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## Housing Assistance and SSI Participation

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## Abstract

This paper studies the extent to which two programs aimed at supporting low-income households interact: the Social Security Administration's Supplemental Security Income (SSI) and the Department of Housing and Urban Development's housing assistance. While housing assistance support comes from federal coffers, local public housing authorities ultimately determine who gets the few available slots. Allocation methods vary from a lottery of all eligible applicants to first-come, first-serve with additional scoring for households meeting preferences. One common preference that local housing authorities state is for household heads with disabilities. We document that an increase in expected housing assistance value for households with disabilities increases SSI participation in subsequent years. However, we find no evidence of caseload shifting due to increases in the value of housing assistance for households with disabilities: the likelihood of receiving Temporary Assistance to Needy Families does not change.

## 1 Introduction

Between 1990 and 2017, Supplemental Security Income (SSI) recipients have grown 70 percent to 8.2 million people. With current cash transfers of \$54 billion, SSI is the largest means-tested transfer program to non-working households, far surpassing the the \$7 billion in cash assistance distributed by the Temporary Assistance for Needy Families (TANF) or welfare program.<sup>1</sup> Understanding SSI growth is of key interest to policymakers as well as economists. SSI recipients receive a monthly federal cash benefit of up to \$771.<sup>2</sup> SSI recipients additionally receive Medicaid coverage and become categorically eligible for other benefits, such as SNAP.<sup>3</sup>

Another benefit available to poor households is housing assistance, with the primary sources being public housing and housing choice vouchers. While the five million households that receive housing assistance benefit greatly from large subsidies, far more households are eligible for housing assistance than receive it. A Congressional Research Service report estimates the average monthly benefit in 2010 at \$563 per month (McCarty, 2014), greater than the average monthly SSI payment of \$499 for the same year.<sup>4</sup> This means that Public Housing Authorities (PHAs) operate waitlists to manage the demand for housing assistance. While some local PHAs employ a lottery to allocate scarce slots, others state a preference and rank their waitlists based on a scoring system. Among other potential preferences, PHAs often allocate additional points to working-age adults with disabilities, moving them up in a waitlist that could be more than five years long. In this paper, we explore the extent to which preferences, generosity, and availability of housing assistance affect one's decision to take up SSI.

Previous research has provided evidence that households considering applying for disability benefits are responsive to financial incentives and economic conditions.<sup>5</sup> Both Garrett and Glied (2000) and Schmidt and Sevak (2004) provide evidence of SSI “caseload-shifting,” where households eligible for both SSI and TANF have increasingly participated in SSI as TANF benefits have been declining. Similarly, Burns and Dague (2017) found that states which increased Medicaid income eligibility, thus lowering the benefit of SSI participation, experienced a 0.17 percentage point (or 7%) reduction in SSI participation. However, Schmidt et al. (2019) used Medicaid expansions from the Affordable Care Act to show that increased Medicaid eligibility does not change SSI applications or participation. The interaction between housing assistance and other transfer programs is an understudied issue according to

<sup>1</sup>See [https://www.ssa.gov/policy/docs/statcomps/ssi\\_asr/2017/index.html](https://www.ssa.gov/policy/docs/statcomps/ssi_asr/2017/index.html) for SSI recipients and spending history. See <https://www.acf.hhs.gov/ofa/resource/tanf-and-moe-spending-and-transfers-by-activity-fy-2017-contains-national-state-pie-charts> for TANF spending details.

<sup>2</sup>States may add an additional supplement.

<sup>3</sup>Given the income histories of SSI households however, most would typically qualify for Medicaid and SNAP regardless of SSI receipt.

<sup>4</sup><https://www.ssa.gov/oact/ssir/SSI10/ssi2010.pdf>

<sup>5</sup>Armour (2018) shows that information also affects disability insurance applications among those previously reporting a work limitation.

Collinson et al. (2015). To the best of our knowledge, this is the first paper to estimate whether housing assistance benefits, which are highly valuable but difficult to obtain, affects the program participation decisions of households with disabilities.

Two characteristics differentiate housing assistance from other aspects of the social safety net: access and local control. Far more households are eligible for housing assistance than receive it. Based on CPS data, in 2018 only 18 percent of households which were classified as extremely low income by HUD received housing assistance. The under-supply of housing assistance results in long waiting lists. The average HA recipient waits for two and a half years on the waiting list before receiving the benefit. Kathleen Moore (2016) documents current rationing procedures of the housing choice voucher system, noting that many PHAs explicitly prioritize certain categories of households, such as those with disabilities, and that these preferences can be exerted at all stages of the voucher process, including gaining access to be put on a waiting list, ordering once on a waiting list, and once selected to obtain a housing voucher.

Measuring generosity of housing assistance across the country proves challenging. The number of available units remains relatively fixed over time, and benefits are tied to area median income (AMI) so changes over time reflect changes in local incomes. We rely upon the fact that each PHA has its own discretion in distributing benefits in its jurisdiction, and PHAs can select preferences to increase the likelihood that an individual receives the benefit. Data from the Department of Housing and Urban Development (HUD) show that roughly one-third of household heads receiving housing assistance report having disabilities, though there is wide variation in this fraction across localities even within the same state.

Very few other studies take a national view of housing assistance policy, but instead focus on within-city variation in housing assistance assignment. One exception is Currie and Yelowitz (2000), who evaluated the effect of public housing on child educational outcomes. Exploiting a child gender composition rule which mandates that children of the same gender should not be forced to share a room, Currie and Yelowitz (2000) found that living in public housing does not have a detrimental effect on child educational outcomes. Additionally, a report that Abt. Associates prepared for HUD (2006) examined a study that included 8,731 families across six sites and randomized vouchers on housing mobility of low-incomes families, as well as their employment, education, public assistance participation, and measures of poverty and children's outcomes. Particularly relevant for this study is their finding that vouchers do not impact TANF receipt or amount in their fifth year, but vouchers decrease participation in SSI. Focusing on cross-MSA variation as opposed to within-MSA variation in housing assistance increases the scope and relevance of our findings.

A separate strand of literature looks at the effects of the Moving to Opportunity (MTO) study, where those in public housing were given housing choice vouchers in an effort to move them to a better neighborhood. Katz et al. (2001) found that the short-run impacts of the program are promising: those receiving vouchers report increased safety, improved health among household heads, and a lower rate of behavioral problems for boys, paired with no effects on employment, earnings, or welfare participation, although Sanbonmatsu et al. (2006) found no impacts on child test scores. Ludwig et al. (2013) found that adults participating in the MTO study reported higher subjective well-being in the long-run, though

had small effects on economic outcomes. Chetty et al. (2016) find that in the long-run, those who moved as children (less than 13 years old) were more likely to go to college, had higher earnings, and were less likely to be single parents than those in the control group. However, those who moved as adolescents had slightly negative impacts, perhaps due to disruption at the time of the move.

