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Local Public Housing Authorities' Housing Choice Voucher Policies Can Affect SSI Participation

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Abstract

Supplemental Security Income (SSI) and Housing Choice Vouchers (HCVs) both play an important role in the assistance offered to low-income households with disabilities, but the interaction of these programs is largely unstudied. A primary relationship between these programs is the preference Public Housing Authorities (PHAs) can give to household heads with disabilities on HCV waiting lists. While this increased access to valuable HCVs could incentivize households to apply for SSI, households believing they may soon receive an HCV could choose to forego SSI applications since rent is typically the largest household expenditure for HCV applicants. This study hand-collects HCV policies, including waitlist procedures, waitlist preferences, and the time periods HCV waitlists were open from 2010-2017 for over 1,150 local PHAs. We then test whether or not the open waitlist periods in areas with HCV disability preferences affect SSI applications or awards. Our findings suggest that when local PHAs with disability preferences open their waitlists, SSI applications and awards fall. This suggests that increasing funding for and accessibility to HCVs for low-income household heads with disabilities may reduce reliance on SSI.

1 Introduction

Interactions of social safety net programs are can be complex but are important for policy. For instance, Supplemental Security Income (SSI) largely targets low-income households where at least one member has a disability to receive a modest monthly cash transfer, and being eligible for SSI automatically qualifies one for Medicaid and SNAP,[1] while typically disqualifying the individual from receiving TANF[2] cash benefits.[3] Receiving SSI qualifies one for—but does not guarantee—the receipt of housing choice vouchers (HCVs). The HCV program is particularly interesting because HCVs are rationed, meaning many eligible applications are denied due do to limited units. Though receiving SSI does not guarantee a household will receive an HCV, in many areas household heads with disabilities receive prioritized access to these valuable units.[4] A naïve look at the data suggests 36% of HCV non-elderly recipients are household heads with disabilities.[5] This project explores the complementarity or substitutability of two programs aimed at low-income individuals: SSI and HCVs.

Housing assistance is a large benefit for low-income households, yet because of a limited number of available units, only a quarter of those income-eligible households actually receive housing assistance (Collinson et al., 2015). After receiving HCVs, recipients tend to keep these benefits for many years. In 2015, the average HCV household exiting the program had received benefits for 6.6 years.[6] While not exclusively available to household heads with disabilities, local Public Housing Authorities (PHAs) can choose how to prioritize eligible households on oversubscribed waitlists and it is common for PHAs to designate a preference for household heads with disabilities. We ask how the availability of preference-based housing assistance affects SSI applications and awards?

In this paper, we hand-collect data from 1,154 local PHAs across the country in order to obtain a broader picture of HCV waitlist administration and preferences. We begin by documenting national variation in preference-based housing assistance—in contrast to first-come-first served or lottery systems—in local PHAs. After documenting these geographical patterns, we are the first to show variation in the number of months per year local PHAs had open waitlists from 2010-2017. Then we seek to understand the effects of having an open waitlist in an area with a preference for household heads with disabilities on SSI applications. The availability of preference-based housing assistance could increase SSI participation by incentivizing marginal disability applicants to seek a disability diagnosis from a physician. However, there are two reasons that availability of preference-based housing may reduce SSI participation. Because applying for SSI is financially less time-intensive after receiving an HCV, it could be the case that household heads may delay applying for SSI if they believe they will soon receive an HCV. Further, the implicit tax on SSI income through the HCV rent formula may also dissuade marginal SSI applicants. Given these three potential explanations, understanding whether SSI and HCVs are complements or substitutes remains an open empirical question.

This paper contributes to two main literatures. First, we contribute to the academic literature studying HCVs, where we take a much broader, nationally-representative approach. Much of the housing assistance research in the Economics field comes from Moving-to-Opportunity (MTO) experiments that randomly assign HCVs to residents of public housing across six cities: Baltimore, Boston, Chicago, Los Angeles, New York, and Seattle.[7] However, the MTO experiment is limited to only studying the intensive margin effects of transitioning a household from public housing to an HCV and on which neighborhood an HCV can be used in. Remaining papers study cities where there are lottery-based systems (Carr and Koppa, 2020; Jacob and Ludwig, 2012; Abt Associates Inc., 2006) and look at the causal effects of receiving HCVs on the economic, crime, and health consequences of these HCVs. While prior research focuses on PHAs that have lottery-

[1] SNAP is the Supplemental Nutritional Assistance Program.

