percentage points above the 19-percent rate for those without rent burdens). The middle groups (those with 1 or 2 years of severe rent burdens) received SSI and Medicaid at similar rates and, in some cases, even lower rates, as those households that never had a rent burden. The middle groups had rates of food stamps receipt between the rates of the 0-year and 3-year rent burden groups. Welfare was the one program in which the middle groups were more like the 3-year rent burden group than the 0-year group.

Exhibit 4**Proportions and Means in 2001 of Background Characteristics by Years With Severe Rent Burden**

	Number of Years With Severe Rent Burden			
	0 Years	1 Year	2 Years	3 Years
	Proportion or Mean	Difference vs. Zero Years		
Program receipt in household				
Supplemental Security Income	0.098	-0.034 *	0.036	0.134 ***
Welfare	0.044	0.058 ***	0.072 ***	0.054 **
Food stamps	0.188	0.074 **	0.081 **	0.157 ***
Medicaid	0.420	0.004	-0.035	0.095 **
Free lunch	0.244	-0.033	0.009	-0.029
Education of householder				
< High school	0.311	-0.122 ***	-0.149 ***	-0.006
High school	0.332	0.041	0.067	-0.024
Some college	0.269	0.026	0.023	-0.017
College	0.064	0.050 **	0.045 *	0.026
Graduate degree	0.023	0.005	0.013	0.021
Householder enrolled full time	0.092	0.101 ***	0.076 **	0.066 **
Household type				
Married with children	0.213	-0.033	-0.080 **	-0.123 ***
Married without children	0.114	-0.028	-0.034	-0.055 **
Single female with children	0.161	0.044	0.023	0.070 **
Single female without children	0.281	-0.088 ***	0.029	0.090 **
Single male	0.233	0.105 ***	0.062	0.017
Householder age				
< 25	0.081	0.085 ***	0.019	0.025
25-34	0.214	0.050	0.027	-0.053 *
35-44	0.198	0.006	0.024	0.026
45-54	0.154	-0.035	0.026	-0.042
55-64	0.079	-0.001	0.037	0.005
> 64	0.191	-0.106 ***	-0.068 **	0.048
Householder race/ethnicity				
Hispanic	0.224	-0.060 **	-0.065 *	-0.051
White, non-Hispanic	0.555	0.001	0.034	0.049
African American, non-Hispanic	0.171	0.055 *	0.038	-0.021
Other, non-Hispanic	0.051	0.005	-0.007	0.023
Disabilities in household				
Partial or full	0.258	0.021	0.072 *	0.112 ***
Full (work-preventing disability)	0.150	0.031	0.053	0.147 ***
Household income, earnings, employment, and assets				
Business	0.064	0.019	0.029	0.014
No car	0.303	0.041	0.073 *	0.209 ***
Income	15,965	-3,955 ***	-3,074 ***	-6,538 ***
Earnings	12,089	-3,144 ***	-3,462 ***	-7,909 ***
No earnings (nonemployment)	0.232	-0.031	0.032	0.291 ***
Rent burden (topcoded at 100%)	0.253	0.288 ***	0.351 ***	0.558 ***
Sample size	616	267	158	181

* = Statistically significant at the 10% level.

** = Statistically significant at the 5% level.

*** = Statistically significant at the 1% level.

Notes: All sample members are unassisted, very-low-income renters in 2001. Sample excludes those subsidized in any year. Sample and data are revised as in exhibit 1.

Regarding household type, those with 3 years of rent burdens were less likely to be married than those without rent burdens and more likely to be single mothers. The middle groups are much more similar to those without rent burdens. A similar pattern emerges in the rates of disabilities, car ownership, and nonemployment. For example, the nonemployment rate among those with 3 years of rent burdens was more than double the rate among those with 0 years, 1 year, or 2 years of rent burdens.

The continuous variables (income, earnings, and rent burden as a percentage of income) indicate that the middle groups were more disadvantaged than the unburdened group but less disadvantaged than the group that has 3 years of rent burdens. For example, income in the 1- and 2-year rent burden groups was \$3,000 to \$4,000 lower than in the unburdened group while income in the 3-year rent burden group was \$6,500 lower. One striking statistic is that, in 2001, those with 3-year rent burdens had an average rent burden of 81 percent.