In this paper, we examine whether increased access to housing assistance affects the SSI participation decision. We do this by first measuring the expected disabled housing assistance value, or DHAV, of SSI participation. Changes in expected DHAV can come in two forms. First, there is an increased value of receiving benefits. That is, as the rental value of housing assistance increases (while rent remains constant), the value of receiving housing assistance increases. Second, increased disability benefits can come through increased disabled preference in selection of people to fill housing vacancies. Many housing authorities give explicit preference to households with people with disabilities when filling vacancies, though they vary in the ways in which they verify disability status. We then use within-location variation over time in the expected disabled housing assistance value to test whether increased housing assistance benefits affects SSI participation. To remain agnostic about stated vs. revealed preferences of housing authorities over time, we estimate the difference in the probability of receiving housing assistance across household heads with and without disabilities within MSAs over time.

We find that increased housing benefits for those reporting disabilities significantly increases SSI participation, with a \$1,000 increase in annual expected housing benefits leading to a 3.3 percentage point increase in SSI participation among low-income households. This increase is concentrated among lower educated and single-adult households. We find no clear evidence of caseload shifting from TANF.

## 2 Policy Details

### 2.1 SSI

The SSI program targets three low-income populations: disabled children, disabled adults, and the elderly. Duggan et al. (2015) provide a thorough overview of the program eligibility and benefits determination rules and program trends. Figure 1 displays SSI enrollment trends by household category since its founding in 1974. Enrollment of prime-aged adults, and children in particular, has grown substantially following the 1990 Zebley Supreme Court case which led to a loosening of disability determination criteria, with more weight put on subjective measures of well-being.

For a non-elderly household, the disability determination procedure for SSI is identical to the application for the SSDI program, and in fact many households are enrolled in both programs simultaneously. However, to be eligible for SSDI, one needs additional work credits. As of 2019, a non-elderly adult applying for SSI benefits must demonstrate that he or she has a medically determined physical or mental disability that limits his or her ability to engage in substantial gainful activity, currently defined as earning \$1,220 per month. They must

further demonstrate that this disability will continue for at least 12 months or result in their death. Aside from the medical determination of disability, the applicant must pass income and asset tests. The disability definition for children is different than that for adults as the labor market standard is less relevant to our direct question of interest.

Federal SSI provides a maximum benefit amount, set at \$771 per month in 2019 and indexed to inflation. Figure 2 displays program expenditure trends, with a near-doubling of program expenditures since the 1980s to \$54 billion. Some states provide an additional supplement averaging \$30 per month. Benefits are reduced by additional income, including Social Security benefits or SSDI. Each \$1 of earned income reduces SSI benefits by \$0.50, until earned income passes the SGA threshold of \$1,220, at which point the household loses its disability status and must re-apply to regain benefits.<sup>6</sup> A household may have no more than \$2,000 in assets (or \$3,000 for a couple) and still qualify for SSI, although asset exemptions are allowed for certain property and cars.<sup>7</sup> Unlike TANF benefits, SSI benefits are not adjusted due to family size and other than state supplements, there are no other benefits due to cost of living or other household circumstances.

## 2.2 Housing Assistance

As shown in Figure 3 approximately \$50 billion is currently spent on housing assistance annually across public housing and housing vouchers, with another \$10 billion spent on the low-income housing tax credit (LIHTC). About 30% of housing assistance comes through public housing; 29% comes through the LIHTC, and 27% comes through housing choice vouchers. A Section 8 housing voucher recipient is allowed to find any HUD-approved rental unit for rent below the area's FMR. Conditional on receiving either public housing or a housing voucher, rent is based on household income. This is typically set at 30% of income for all HUD programs, after some deductions. Thus the financial benefit of housing assistance is the difference in rent paid and the rental price of the unit. McCarty (2014) estimated the average financial value of housing assistance at \$563 per month. However, the economic value of the voucher may differ from this amount due to housing preferences of the individual, the insurance value of income-based rent, and the labor market distortion of the additional tax rate. While a household must earn less than 80% of the area median income to initially qualify for housing assistance, it is up to local PHA discretion whether a household receiving housing assistance that transitions above the income threshold loses their assistance.

Program eligibility requirements are often left to local public housing authorities. This provides rich, but often unobserved, policy variation. Aside from access, housing assistance is characterized by local control. There are 3,225 local public housing authorities, at the state, county, or city levels, that are able set local policies and determine eligibility requirements within a broad set of requirements set at the national level by HUD. For instance, local housing authorities can determine when to open waiting lists for new applicants (or accept

<sup>6</sup>See [https://www.ssa.gov/policy/docs/statcomps/ssi\\_asr/2017/background.pdf](https://www.ssa.gov/policy/docs/statcomps/ssi_asr/2017/background.pdf) for more eligibility and payment details.

<sup>7</sup><https://www.ssa.gov/ssi/text-resources-ussi.htm>

continual enrollment) and the selection procedure to fill new vacancies from the waiting list. Some PHAs opt for a lottery system while others form a queue.

Though we take a data-driven approach to identify disability preferences over time, understanding the institutional details about PHA preferences contextualizes our study. To our knowledge, the only nationwide data existing on local PHA policies comes from a 2012 PHA survey conducted by HUD. According to this survey, 62 percent of the 1,852 responding PHAs report using group preferences to help determine access among a waiting list. This leaves the remaining 38 percent to use a lottery or strict first-come-first served system. Among those commonly established are preferences for the elderly, veterans, the homeless, those displaced by natural disasters, and households with people with disabilities. That survey focuses specifically on the homeless population, where 14 percent of the 1,156 PHAs responding to the question reported having this preference.

While the survey also asked PHAs about disability preferences, fewer than 500 PHAs responded to the question.<sup>8</sup> The authors have begun collecting data on disability preferences across all local PHAs, and complete data from 1,141 PHAs. 47% have a disability preference. Direct contact with PHAs sheds light on the disability verification process, and the HUD definition of disability can be surmised from their verification form.<sup>9</sup> For example, the Minneapolis Housing Authority lays out clear guidelines for declaring a disability in the event that the applicant does not receive SSI or SSDI. Its requirements state:

“For family members claiming disability who do not receive disability benefits from the SSA, a knowledgeable professional must provide third-party verification that the family member meets the HUD definition of disability... The knowledgeable professional will verify whether the family member does or does not meet the HUD definition.”

Indirect evidence also supports this claim. Using HUD’s 2009-2016 PHA characteristics data, roughly 30 percent of household heads in public or Section 8 Housing report having disabilities,<sup>10</sup> though there is vast heterogeneity across the country. Figure 4 shows the fraction of disabled household heads in public and Section 8 Housing in 2016 across the country. Further, conditional on receiving housing assistance, wait times appear to be lower for household heads with disabilities. In buildings with more than half of the occupants receiving housing assistance, household heads reporting disabilities had average wait times of five months less than buildings where fewer than half of the occupants receiving housing assistance had household heads reporting disabilities.

## 2.3 Program Interactions

SSI participation can interact with housing assistance in two ways. First, qualifying for SSI means that an individual must first be determined to be disabled. While local discretion

<sup>8</sup>Of those responding, 55% report having disability preferences.

<sup>9</sup>HUD’s disability verification form can be found here: <https://www.hud.gov/sites/documents/90103.pdf>.