[2] TANF stands for Temporary Assistance for Needy Families.

[3] While SSI disqualifies the individual from receiving TANF, it does not disqualify the household.

[4] Throughout the paper, we will say "household heads with disabilities" but these preferences also include spouses or other prime-aged adults in the household with disabilities. They do not include children or elderly household members with disabilities.

[5] `https://pic.hud.gov/pic/RCRPublic/rcrmain.asp`

[6] `https://www.huduser.gov/portal/sites/default/files/pdf/LengthofStay.pdf`

[7] For example, see Katz et al. (2001); Ludwig et al. (2001, 2005); Leventhal and Brooks-Gunn (2003); Shroder (2002); Kling et al. (2005); DeLuca and Rosenblatt (2017); Galiani et al. (2015); Bergman et al. (2019); Sanbonmatsu et al. (2006)

based HCVs or uses the MTO experiment to estimate causal effects,[8] we document that fewer than half of local PHAs use *either* lotteries or first-come-first-served allocation systems. Our study focuses on the more common situation of HCV-eligible households competing for scarce open HCV slots. We first takes a step back to understand how local PHAs operate waitlists and when waitlists open and close across 1,154 local PHAs, compared to the fewer than ten PHAs usually studied in the prior literature. Expanding the scope of PHA policies outside of large urban areas is particularly relevant for interactions with SSI as disability rates and SSI claiming behavior is higher in rural counties relative to urban counties (Zhao et al., 2019). To the best of our knowledge, we are the first to provide documentation of local housing policies across the U.S., including the preferences for non-elderly household heads with disabilities. Indeed, we show that 48% of local PHAs have a documented preference for household heads with disabilities. We further provide new information on when and for how long HCV waitlists open across the country.

The closest prior work to ours is Abt Associates Inc. (2006), who randomly assign HCVs in six cities: Atlanta, Augusta, Fresno, Houston, Los Angeles, and Spokane to see the effect of HCV receipt on labor force participation and program participation. In an appendix table, they show that SSI participation falls with receipt of an HCV. We build upon their work by understanding how the HCV rationing policies could change program participation prior to receiving an HCV as opposed to decisions following HCV receipt. We ask a slightly different question: do HCV waitlist preferences for household heads with disabilities affect SSI program participation? In the end, our results are similar to those of Abt Associates Inc. (2006), where we provide additional evidence that SSI and HCVs are substitutes.

Second, we contribute to the literature understanding policies and factors that affect SSI and Disability Insurance (henceforth, SSDI) participation.[9] Since SSDI specifically require individuals to prove disabilities to obtain benefits, it may seem that outside factors should not affect participation. However, previous literature has shown that marginal participants can be induced by economic conditions or financial incentives into SSDI participation. Specifically, Autor and Duggan (2003) find that SSDI participation is responsive to economic conditions and the SSDI wage replacement rate. Maestas et al. (2013) use judge random assignment to look at the effects of SSDI receipt on labor supply, finding a large reduction in labor supply (28 percent) in response to SSDI receipt among marginal applicants. Work by Deshpande and Li (2019) find that increasing the SSI application cost, through SSI office closures, reduced SSI awards.[10]

In addition to understanding outside factors that may affect participation, we contribute to the literature that seeks to understand how the generosity of other programs affects SS(D)I participation. Garrett and Glied (2000) and Schmidt and Sevak (2004) show that work requirements for Aid for Families with Dependent Children (AFDC) increases SS(D)I participation while greater AFDC/TANF benefits reduced SSI participation. Burns and Dague (2017) find that states' decisions to expand Medicaid to non-disabled, non-elderly adults without dependent children (from 2000-2013) reduced their reliance on SSI. However, Schmidt et al. (2019) and Soni et al. (2017) find that the blanket Medicaid expansions beginning in 2013 did not affect SSI participation.