Logistic Regression for Exit From Rent-Burdened Status

Exhibit 5 presents results predicting exit from rent burden status for unassisted, very-low-income households with severe rent burdens in 2001. Many of the results are unsurprising. Households without earnings or with SSI receipt are less likely to end their rent burden status 1 or 2 years later than are households with earnings or without SSI receipt. Also more likely to have a persistent rent burden are single females, with or without children, compared with single men or married couples without children. These household composition estimates, however, are statistically significant in only 1 of the 2 years.

The size of these effects is sometimes striking. Those without earnings are 34 percent (41 percent in 2003) as likely to exit as those with earnings. Households with an SSI recipient are 24 percent (50 percent in 2003) as likely to exit as those without. Households without a car are 63 percent as likely to exit by 2003 as those with one.⁹

One variable for which the a priori prediction is less obvious is having a rent burden above 75 percent in 2001. Those with rent burdens above 75 percent are only 46 percent (62 percent in 2003) as likely to shed their rent burden as those with rent burdens of 50 to 75 percent. Rent burdens above 75 percent are hard to imagine, and one might assume that they reflect a temporary situation or some sort of reporting error. The results suggest, however, that these difficult situations are not temporary, and if they are due to reporting error, that error is consistent.

There are two surprising results for which there is no obvious explanation. First, African-American householders were 1.8 times more likely (2.7 in 2003) than White householders to end their severe rent burdens. To investigate the hypothesis that African Americans' higher exit rates were due to having a less stable income, I regressed the standard deviation of household income across the 3 years, on the same explanatory variables as those in exhibit 5. The regression found, however, that African-American householders had more stable incomes, with a lower standard deviation, than did householders of other races.¹⁰

Exhibit 5**Logistic Regressions (Odds Ratios) for Exit From Severe Rent Burden Status**

	No Rent Burden in 2002	No Rent Burden in 2003, by Reason				
		Total	Income Increased	Rent Decreased	In Owner-Occupied Housing	Moved
Age 65+	1.22	0.62	0.45 *	1.20	0.54	0.71
Hispanic	0.76	1.05	0.71	0.60	0.71	1.02
African American, non-Hispanic	1.77 *	2.70 ***	2.01 **	3.02 ***	0.71	1.11
Other race, non-Hispanic	0.64	0.61	0.66	1.96	1.31	1.15
White, non-Hispanic						
Married with children	0.69	1.23	1.17	1.63	2.47 *	1.11
Married without children	1.07	0.84	1.26	1.30	1.53	0.53
Single female with children	0.54 **	0.78	0.60	1.37	1.83	0.58
Single female without children	0.60 *	0.81	0.53 **	1.64	0.88	0.69
Single male						
No high school degree	0.63	0.80	0.58	2.01 *	0.72	1.33
No earnings in household (nonemployed)	0.34 ***	0.41 ***	0.37 ***	0.90	0.61	0.38 **
Rent burden > 75%	0.46 ***	0.62 **	0.51 ***	0.28 ***	1.14	1.10
Median area income (logarithm)	0.40	1.03	1.44	0.35	0.07 ***	0.40
Supplemental Security Income receipt in household	0.24 ***	0.50 *	0.49 *	0.26 *	0.58	0.19 **
Business in household	0.85	0.52 *	0.48 *	0.41	1.09	0.58
No car	0.81	0.63 **	0.74	0.43 **	1.09	0.58 *

* = Statistically significant at the 10% level.

** = Statistically significant at the 5% level.

*** = Statistically significant at the 1% level.

Notes: Sample size is 460. Exhibit reports odds ratios. All equations include a constant. Sample consists of householders with very low income and severe rent burdens in 2001; who were never assisted from 2001 to 2003. Sample and data are revised as in exhibit 1.

Another surprising result is that households with a business were 52 percent as likely to exit in 2003, although this coefficient is not statistically significant in 2002. One might expect the exit rates of these business-owning households to be higher rather than lower if their incomes were more variable; however, the regressions predicting the standard deviation of income indicated that their incomes were not more variable. To investigate the hypothesis that those with businesses had lower incomes on average, which might be true if the typical business in this population were low-paid self-employment, such as babysitting or housecleaning, I regressed average household income over the 3 years on the same set of explanatory variables. The effect of a business on household income was small and statistically insignificant, however. An intriguing possibility is that businesses allow more scope for tax deductions. If this is so, then income reported to the Internal

Revenue Service, and on the survey, might be lower than the amount available for consumption.¹¹ There is no direct evidence for this theory, however. Another possibility, suggested by the fact that the 2002 result is not statistically significant, is that there is no true effect, and the significant 2003 business coefficient is due to chance or bias, as discussed in the next section.