<sup>10</sup>Roughly one in four occupants have reported disabilities.

exists as to what qualifies as a disability for housing assistance eligibility, the SSI disability label likely acts as a sorting mechanism for housing assistance applicants. Second, since housing assistance rents are income-based, roughly 30 percent of an increase in SSI benefits is transferred to PHAs in the form of increased rent.

Housing assistance participation, or lack-thereof, has no direct bearing on the SSI application process. However, since households are not allowed to work during the SSI application process and rent is the largest component of low-income household budgets, a household already receiving housing assistance may be more inclined to apply for SSI than an identical household without housing assistance.

### 3 Theoretical Framework

In this section, we present a static model of labor supply and program participation for a low-income household, focusing on the interaction between SSI and housing assistance.

We begin by assuming that agents are endowed with a disability level  $d \sim [0, 1]$  and a human capital level  $\alpha > 0$ .<sup>11</sup> Agents make two choices: to work or not to work,  $e \in \{0, 1\}$ , and whether to apply for disability payments,  $a \in \{0, 1\}$ .

While an agent could technically apply for disability ( $a = 1$ ) while working ( $e = 1$ ), the probability of receiving disability while working is zero. Since the application process is costly, we then only consider the disability application decision  $a$  if an agent is not employed  $e = 0$ . The probability of being medically-verified as disabled  $D \in \{0, 1\}$  is equal to your disability level:  $Pr(D | d) = d$ .<sup>12</sup>

Agents act to maximize expected utility by maximizing expected income,  $I$ , less a potential application cost  $c > 0$  assuming a risk-neutral agent:

$$\max_{e,a} u(E[I(e)]) = E[I(e)] - ca \quad (1)$$

Expected income from working ( $e = 1$ ) is increasing in human capital, and wage level  $\lambda$ , which represents labor market conditions, and decreasing in disability level:

$$EI(e = 1) = \lambda\alpha(1 - d) \quad (2)$$

Conditional on not working ( $e = 0$ ), expected income is a function of disabled status  $D$ , application choice  $a$ , and transfer programs generosity:

$$EI(e = 0) = \Gamma D + \tau(1 - D) + Hh(D) + \Omega \quad (3)$$

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<sup>11</sup>While we have a static model, it is natural that the level is not an initial endowment but could be a function of previous work.

<sup>12</sup>Previous research by Maestas et al. (2013) has provided evidence of the uncertainty embedded in the disability application process. Utilizing the random assignment of judges, Maestas et al. (2013) determined that 23% of applications were “marginal”, where judge assignment determined whether the application was denied or accepted.

One assumption in the model is that one does not receive housing assistance if they are working. While this is not true in practice, the very low income requirements for housing assistance does require minimal employment, and data show that a high fraction (roughly 90 percent) of housing assistance recipients do not work. This is consistent with Jacob and Ludwig (2012), who concluded that housing assistance decreases labor force participation by 6 percent.

Where  $\Gamma$  is the value of benefits for disabled households,  $\tau$  represents the amount of benefits for non-disabled households,  $\Omega$  signifies benefits provided to both disabled and non-disabled households, and  $c$  is the disability application cost.<sup>13</sup> In our context,  $\Gamma$  represents SSI benefits,  $\tau$  represents TANF benefits, and  $\Omega$  represents benefits such as SNAP and Medicaid.

The term  $Hh(D)$  represents the expected housing assistance benefit for the non-employed worker, where  $H$  is the value of receiving housing assistance and  $h(D)$  is the probability of receiving housing assistance as a function of disability status  $D$ :  $Pr(HA | D)$ . We assume that  $h(1) \geq h(0)$ , that being disabled will never lower the probability of receiving housing assistance. For simplicity, expected income is represented by  $I_{D=1} = \Gamma + Hh(1) + \Omega$  and  $I_{D=0} = \tau + Hh(0) + \Omega$ .

We solve the utility maximization problem as a function of disability status  $d$ . While in theory a household could apply for disability ( $a = 1$ ) while working ( $e = 1$ ), the probability of a successful application is zero as employment is a disqualifying factor for disability verification. Given this, let us consider when a household should apply for disability ( $a = 1$ ) while not working ( $e = 0$ ).

$$EI(a = 1) \geq EI(a = 0) \quad (4)$$

$$dI_{D=1} + (1 - d)I_{D=0} - c \geq I_{D=0} \quad (5)$$

$$dI_{D=1} - c \geq dI_{D=0} \quad (6)$$

$$d_a^* = \frac{c}{I_{D=1} - I_{D=0}} \quad (7)$$

This solution provides some basic intuition for the application process. We know that an agent will only ever apply for disability ( $d_a^* > 0$ ) if  $I_{D=1} > I_{D=0}$ , and that an agent would never apply for disability ( $d_a^* < 1$ ) if the application cost,  $c$ , is greater than gain in income  $I_{D=1} - I_{D=0}$ . The disability application cutoff value,  $d_a^*$  is a decreasing function of the disability transfers differential  $I_{D=1} - I_{D=0}$ . This differential can either be increased through a relative change in  $\Gamma - \tau$  (i.e. SSI versus TANF) or through an increase in disability preference in housing assistance:  $(h(1) - h(0))H$ .

Next, we consider when a household should decide not to work ( $e = 0$ ). We solve this

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<sup>13</sup>In practice,  $c$  can be quite high. The average initial disability application time is 5 months (Maestas et al., 2013), while the appeals process often takes many additional months or even years.

problem by splitting when the household knows it will apply for disability  $d \geq d_a^*$ :

$$EI(e = 0) \geq EI(e = 1) \quad (8)$$

$$dI_{D=1} + (1 - d)I_{D=0} - c \geq \lambda\alpha(1 - d) \quad (9)$$

$$d(I_{D=1} + \lambda\alpha) + (1 - d)I_{D=0} - c \geq \lambda\alpha \quad (10)$$

$$d_e^* = \frac{c + \lambda\alpha - I_{D=0}}{I_{D=1} - I_{D=0} + \lambda\alpha} \quad (11)$$

and when it will not  $d < d_a^*$ . When

$$EI(e = 0) \geq EI(e = 1) \quad (12)$$

$$I_{D=0} \geq \lambda\alpha(1 - d) \quad (13)$$

$$d_e^* = \frac{\lambda\alpha - I_{D=0}}{\lambda\alpha} \quad (14)$$

Since  $d_e^*$  is increasing in  $\alpha, \lambda$  this, unsurprisingly, tells us that agents are more likely to work when expected wages are higher. Conversely,  $d_e^*$  is a decreasing function of  $I_{D=1}$ , meaning that as expected disability income rises, households are less likely to work. Further, one should note that conditional on being verified as disabled  $D = 1$ , the threshold for returning to work is higher than before the disability application:

$$d_e^{**} \geq \frac{\lambda\alpha - I_{D=1}}{\lambda\alpha} \quad (15)$$

$$d_e^{**} > d_e^* \quad (16)$$

We use this static framework to consider the intersection between housing assistance and SSI in a data-driven approach, where we are able to detect changes in the expected value of housing assistance at the metropolitan area-level over time. Thus, we expect to see that as disability preferences in housing assistance increase over time (e.g., local PHAs are more likely to choose households with a household head that has disabilities than over one without), more people with stated work difficulties (higher  $d$ ) will apply for both housing assistance and SSI. As the expected disability income rises, households will work less in favor of SSI and housing assistance.