Our hand-collected data show that nearly half of local PHAs have preferences for household heads with disabilities. There is additional interesting variation in the frequency and duration of local PHA waitlist openings: 23% remained open and 9% never opened their waitlists from 2010-2017. Our findings suggest that when local PHAs with disability preferences open their waitlists, there is a *reduction* in SSI applications and receipt compared to other areas without disability preferences or PHAs that always remained opened or closed in the time period. These results suggest that waitlist openings in PHAs with disability preferences for HCVs do not nudge applicants to simultaneously apply for HCVs and SSI. Instead, the two appear to be substitutes. Perhaps these HCVs are indeed providing households with necessary resources to reduce the likelihood of beginning the SSI application process.

[8] One exception is Currie and Yelowitz (2000) who look nationally at public housing and children's outcomes using a natural experiment, though this does not study HCVs at all. Chyn (2018) also uses a natural experiment based on the demolition of public housing but only studies Chicago.

[9] The biggest distinguishing factor between SSI and DI is that DI requires work history.

[10] In related work, Deshpande (2016) finds that SSI youth failing their age 18 disability medical review have sizable reductions in lifetime earnings.

2 Policy Details

2.1 SSI

The federal SSI program was created by the Social Security Amendments of 1972 as a cash assistance program available to low-income populations with disabilities or elderly populations. SSI participants in 2020 receive a maximum of $783 per month ($1,175 for couples) and are automatically eligible for Medicaid and SNAP. SSI benefits are reduced by $0.50 for each $1 of earned income, after an initial $65 per month income disregard, and participants earning more than the substantial gainful activity threshold ($1,260 in 2020) lose program eligibility. Unearned income, including Social Security benefits, reduced SSI benefits by $1 for each $1 of unearned income after an initial $20 income disregard. Receiving housing assistance does not affect SSI benefits.

The disability determination process for adult SSI is identical to the SSDI procedure. Social Security defines a disability as "the inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment(s) which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than 12 months." While applicants with severe disabilities can expedite their applications, the total processing time typically takes many months or even years to complete. According to O'Carroll (2008), the average time from application to initial determination is about four months (121 days). One-third of applications receive a successful decision on initial appeal, and appealing to the highest level usually takes two years (Duggan et al., 2015).

2.2 Housing Choice Vouchers

Housing Choice Vouchers (HCVs), also known as Section 8 or tenant-based vouchers, provide federal housing subsidies for recipients to reside in private-market housing units of their choosing. Applicants must meet program eligibility requirements, which include earning less than 50 percent of area median income.[11] An HCV recipient must select a unit that is below the "fair market rent" of the area, typically set as the 40th percentile of recent rental values. While residing in the unit, the HCV recipient is required to pay 30% of their income towards rent while the local PHA pays the remaining portion of the rent. HCV recipients are allowed to move between units as they wish provided the units meet eligibility criteria. There are no mandatory time limits on HCV receipt.

As of 2015, HCVs provided 2.2 million housing vouchers at an annual cost of $19 billion, or $8,914 per voucher-year.[12] However, far more households are eligible for HCVs than receive them. Collinson et al. (2015) estimates that only a quarter of eligible households receive housing assistance. HUD leaves local PHAs to choose how to allocate these coveted HCVs. PHAs get to decide how to manage their waitlists and how to prioritize applicants from vulnerable groups.[13]

2.3 Program Interactions

SSI and HCVs interact in both direct and indirect ways. The incentives for applying for SSI interacted with the opening of HCV waitlists that prioritize households with disabilities t is theoretically ambiguous.

In districts where PHAs prioritize household heads with disabilities, applying for SSI could increase the likelihood of receiving an HCV. Since many confer disability with a less rigorous process than the SSI process,

[11] PHAs must have 75% of its HCV recipients be below 30% of area median income, which further complicates eligibility. Median income levels vary by area and are published by HUD.

[12] `https://www.cbpp.org/research/housing/national-and-state-housing-fact-sheets-data`

[13] See `https://www.hud.gov/sites/documents/DOC_35614.PDF` for more on HUD's recommendations on waitlists and applicant selection.

verifying a disability for the HCV process may lower the cost of starting the burdensome SSI application. The HCV application may be a "gateway drug" to SSI application. For example, a household head with a disability that does not currently receive SSI may see a health care provider to diagnose a disability to satisfy the criteria for a local PHA's disability preference. This initial step could lower the individual's cost—in terms of time burden—of completing the SSI application process, hence increasing SSI applications.