Finally, it is worth noting that indicators for receipt of programs, such as food stamps, were not included in the logit models because these variables were rarely statistically significant. Although the receipt of various means-tested transfers is strongly associated with persistent rent burdens (as indicated in exhibit 4), these variables are presumably highly correlated with other variables in the model such as nonemployment and household type.

Specification Check

The relatively parsimonious logit equation in exhibit 5 was chosen after considerable experimentation with a longer list of explanatory variables. Although this type of experimentation is routine in econometric studies, especially exploratory studies such as this one, it does present the risk of “data mining,” or, more formally, pre-test bias. The best guarantee against pre-test bias is to use one data set for experimentation and model specification and an independent data set for testing. Here, we have data on 2 years of outcomes, 2002 and 2003. Hence, the model was developed to predict 2003 outcomes and was estimated on 2002 data only after a model had been chosen. This test is not perfect because 2002 and 2003 outcomes are likely to be considerably correlated. In addition, logit models predicting 2002 and 2003 outcomes may differ for substantive reasons, not only because of bias. Nonetheless, this check for pre-test bias is better than those usually available in econometric studies, and so it ought not be scorned.

In general, we should have more confidence in results that are similar in both 2002 and 2003 than in those that differ. In particular, coefficients on age 65 or older and median area income differ considerably between the two equations, in addition to being statistically insignificant.

Discussion

Predicting Long-Term Rent Burdens

The logit regressions indicate that it is quite possible to predict who will have a persistent rent burden; however, the usefulness of this model for allocating subsidized housing is less clear. HUD already uses many variables that strongly predict persistent rent burdens in one form or another. Other variables that could be used to target housing assistance have strong potential drawbacks. HUD already gives preferences to the elderly and disabled in many instances. Although there is no formal preference for single mothers, this group occupies a substantial portion of subsidized housing, presumably because many single mothers meet the income limits and possibly also because they are more likely to apply for subsidized housing. Targeting subsidized housing toward particular races would be illegal. Lack of a car is not a requirement for subsidized housing, but instituting such a requirement would provide an incentive for applicants to sell their cars, presumably in-

creasing dependence and making it more difficult to maintain or find employment. Other means-tested programs, such as welfare (currently called Temporary Assistance for Needy Families), that once had stringent limitations on car ownership have since relaxed those rules for this reason.

These considerations leave three candidates for new preferences for the allocation of housing assistance: low education, nonemployment, and business ownership. The lack of a high school degree has never been a formal preference for the receipt of housing assistance, but the widespread preferences given by local public housing authorities to those in job training or other self-sufficiency programs may well select for low education. That those with a business are more likely to have persistent rent burdens is an intriguing finding, although the mechanism behind this effect is not clear.

Nonemployment is often associated with low income, which is an important part of eligibility. There has long been a tension in HUD's rules between selecting the very poor who do not work and choosing the working poor, who may serve as role models or "pillars of the community." Some local authorities now give preference to those with jobs, and, nationally, HUD has allowed policies such as ceiling rents (rents that do not rise with income above a certain level) aimed at retaining more workers. Given the salience of this criterion to HUD's targeting policy, it is worth noting that nonemployment is a powerful predictor of persistent rent burdens. Even conditional on age and the receipt of SSI, nonemployment reduces the likelihood of exit by 59 to 66 percent.

Targeting Those With Long-Term Rent Burdens

This study is motivated by the idea that housing subsidies should assist the most needy households; that is, households with low permanent incomes, not merely those with low incomes in a particular year.¹² It is presumably because those with severe rent burdens are likely to be needy that HUD considers them "worst case needs" and that many local public housing authorities target housing assistance to those with high rent burdens.