## 4 Empirical Strategy

Our empirical strategy relies on a two-step procedure where we first estimate the expected disabled housing assistance value,  $HVal_{m,t-1}$  as a local policy parameter in metropolitan area  $m$  and year  $t - 1$ . We use within-location variation in  $HVal$  to estimate its effect on SSI participation in the given year.

To estimate the expected value of housing assistance disability preference we run the following regression:

$$HA_{i,t} = \beta_0 + \beta_1 \mathbb{X}_{i,t} + \beta_2 \mathbb{Z}_{s,t} + \gamma_{m,t}^D d_{it} + \gamma_{m,t} + \epsilon_{i,t} \quad (17)$$

where  $HA_{it}$  is an indicator equal to 1 if household  $i$  receives housing assistance in year  $t$ ,  $\mathbb{X}_{it}$  is a vector of demographic variables including race, age categories, education, number of children, and family type,  $\mathbb{Z}_{st}$  is a vector of state policy and economic variables which vary by state and year including maximum welfare benefits, minimum wage, EITC supplement, SSI supplement, unemployment rate, and median wage.<sup>14</sup>

The set of coefficients  $\gamma_{m,t}$  are metro-by-year fixed effects which capture the expected probability of housing assistance for non-disabled households equivalent to  $h(0)$  in the theoretical model. To capture disability preference  $\gamma_{m,t}^D d_{i,t}$  interacts a metro-by-year fixed effect with a dummy variable equal to one if any member of a household reports having a work-limiting disability. Thus,  $\gamma_{m,t}^D d_{i,t}$  represents the change in the probability of receiving housing assistance for a disabled household relative to a non-disabled household. Thus  $\gamma_{m,t}^D$  is equivalent to  $h(1) - h(0)$  in the theoretical model, or the percentage increase in the probability of receiving housing assistance from reporting a disability.

The expected housing assistance value  $HVal_{m,t}$  for individuals with reported disabilities is equal to  $H(h(1) - h(0))$  for households which report a disability, and equal to zero for those who do not. This allows us to pick up observable (stated) preferences as well as unobservable (unstated) preferences. We approximate the value of receiving housing assistance,  $H$ , using the fair market rent for a 2-bedroom apartment  $FMR_{mt}$ .

$$HVal_{m,t} = FMR_{m,t} * \gamma_{m,t}^D \quad (18)$$

To determine the effect of  $HVal_{m,t}$  on SSI participation we estimate the following equation:

$$SSI_{i,t} = \beta_0 + \beta_1 HVal_{m,t-1} + \beta_2 \mathbb{X}_{i,t-1} + \beta_3 \mathbb{Z}_{s,t-1} + \delta_m + \rho_t + \epsilon_{i,t} \quad (19)$$

where  $\mathbb{X}_{i,t-1}$  and  $\mathbb{Z}_{s,t-1}$  are lagged values of the demographic, economic, and policy variables defined in Equation (17), and  $\delta_m$ ,  $\rho_t$  are metro and year fixed effects respectively.  $\beta_1$  represents our parameter of interest, the causal effect of  $HVal_{m,t}$  on SSI participation,  $SSI_{it}$ . We use lagged values of explanatory variables in order to capture the economic environment facing the agent when applying for disability in time period  $t - 1$  and the observed receipt of SSI in time period  $t$ . Given then that the full disability application procedure can take up to two and a half years for those appealing initial decisions (Maestas et al. (2013)), we use three-year average lagged values in defining  $HVal_{i,t-1}$ . We are careful to not include the contemporaneous period in the  $HVal$  variable, to limit concerns of reverse causality in the event that households first obtain SSI and then become more competitive for housing assistance.

## 5 Data

To both create an indirect measure of local disability policy preferences and then test whether increased disabled housing assistance leads to increase SSI participation, we utilize the Cur-

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<sup>14</sup>While it may seem that preferences may also correlate with family structure, in practice we have not found any PHAs that prioritize children, household size, or family type in any way.

rent Population Survey Annual Social and Economic Supplement (ASEC).<sup>15</sup> Each month, the Bureau of Labor Statistics surveys 60,000 households about labor market conditions in a rotating panel. Each household is interviewed for four consecutive months, then after an eight month break, interviewed again for another four month cycle. We focus on the March ASEC supplement because it asks detailed questions including disability status, housing assistance, income sources, and program participation.

Beginning in 1988, the ASEC asks a self-reported disability question phrased as: “At any time in YEAR (did you/did anyone in the household) have a disability or health problem which prevented (you/them) from working, even for a short time, or which limited the work (you/they) could do?” We code a household as having disabilities if any adult member between the ages of 18 and 60 answers yes to this question. Note that this question has come under criticism when understanding who takes up SSI (Burkhauser et al., 2012). However, since the disability verification process for local PHAs differs from the SSA disability verification process, we want to include the most inclusive definition of disability as possible, capturing anyone with work limitations. We similarly report the household as receiving SSI if any member reports receiving any SSI income within the past year. Similar indicators are created for receiving disability benefits and for welfare benefits. A household is marked as receiving housing assistance if their home is part of a “public housing project” or if the household reports paying lower rent due to the federal, state, or local government paying part of the rent.

Besides restricting our sample to the period from 1988-2018, we further limit our sample to households which may be eligible for housing assistance, meaning they are at or below the 80% Area Median Income threshold as determined by HUD. We aggregate some information to the household level using only information from family members between 18 and 60 years old, but otherwise restrict observation characteristics to those of the household head. We also drop any observations for which we do not have a fair market rent variable.

We supplement CPS ASEC data with state-level policy variables provided by the University of Kentucky Center for Poverty Research (UKCPR).<sup>16</sup> These variables by state and year include state and national minimum wage, SSI state supplements, welfare benefit levels, earned income tax credit amounts, state unemployment rate, and food stamp benefits.

To determine the expected value of receiving housing assistance, we use the Fair Market Rent (FMR) for a two-bedroom apartment as reported by HUD. Each year, HUD sets the FMR annually at the county level and varies based on family size and is typically set at the 40th percentile rent for recent movers in the area. A voucher recipient can then rent any HUD-approved unit at or below the FMR. Rent paid by the voucher recipient is determined by a formula based on their current income, typically 30% of income. The government then pays the remaining difference between the rental cost and the rent paid by the household.

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<sup>15</sup>We investigated using PUMS as our primary datasource, but use CPS ASEc because its long annual frequency allow us to construct an MSA-by-year measure back to 1988.

<sup>16</sup>This dataset is available here: <http://ukcpr.org/resources/national-welfare-data>. Note that data is only updated through 2017, so 2018 values are copied from 2017 values. Welfare benefit values only available through 2016 and SSI supplement through 2011 so values are updated from most recent year.