At the same time, there are reasons to think increased HCV access for households with disabilities could reduce SSI applications. First, housing is typically the largest expenditure for low-income households, and since the SSI application process is burdensome, one may choose to wait to apply until after obtaining an HCV. This means that opening an HCV waitlist could reduce SSI applications in the short-run but then increase applications in the long-run.

Second, the HCV rent assistance formula is such that additional SSI income could dissuade marginal SSI applicants. Rent payments for HCV recipients incorporate SSI income. Ceteris paribus, the value of an HCV declines as household SSI income increases.Adults with disabilities who expect to receive HCVs may feel as if the larger HCV benefits make up for the expected future benefit associated with applying for SSI, particularly for adults on the margin of applying who may still be able to remain attached to the labor force.

3 Data

We rely upon a merge of three primary datasets. We start with hand-collect data on the administration of HCV waitlists. Second, we pair these data with HUD's Picture of Subsidized Housing to obtain the number of HCV units for that PHA. Third, we pair the merged data with SSI application and participation data from SSA. Since the SSA data are at the county-level, we aggregate the PHA-level data to the county-level as well. We discuss this procedure below.

3.1 Hand-collected HCV Data

Our work builds upon the field's understanding of preferences in local PHAs, where we hand-collect data to see which PHAs have disability preferences. We additionally collect details on how the PHA operates its waitlist. Beginning in the summer of 2018, we asked (1) whether or not the PHA operated a waitlist for HCVs, (2) each date the waitlist opened for new applicants and subsequently closed from 2010-2017, (3) whether or not the PHA used preferences for allocating HCV slots (vs. waitlists or first-come-first-served), (4) whether or not they had a preference for household heads with disabilities, and (5) any other preferences they had in operating their waitlist.[14]

Our data collection process consisted of four steps with a team of ten research assistants. We began by identifying all PHAs from the HUD dataset of PHA contact information by state. First, we made e-mail contact with all PHAs, asking for our requested information. Second, we followed up with phone contact if we did not hear back. Third, we repeated steps one and two if we had no contact. Fourth, we mailed the information request with a self-addressed stamped envelope to the remaining PHAs. Roughly one third of the mailings were "returned to sender" saying the address was not valid.

We have complete data for 1,154 local PHAs, and have had successful contact with 1,397.[15] Those without complete data stated that they no longer had access to the information we requested, particularly the open and close dates. This leaves 735 that we could not make contact with. Some of the PHAs wrote back reporting they had consolidated with another local PHA, others closed over our time period, and many had phone lines and emails that were no longer operational.

[14] In initial e-mails and phone calls, we asked about whether or not the preferences changed over our time period, and all said no. Thus, we no longer asked that in the mailing to keep the information request short.

[15] While we would love for this to be a Census, disruptions from COVID-19 returned all of our mailings to sender post-April. We were also unable to make phone or e-mail contact with these remaining PHAs.

Prior to our data collection, the only PHA survey on preference systems to date was a 2012 HUD survey primarily interested in homelessness preference (2014). This web-based survey included 1,825 PHAs who answered their first question regarding the type of allocation system. In their data, 62% of PHAs used preference systems to allocate HCVs. The remaining 38% of PHAs used first-come-first-served or lotteries. Far fewer PHAs provided details on preference systems. Only 500 responded to the disability preference question,[16] where 55% reported they had a preference for household heads with disabilities. Our overall statistics are quite similar to the HUD survey. Across our PHAs, 48% report having a preference for a household head with disability.

All PHAs include receiving SS(D)I payments as a means of disability verification. However, alternative disability verification methods could be available.[17] For some PHAs with disability preferences, we asked how they verified the disability. Below are two examples from the Minneapolis and New York City PHA's documentation.