This study demonstrates that those with a severe rent burden for only 1 year (out of 3) do not appear to be much more needy than those with no severe rent burden over a 3-year period. Although they are more likely to receive welfare and food stamps and have about 25-percent lower incomes, they do not appear to be more needy by many measures and are actually less needy by some measures. Households with a single year of rent burden are not more likely to receive Medicaid, to be disabled, or to lack a car or a job. They are younger, more educated, more likely to be in school, and less likely to be receiving SSI than those who never experience a severe rent burden.

Persistent rent burdens appear to be a much better measure of need. Those with severe rent burdens in all 3 years examined in this study are considerably worse off, in numerous dimensions, than those who never experience a rent burden (see exhibit 4). For example, they are more than twice as likely to receive welfare (9.8 percent versus 4.4 percent) or be jobless (52.3 percent versus 23.2 percent), are twice as likely to have a work-preventing disability (29.7 percent versus 15.0 percent), and have an average income of \$9,500 compared with \$16,000 for those without rent burdens.

Targeting Those With Short-Term Rent Burdens

It should also be considered that targeting the poorest of the poor is not the only possible goal of a public transfer program. Social Security and Medicare are obvious examples of more broad-based programs. It is not even obvious that those with long-term rent burdens should be favored over those with temporary rent burdens. For example, unemployment insurance and housing assistance for disaster victims are specifically aimed at those with temporary needs. Unemployment insurance typically lasts for 6 months and disaster vouchers last for 18 months. Economists often argue that these types of transfers to people who are not low income can improve welfare by replacing missing insurance markets. In addition, while those with a single year of severe rent burden are better off than those with more persistent rent burdens, they are far from wealthy. Their average annual income is \$12,000, 42 percent have a household member receiving Medicaid, and 18 percent have a household member with a work-preventing disability.

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Notes

1. These figures differ slightly from those in this article because the 2003 report used a slightly different sample (householders present in months 1 through 28 of the 2001 Survey of Income and Program Participation [SIPP]), while this article examines households present in months 1 through 36 (the complete SIPP).
2. The Survey of Income and Program Participation is described in detail at <http://www.sipp.census.gov/sipp/intro.html>.
3. Census divisions are groups of states, such as New England and the Middle Atlantic. The percentiles were the 1st, 5th, 10th, 25th, 50th, 75th, 90th, 95th, and 99th.
4. Plotting the percentiles of two distributions is a graphical method of assessing their equality or relationship (Gerson, 1975; Wilk and Gnanadesikan, 1968). Where the distributions differ only in their mean and variance, the plot of one against the other will show a straight line and the regression procedure will be appropriate. The adjusted Survey of Income and Program Participation distribution appeared quite similar to the American Housing Survey (AHS) distribution, as confirmed by the fact that all the regressions had R²s of 0.98 or

above. Therefore, it appears that the adjustment procedure was able to replicate the AHS distribution of utility bills.

5. While the weights do adjust for a set of background characteristics, this set is necessarily limited. Whatever the main source of the underestimate of the true population, a simple adjustment would be to inflate the counts presented by about 45 percent (4,049/2,791).
6. Although these definitions of rent exits and income exits are not mutually exclusive, each observation appears in the exhibit only once. In the case in which the increase in income and the decrease in rent both were large enough by themselves to end the severe rent burden, the household is classified as exiting due to a rent decrease.
7. HUD's definition of severe rent burden excludes those with \$0 or negative income.
8. The number entering is 607,000 ($=.174 \times 2,537,000 + .074 \times 2,228,000$), and the number leaving is 1,302,000 ($=.47 \times 2,791,000$). Strictly speaking, the number of leavers must equal the number of entrants only when the number of severely rent-burdened households does not change from 2001 to 2002, which is only approximately true.
9. Strictly speaking, because these figures are odds ratios rather than relative risks, one ought to say the odds of exit, rather than the probability of exit, were a certain percentage lower.
10. Regressions of the standard deviation of log income on the same explanatory variables yielded similar results.
11. For example, depreciation allowances reduce income on paper but do not reduce the amount available for consumption.
12. The question of why assistance should be given in kind, in the form of housing assistance, despite the standard microeconomic argument that households can always be made better off with an equivalent amount of cash assistance, is beyond the scope of this study. One possible justification is that the aim is to help children, and housing is especially important for children; another is the idea that poor housing conditions generate negative externalities such as the spread of disease.

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