While local housing authorities have wide discretion on allocation of housing assistance, HUD dictates that a household must be at least under the 80% AMI threshold to be eligible to begin receiving housing assistance. AMI thresholds are determined annually at the county-level.

Table 1 presents summary statistics of our sample split by disability and housing assistance status. Of those reporting a disability and reporting they have housing assistance, 47 percent report SSI income, whereas those reporting a disability without housing assistance report SSI income at a lower rate, 25 percent. Not surprisingly, very few (2 percent) of those claiming they do not have a disability and do not have housing assistance report receiving SSI, though this fraction is slightly higher for those claiming that they do not have a disability but do receiving housing assistance (7 percent). This could be due to the nature of the question. Those with housing assistance, regardless of disability, are less likely to be married and are more likely to have attained formal education of a high school diploma or less.

Of those reporting disabilities and receiving housing assistance, roughly one-fourth (27 percent) are single mothers, whereas only 18 percent of those reporting disabilities and not receiving housing assistance are single moms. 62 percent of households reporting receiving housing assistance but not having a disability are single mothers. Those with disabilities tend to have fewer children than those without disabilities, and among those reporting disabilities, there is no difference in the number of children across households receiving housing assistance and those who do not. Similarly, those reporting disabilities are - on average - older than those not reporting disabilities, though among those reporting disabilities, there is no statistical difference in age of those receiving and not receiving housing assistance.

The final row of Table 1 shows fair market rents for two bedroom apartments across groups, where none are statistically different from one another. Average rents are roughly \$900 per month.

## 6 Results

Table 2 presents results from estimating Equation (17) with the MSA-by-year estimates of disability preference shown in Figure 6. Table 2 shows that households with heads who are not married, are lower educated, are female-headed, are not employed, are younger, or include children are all more likely to receive housing assistance. The disability preference estimates by MSA-year, or  $\gamma_{mt}^D$  from Equation (17), show that - on average - households including someone with a disability were 8 percentage points more likely to receive housing assistance than households where nobody had a disability. This preference grew from an average of 3 percent prior to 1990 to 6 percent between 2006 and 2008. Substantial cross-MSA variation exists in the level and trend of disability preference, as shown by Figure 6.

To calculate the expected disability housing assistance benefit,  $HVal$ , we use Equation (18) where  $FMR_{mt}$  comes from HUD data previously described and  $\gamma_{mt}^D$  comes from the first stage results above. The average value of  $HVal$  rises from \$850 nearly 1990 up to \$1,590 since 2010.

Table 4 presents results from estimating Equation (19). The first two columns of Table 4 include all observations, year fixed effects, and MSA fixed-effects. The coefficient of interest, DHAV suggests that a \$1,000 increase expected disabled housing assistance benefits increases SSI participation by 3.3 percentage points. This is statistically different from zero at the 99% level. This appears to be a large effect relative to the baseline SSI participation rate of 9.2 percent among this population, roughly a 30 percent increase. However, annual benefits rarely increase by that much, and in expectation, the probability of receiving housing assistance remains low even among households with disabilities; thus, the effects are modest.

The second column shows that while there is a decrease in TANF participation due to an increase in the expected benefit from housing assistance, the decrease is not statistically different from zero. Though Jacob and Ludwig (2012) found that an increase in housing assistance from a lottery increased TANF participation, our effect is not entirely surprising. This is because we specifically build in a disability preference in housing assistance, which is unlikely to shift anyone onto TANF. Our results do suggest that the increase in expected benefits does not sizeably decrease TANF participation. Perhaps, as is allowed, other members of the household maintain their TANF benefits.

Finally, the third column of Table 4 explores the effect of housing assistance on SSDI. Since SSDI requires additional accumulated work credits, we do not expect (and do not find) that a higher housing assistance benefit affects takeup for this population.

Table 5 splits the sample into four family types: single mothers, single women without children, single men without children, and married couples. The expected disabled housing assistance variable remains positive for all family types, although it is lowest for married households at 1.85 percentage points. This is perhaps because of the joint household decision problem, where SSI benefits do not provide adequate support for two adults and, if one member is still working, then the household may no longer qualify for SSI. The effects are also slightly larger for single men. This is perhaps because there are few benefits available to single men without children outside of SSI and housing assistance, while many policies are geared towards women with children (e.g., WIC, EITC, etc.).

Table 6 splits the sample by educational attainment. As predicted in the Theory section, increasing the expected disability housing benefit only increases SSI participation among lower educated households. This is likely because the expected wages from working are much higher for a household with a college-educated head, reducing SSI takeup. Among household heads with no more than a high school education the effect of increasing expected housing assistance benefits by \$1,000 rises to 3.8 percentage points and 5.3 percentage points, respectively.

## 7 Discussion

This paper explores the interaction between two important means-tested programs in the United States: housing assistance and SSI. Specifically, we explore the degree to which local PHAs' stated preference for allocating scarce vacancies in public housing or housing vouch-

ers to households with disabilities may change an individual's decision to have a disability formally diagnosed by a doctor and apply for and participate in the SSI program. Using nationally-representative data over a long time frame, we document time-varying MSA-level preferences for households with disabilities, compared to those without. We then use these preferences to determine the expected value of the benefit for those with disabilities, based on variation in fair market rents within an area over time. Together, this provides us with variation with which to determine the effects of relatively more generous housing assistance policies for those with disabilities.

Our findings suggest that increasing the expected value of housing assistance for the disabled by \$1,000 per year increases SSI participation by 3.3 percentage points. With average SSI rates of 11.8 percent among the extremely low-income group this reflects an increase of 29 percent. While this is a large effect, it is plausible for several reasons. First, prior work has found SSI participation to be very responsive to financial incentives. For instance, Schmidt and Sevak (2004) found that female-headed households were 21.6 percent more likely to participate in SSI in states that aggressively pursued welfare reform. Second, our data-driven approach measuring the relative probability of receiving housing assistance for disabled households may also indicate additional policies which favor disabled households, such as longer search times or more favorable landlords. Third, it captures the potential persistence of households with people with disabilities on housing assistance when compared to those without. If there is less screening or more straightforward auditing at local PHAs for households including people with disabilities, this will allow them to persist longer. Lastly, our measure of the financial benefit of housing assistance likely understates its total value as receiving housing assistance not only reduces rent costs but also provides security for these households, in that they will not face increasing rents or be forced to move in the future.

While we find an increase in SSI participation, we do not document any change in TANF, suggesting this may not be contributing to the phenomenon of caseload shifting. With housing allocations determined at the local level and SSI processes being mandated at the federal level (though ALJ courts are regional), understanding the interaction between these two policies is important for understanding increases in SSI participation over time.

Future work should document the precise policy preferences of PHAs to identify if areas where disability preferences are more prevalent have higher SSI participation. One limitation of this study is that it uses participation in SSI and not SSI applications. Acquiring county-level SSI applications to determine how these interact would be an important contribution as well. Further, future work could look at the Survey of Income and Program Participation (SIPP) to look at the timing of benefits to learn more on whether SSI precedes housing assistance or vice versa.