Example 1, New York City : *Documentation includes but is not limited to: letters regarding qualification for or receipt of SSI payments or disability benefits from the responsible agency; proof of residence in an institution; documents showing hospitalization for a disability; or a letter from another knowledgeable professional such as a health or service professional or a social worker.*

Example 2, Minneapolis : *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.*

3.2 HUD HCV Data

We obtain data on the PHA-level and county-level HCV recipients from 2009-2017 HUD Picture of Subsidized Housing.[18] We restrict our sample to those PHAs that allocate HCVs when determining which PHAs to contact for our hand-collected data. We additionally obtain the number of HCV units in each year from these data. Separately, we use these data to control for the number of public housing units by year. At the PHA-level, we will use these data to determine the difference in the demographic composition of PHAs with and without disability preferences.

3.3 Program Participation Data

We obtain county-level data by year from 2010-2017 on SSI applications and awards directly from the SSA.[19] Our main specifications will consider only prime-age SSI applications and awards (18-65), and in a placebo test, we will consider applications and awards for children (< 18) and the elderly (> 65).[20] These data are missing for counties with fewer than 10 observations (for either outcome). We map SSI applications per 100 prime-aged adults by county in Figure A.5 for 2017 to provide context for the geographical variation.

3.4 Data Aggregation

Since our SSI data are at the county-level, we aggregate our hand-collected PHA data to the same unit of analysis. To do this, we take a weighted average of disability preference, months open per year, and the number of units the local PHA services. We assign each PHA to the county it is located in. PHAs typically

[16] This is less than half of those with preference-based waitlists.

[17] The full HUD disability verification form is here `https://www.hud.gov/sites/documents/90103.PDF`.

[18] These data can be found at: `https://www.huduser.gov/portal/datasets/assthsg.html`.

[19] We would prefer to have monthly or quarterly data, but we could not obtain this from SSA .

[20] We focus on prime-age SSI applications as most PHAs state a disability preference only for the household head or adult in the household.

serve counties or large cities, though they can accept applications from other jurisdictions. In addition to local residents being more likely to see announcements for waitlist openings, it is common for PHAs to have a local resident waitlist preference. Assuming the waitlist opening only affects households in the PHA county is conservative and will understate the magnitude of the effects.

We do the aggregation as follows: $X_{ct} = \sum_{j=1}^{J} mo_{jt} \times dp_{jt} \times (\frac{Units_{jt}}{Units_{ct}})$. In this equation, j is each PHA within a county, mo is the number of months the given PHA was open in that year, dp is a dummy representing whether or not that PHA has a disability preference, and $units$ is the number of HCV units the PHA had in total that year. We divide the sum by the total number of HCV units in the county to obtain an average. In an alternate specification, we alter the mo_{jt} variable to be equal to 1 if the PHA's waitlist was ever open in that year and zero otherwise.

3.5 Sample Selection

Since we do not have a full census of PHAs, we verify that our data are not clearly selected on any characteristics of specific PHAs. We regress existence in the sample on the number of HCV units, public housing units, fraction of HCV units with prime-aged household heads with disabilities, the fraction of elderly residents receiving HCVs, average wait times, and state-level fixed effects. We report these coefficients in Figure A.1, where there are no statistical differences. In addition, we show a map in Figure A.2 that reports the fraction of HCV units and PHAs within each county that are covered in our hand-collected data. In most counties, we have full coverage conditional on having data. For those where we do not have full coverage, there are no clear geographic patterns in missing data.

4 Descriptive Differences Across PHAs

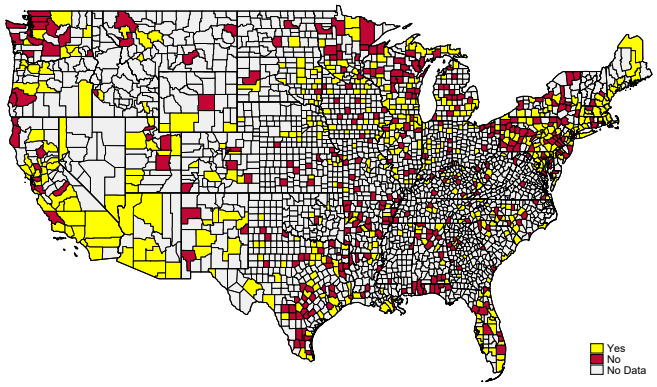
We begin by showing our hand-collected data in maps, paired with HUD data on HCV participation, to explain the differences across PHAs with and without disability preferences. First, Figure 1 depicts counties where at least one PHA located within the borders has a disability preference for HCVs (yellow) and where no PHA located within the borders has a disability preference for HCVs (red). The white areas are those for which we were unable to secure data, or they have no PHAs located within the boundaries. At first glance, the two colors seem to be dropped at random across the country. Upon closer inspection, Southern California, Arizona, and New England all have more counties with at least one PHA with a disability preference. However, within states where we have better coverage, such as Florida, Pennsylvania, and Texas, the pattern seems more random.

Figure A.4 further plots the fraction of HCV units in the county that are subject to disability preferences. For example, if one PHA in a county has a disability preference and serves 1,000 HCV units, and a second PHA in the same county has no disability preference and serves 9,000 HCV units, the fraction in the county with a disability preference would be 10 percent. This measure shows more variation across counties, particularly in the areas more likely to have at least one PHA with a disability preference.

In Figure A.6 we compare our raw data at the PHA-level to see if PHAs with disability preferences have higher proportions of prime-aged household heads with disabilities receiving HCVs. PHAs with disability preferences do have a slightly higher fraction of prime-aged household heads with disabilities (1.5 percentage points, or about 4 percent higher). The second panel compares PHAs with and without disability preferences across each year in our sample, accounting for state-level fixed effects to hold policy environments within states constant. The differences across PHAs with and without disability preferences are relatively consistent 2010-2017—between a one and two percentage point difference.

While some counties have PHAs that always remained open (23%), others never opened over the entire 2010-2017 period (9%). Figure 2 maps our data on waitlist openings, where counties in yellow had waitlists that were always open, counties in red had no openings, and the remaining colors had variation in openings

Figure 1: Counties where at least one PHA has a disability preference

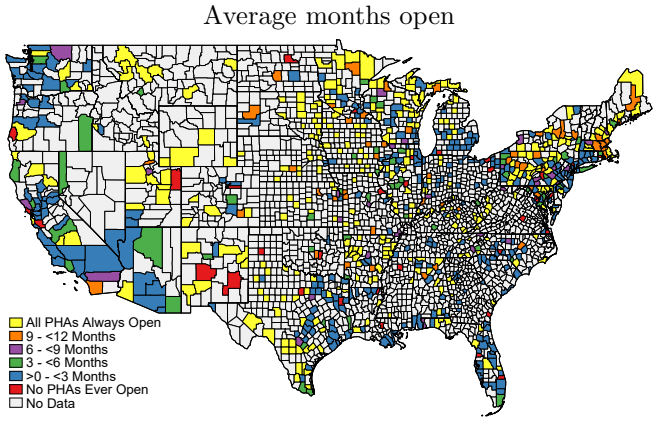


Notes: Each county is labeled as having a disability preference if at least one PHA in the county has a preference in their HCV waitlist for prime-aged household heads with disabilities. The data span 2010-2017, though we do not document any variation in preferences over that period. Source: Authors' hand-collected data from local PHAs.

and closings from 2010-2017. These colors again appear to be distributed randomly across the country. In Figure A.7 we plot the descriptive statistics of months open per year over time. This graph shows that the average, median, 25th percentile, and 75th percentile of the number of months open remained similar across all years. Though smaller PHAs had a higher average number of months open than larger PHAs, both had relatively the same number of months open. This suggests that openings are uncorrelated with national economic trends.

There are additional trends across regions of the U.S., where PHAs in the Northeast are open the most, followed by the Midwest, the South, and the West. The map in Figure 2 confirms these regional trends: the Northeast has more counties where all PHA waitlists are always open (yellow), followed by the Midwest, Southeast, and West. However, there is some variation within each region, which we will use to identify our effects.