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## Tables

Table 1: CPS Summary Statistics

	$D = 1, HA$	$D = 1, No HA$	$D = 0, HA$	$D = 0, No HA$
SSI	0.47 (0.50)	0.25 (0.43)	0.07 (0.25)	0.02 (0.14)
Married	0.13 (0.33)	0.39 (0.49)	0.16 (0.36)	0.41 (0.49)
High School or Less	0.72 (0.45)	0.64 (0.48)	0.70 (0.46)	0.53 (0.50)
Single Mom	0.27 (0.44)	0.18 (0.38)	0.62 (0.48)	0.24 (0.42)
Number Children	0.64 (1.08)	0.66 (1.06)	1.64 (1.37)	1.03 (1.28)
Age	46.09 (11.32)	48.14 (10.89)	34.28 (10.93)	40.09 (12.68)
Welfare Indicator	0.19 (0.39)	0.08 (0.27)	0.30 (0.46)	0.06 (0.23)
Fair Market Rents	916.32 (234.48)	882.37 (222.25)	914.59 (231.77)	919.03 (230.65)
Observations	22,302	97,147	37,372	319,453

Notes: Data from the Current Population Survey (CPS) 1988-2018.  $D = 1$  if someone in the household reported not being able to work in the previous year due to a disability or health problem and zero otherwise.  $HA = 1$  if the respondent has housing assistance and zero otherwise.

Table 2: First Stage: Who has housing assistance?

	HA
Married, spouse absent	0.0786*** (0.003)
Separated	0.0842*** (0.002)
Divorced	0.0615*** (0.002)
Widowed	0.0261*** (0.002)
Never married, single	0.1156*** (0.002)
High School or Less	0.0483*** (0.001)
Employed	-0.0733*** (0.001)
Single Mom	0.0760*** (0.002)
Children Indicator	0.0329*** (0.002)
Age 35-49	-0.0317*** (0.001)
Age 50-62	-0.0372*** (0.001)
Observations	476,276

Notes: Results reported estimate Equation 17. HA=1 if the respondent has housing assistance and zero otherwise. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

Table 3: Estimated Expected Housing Assistance Value Summary Statistics

	1990	2000	2010
Disability Preference	0.06 (0.06)	0.10 (0.07)	0.09 (0.06)
Fair Market Rent	1098.31 (223.16)	1197.61 (261.54)	1228.12 (310.98)
DHAV (000s)	0.85 (0.98)	1.51 (1.20)	1.59 (1.23)
Observations	282	240	213

\*Notes: Means reported with standard deviations in parentheses. DHAV is the expected value of housing assistance for disabled households. Estimates from Equation 17.

Table 4: Does More Generous Housing Assistance for Households with Disabilities Affect Program Participation?

	SSI	TANF	SSDI
DHAV	0.0333*** (0.009)	-0.0022 (0.005)	-0.0007 (0.009)
Minimum Wage <sup>s</sup>	0.0008 (0.001)	-0.0006 (0.001)	-0.0008 (0.001)
Median Income <sup>s</sup> (000s)	-0.0002*** (0.000)	-0.0004 (0.000)	0.0001 (0.000)
Unemployment Rate <sup>s</sup>	-0.0003 (0.000)	0.0022** (0.001)	-0.0008** (0.000)
Welfare Benefits <sup>s</sup> (000s)	-0.0009** (0.000)	0.0005 (0.001)	-0.0009* (0.000)
SSI Supplement <sup>s</sup> (000s)	0.0016** (0.001)	-0.0047 (0.003)	0.0021** (0.001)
EITC Benefits <sup>s</sup> (000s)	0.0010 (0.001)	-0.0024 (0.002)	-0.0002 (0.000)
SNAP Benefits <sup>s</sup> (000s)	-0.0027*** (0.001)	-0.0030*** (0.001)	0.0045*** (0.001)
Single Parent	0.0041*** (0.001)	0.0032*** (0.001)	0.0042*** (0.001)
Single Woman	0.0004 (0.001)	0.0795*** (0.007)	0.0192*** (0.002)
Married	-0.0132*** (0.001)	-0.0002 (0.002)	-0.0029*** (0.001)
HS	-0.0170*** (0.004)	-0.0340*** (0.006)	-0.0010 (0.001)
Some College	-0.0230*** (0.004)	-0.0406*** (0.005)	-0.0041*** (0.001)
College	-0.0240*** (0.003)	-0.0403*** (0.005)	-0.0106*** (0.001)
Disabled	0.1697*** (0.006)	0.0293*** (0.004)	0.2506*** (0.012)
Observations	573449	573449	573449

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Notes: All models include year and metro-area fixed effects. DHAV is the expected value of housing assistance for disabled households. <sup>s</sup> indicates the variable is measured at the state level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table 5: Effects by Family Type

	Single Parent	Single Woman	Single Man	Married
DHAV (000s)	0.0302*** (0.011)	0.0354** (0.017)	0.0396*** (0.008)	0.0185** (0.008)
Minimum Wage <sup>s</sup>	0.0021 (0.002)	0.0021 (0.002)	0.0001 (0.001)	0.0004 (0.000)
Median Income <sup>s</sup> (000s)	-0.0003 (0.000)	-0.0003** (0.000)	-0.0003*** (0.000)	-0.0001* (0.000)
Unemployment Rate <sup>s</sup>	-0.0004 (0.001)	-0.0012 (0.001)	-0.0009 (0.001)	0.0004 (0.000)
Welfare Benefits <sup>s</sup> (000s)	-0.0000 (0.001)	-0.0011 (0.001)	-0.0007 (0.001)	-0.0009** (0.000)
SSI Supplement <sup>s</sup> (000s)	0.0019 (0.003)	0.0053*** (0.002)	0.0012 (0.002)	0.0005 (0.001)
EITC Benefits <sup>s</sup> (000s)	0.0022 (0.001)	0.0018 (0.001)	0.0020 (0.002)	0.0002 (0.001)
SNAP Benefits <sup>s</sup> (000s)	-0.0094*** (0.002)	-0.0032** (0.002)	-0.0010 (0.001)	-0.0010** (0.000)
HS	-0.0166*** (0.004)	-0.0616*** (0.007)	-0.0310*** (0.004)	-0.0049** (0.002)
Some College	-0.0249*** (0.005)	-0.0779*** (0.008)	-0.0396*** (0.004)	-0.0070*** (0.002)
College	-0.0302*** (0.004)	-0.0775*** (0.007)	-0.0391*** (0.003)	-0.0089*** (0.002)
Disabled	0.2320*** (0.011)	0.2307*** (0.010)	0.2155*** (0.008)	0.1093*** (0.004)
Observations	91,166	75,024	89,335	317,924

Notes: All models include year and metro-area fixed effects. DHAV is the expected value of housing assistance for disabled households. <sup>s</sup> indicates the variable is measured at the state level.\*  $p < 0.10$ , \*\*

$p < 0.05$ , \*\*\*  $p < 0.01$  .