Figure 2: Months HCV waitlist is open (County-level)



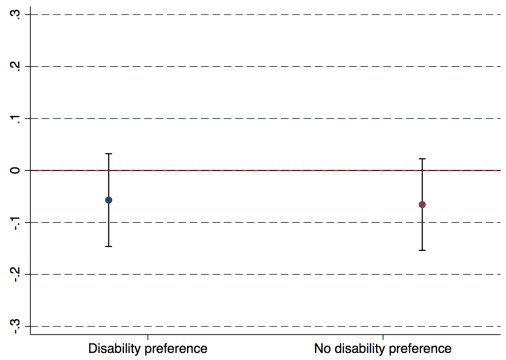
Notes: The map shows the average months the waitlist was open by county, weighted by the number of HCV units in each PHA. Source: Authors' hand-collected data from local PHAs (2010-2017) and HUD's Picture of Subsidized Housing for 2017.

5 Empirical Strategy

Our empirical strategy relies upon plausibly exogenous changes in opening and closing dates of HCV waitlists by PHAs. Our identifying assumption is that local PHA opening and closings are orthogonal to county-level SSI applications and awards. We think this is plausible since local PHAs that are closed often report opening when either (1) they have not been open for a while and decide to purge the current waitlist since many households will no longer be eligible, (2) the waitlist is getting short and if space becomes available, they may not have enough households to fill open slots, (3) they have an administrative change and want to reset the waitlist, or (4) an administrator within the PHA has time that year to review and process the waitlist. While it may seem at first like the space on the waitlist could be correlated with contemporaneous economic conditions, which are likely to be affect SSI participation (Autor and Duggan, 2003), the waitlist time for an HCV for those who eventually get one is 17 months and the 75th percentile is 31 months. This does not count the months a household is eligible but not on the waitlist because it is closed. Since so many people who are eligible for HCVs never get them, we argue that HCVs waitlist openings—and local PHA policies—are not able to respond to current economic conditions. In Figure 3 we plot coefficients from regressions that show county-level time-varying unemployment rates do not predict the months opened in a given year, after accounting for county and year fixed effects.

$$Y_{cst} = \beta_0 + \beta_1 X_{cst} + \beta_2 Z_{st} + \beta_3 Q_{cst} + \gamma_c + \eta_t + \delta_{r(s)t} + \epsilon_{cst} \tag{1}$$

Figure 3: Unemployment rates are uncorrelated with months the HCV waitlist is open



Notes: These figures depict coefficients and 90% confidence intervals for regressions of months the HCV waitlist was open and county unemployment rates for areas with and without disability preferences. These regressions include county and year fixed effects. Source: Authors' hand-collected data from local PHAs and SSI applications and awards from SSA from 2010-2017.

Our dependent variable of interest, Y_{cst} alternatively represents SSI applications or SSI awards in county (c) by year (t), where we log the dependent variable. In the appendix, we provide additional robustness checks with different transformations of the dependent variable, such as levels and per capita measures. Our independent variable of interest (X_{cst}) is the average months each year the waitlist is open within PHAs with disability preferences. Thus, our coefficient of interest, which we will report in each table, is β_1. In addition to the continuous measure, we provide an alternate specification in the appendix that instead measures whether or not any PHA in the county with a disability preference had an opening.

Our preferred specification accounts for county (γ_c), year (η_t), and region-by-year ($\delta_{r(s)t}$) fixed effects, as well as time-varying state policy environments (Z_{st}) and time-varying county-level covariates (Q_{cst}). The region-by-year fixed effects represent the ten SSI office serving the state.[21] Z_{st} contains a vector of state-level

[21] These offices are in Atlanta, Boston, Chicago, Dallas, Denver, Kansas City, New York, Philadelphia, San Francisco, and Seattle.

time-varying characteristics, such as the state EITC rate, maximum state/federal minimum wage, maximum SNAP benefits for a family of three, SSI state supplements, and the maximum AFDC/TANF benefits for a family of three and number of months TANF is limited to. Q_{cst} contains a vector of county-level time-varying characteristics, such as the unemployment rate from the BLS, house prices from the FHFA, the fraction of the population between age 18 and 65,[22] and the number of public housing units from HUD. We are careful to cluster our standard errors at the county level, as this is closest to the unit of policy variation (PHA); our standard errors correct for heteroskedasticity.