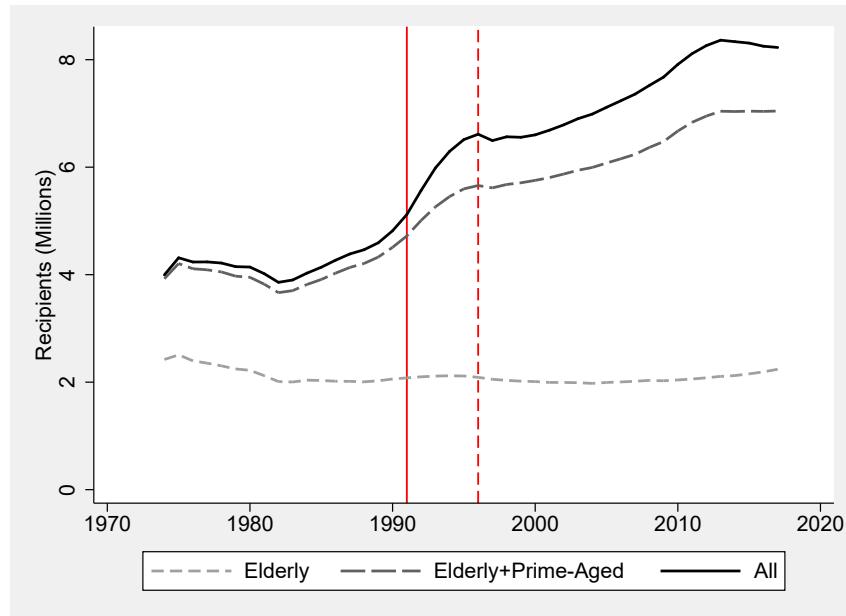
Table 6: Effects by Education Type

	College	Some College	HS Ed	< HS
DHAV	0.0210** (0.010)	0.0276*** (0.006)	0.0378*** (0.007)	0.0530*** (0.013)
Minimum Wage <sup>s</sup>	0.0002 (0.000)	0.0015 (0.001)	-0.0001 (0.002)	0.0012 (0.002)
Median Income <sup>s</sup> (000s)	-0.0001** (0.000)	-0.0002** (0.000)	-0.0002* (0.000)	-0.0005* (0.000)
Unemployment Rate <sup>s</sup>	0.0001 (0.000)	-0.0007 (0.001)	-0.0009 (0.001)	0.0005 (0.001)
Welfare Benefits <sup>s</sup> (000s)	-0.0003 (0.000)	-0.0006 (0.000)	-0.0022*** (0.001)	0.0002 (0.002)
SSI Supplement <sup>s</sup> (000s)	-0.0005 (0.000)	0.0013 (0.001)	0.0037** (0.002)	0.0045 (0.003)
EITC Benefits <sup>s</sup> (000s)	-0.0002 (0.000)	0.0001 (0.001)	0.0027** (0.001)	0.0029 (0.002)
SNAP Benefits <sup>s</sup> (000s)	-0.0021*** (0.000)	-0.0026*** (0.001)	-0.0037*** (0.001)	-0.0041** (0.002)
Single Woman	-0.0014* (0.001)	0.0001 (0.001)	0.0083*** (0.003)	0.0346*** (0.006)
Single Parent	0.0042*** (0.001)	0.0017 (0.001)	-0.0010 (0.002)	-0.0148*** (0.005)
Married	-0.0038*** (0.001)	-0.0098*** (0.001)	-0.0163*** (0.002)	-0.0396*** (0.004)
Disabled	0.0974*** (0.007)	0.1469*** (0.005)	0.1821*** (0.007)	0.2366*** (0.013)
Y FE	x	x	x	x
Metro FE	x	x	x	x
Observations	202,078	154,058	145,540	71,773

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

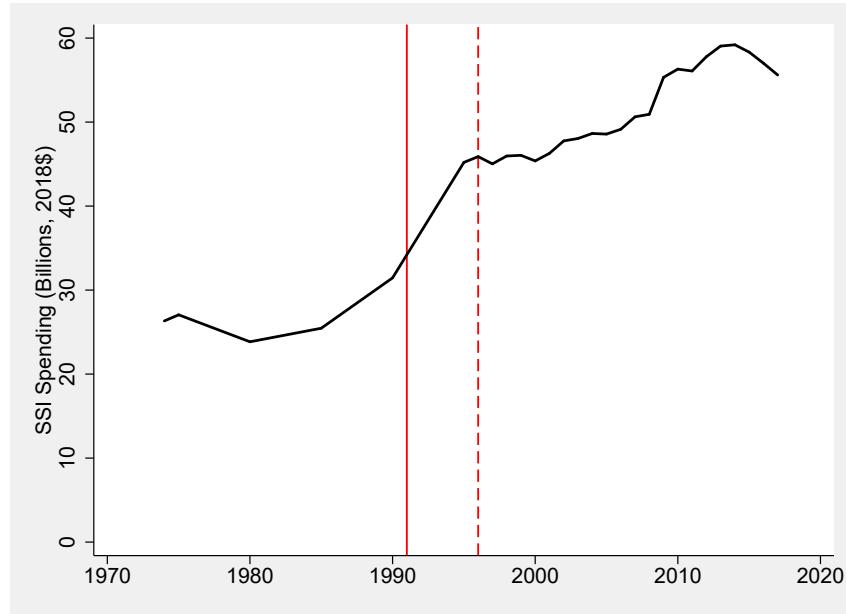
Notes: All models include year and metro-area fixed effects. DHAV is the expected value of housing assistance for disabled households. <sup>s</sup> indicates the variable is measured at the state level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Figure 1: SSI Recipients by Year and Category



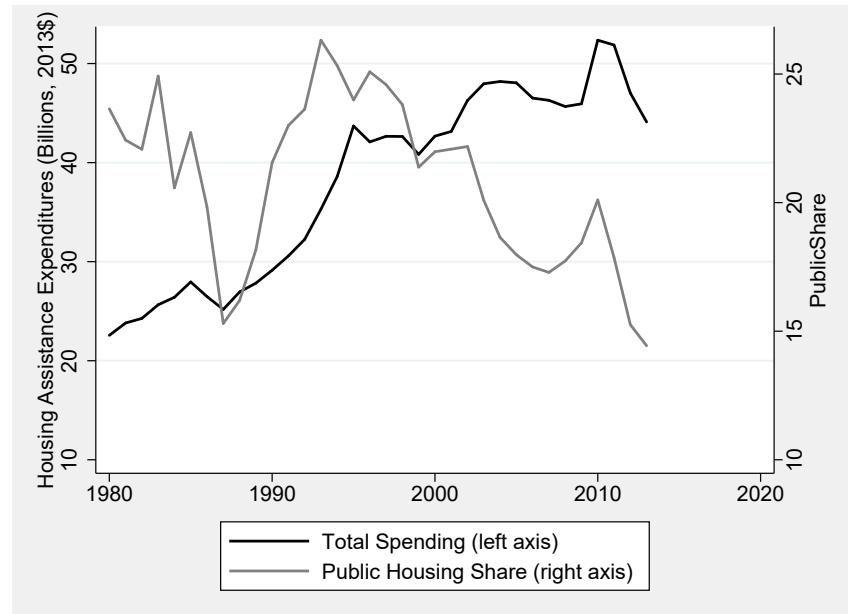
Note: This figure documents the increase in SSI recipients from 1970 to 2018, where it is predominantly from prime-aged recipients and children.

Figure 2: SSI Spending by Year



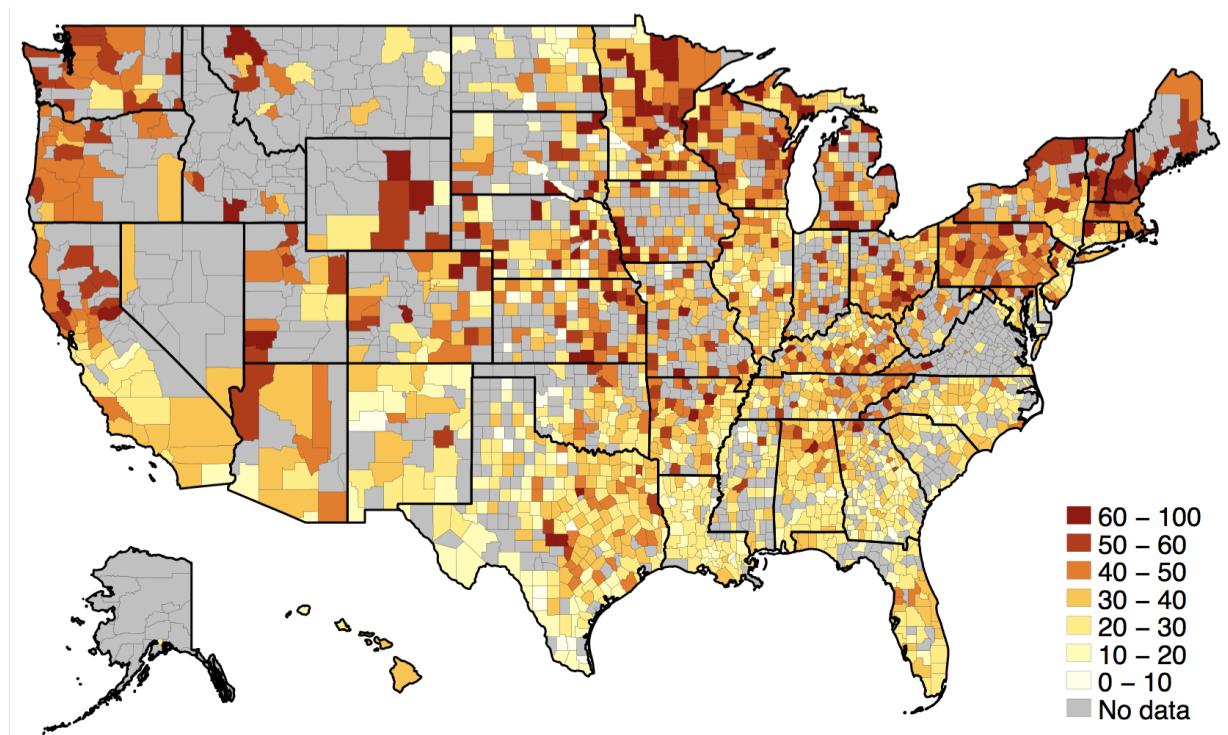
Note: This figure documents the increase in SSI spending from 1970 to 2018, where there was a sharp increase in the 1990s, but levels have remained relatively flat from 2010-2018.

Figure 3: Housing Assistance Spending



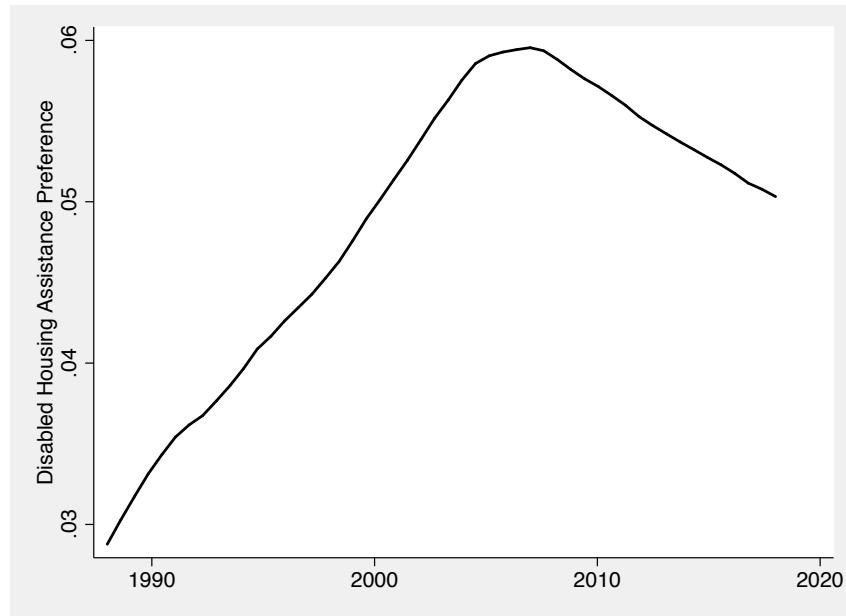
Note: This figure documents the increase in HUD housing assistance spending from 1980 to 2015, while the fraction of recipients has decreased since the mid-1990s.

Figure 4: Percent of Disabled Household Heads in Public and Section 8 Housing by County, 2016



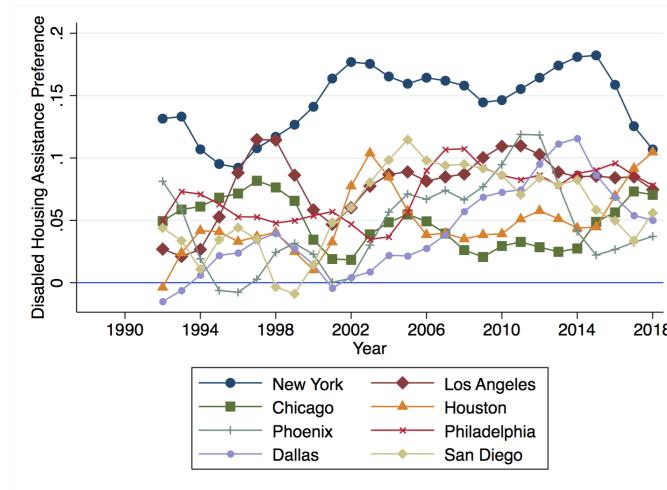
Note: This figure documents the spread in the fraction of household heads with disabilities in public and Section 8 housing by county in 2016. There are relatively higher fractions of disabled household heads in New England (over 60% of household heads in housing assistance have disabilities), and fewer in the Southeast (mainly under 20% of household heads in housing assistance have disabilities). There is a lot of within state variation.

Figure 5: National Disability Preference by Year



Note: This figure documents an increase in the national disability preference in housing assistance, where the preference increases from 1988-2010 and decreases from 2010-2018.

Figure 6: Disability Preference in 8 Largest Metro Areas by Year



Note: This figure documents the variation within the 8 largest MSAs in disability preference from 1990-2018. In nearly all years, every city has a disability preference greater than zero.



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