In additional specifications, we also include the lag of X_{cst} to see if there is a delay in applications or awards. The lag is most intuitive when considering the SSI awards outcome, as the average lag between application and award is 9 months.[23]

While we would ideally like to do an event study specification, our data do not allow for this for three reasons. First, among those counties with PHAs that open and close over our sample period, the majority open and close multiple times. This makes several years simultaneously "pre" and "post" years. Data at smaller time intervals (e.g., monthly or quarterly) are not available. Second, forcing a sample of only "control" counties where either all waitlists were always open or all waitlists were always closed and "treatment" counties where there was only one opening after the first year limits the sample to under 300 observations, providing too little power for an event study. Third, even in that "ideal" setup, we cannot observe if waitlists were open before 2010, meaning that some counties may have had PHAs with open waitlist in that period. Even though we cannot perform a credible event study, we think our identification assumption that the timing of waitlist opening and closings are plausibly random for the four reasons described above.

6 Results

Does prioritizing households with disabilities for HCVs induce more SSI applications? Or does the increased possibility of obtaining HCVs reduce applications to SSI? Our results seek to understand the effects of having more open waitlist months in counties with a greater disability preference on SSI applications and awards.

We begin with Table 1 looking at the effects of waitlist openings in areas with greater disability preferences on SSI applications. Column (1) estimates our full model in Equation 1 and Column (2) adds a lag of the independent variable. Across all specifications, the coefficient on X remains consistent: a one unit increase in X—which can be interpreted as one more month of an open waitlist in a county where all PHAs have a disability preference or two more months in a county where half of the PHA units have disability preferences—decreases SSI applications by prime-age individuals by 0.3 percent.

This result suggests that the potential for HCVs for household heads with disabilities could reduce future reliance on SSI. While the magnitude is relatively small, the findings refute the "gateway drug" hypothesis, where individuals may visit a doctor to report their disabilities to PHAs and follow up with the medical requirements to apply for SSI. Column (2) shows that while the lagged effect is positive, the magnitude is smaller than the coefficient on the contemporaneous period and is not statistically different from zero.

Next, we explore the effects of waitlist openings in areas with greater disability preferences on SSI awards. Columns (3) and (4) of Table 1 show a contemporaneous decrease in awards in a similar magnitude as the decline in applications, though in Column (3) this is not statistically different from zero. The lagged model in Column (4) is important as there is a delay between SSI applications and awards. However, we see a similar pattern for both applications and awards, where lagged months open with disability preference modestly increases awards, though this is not statistically different from zero and the magnitude is small. Since we see a decrease in contemporaneous awards as well as applications, this suggests that many of the individuals who do not apply for SSI because of the potential availability of preference-based HCVs, would have likely been awarded SSI in the first round of the application.

[22] When we change our dependent variable to be applications or awards per capita in a robustness check, we drop this control.

[23] See, for example `https://oig.ssa.gov/sites/default/files/audit/full/pdf/A-01-08-18011.pdf`.

Table 1: Additional months of HCV waitlist openings in areas with disability preferences reduce SSI applications and SSI awards

	(1) ln(SSI Apps)	(2) ln(SSI Apps)	(3) ln(SSI Awards)	(4) ln(SSI Awards)
X	-0.0024*	-0.0031**	-0.0023	-0.0034*
	(0.0015)	(0.0014)	(0.0016)	(0.0018)
Lag X		0.0020		0.0011
		(0.0014)		(0.0021)
County and Year FE	Yes	Yes	Yes	Yes
State Policy Variables	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes
Region-by-Year FE	Yes	Yes	Yes	Yes
N	6,231	5,448	6,148	5,369
R^2	0.995	0.995	0.990	0.990
X Mean	3.047	3.054	3.047	3.054

Notes: Robust standard errors clustered at the county-level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. $X_{ct} = \frac{1}{Units_{ct}} \sum_{j=1}^{J} mo_{jt} \times dp_{jt} \times units_{jt}$, where units is the number of HCV units in a local PHA j in year t, dp is whether or not that PHA has a disability preference, and mo is the number of months that PHA had an open waitlist in year t. Units is the total number of HCV units in the county.

6.1 Placebo Test and Robustness

We perform a placebo tests in Table 2, where, we drop all counties with disability preferences if they have variation in months open and closed. We then estimate the effects of additional months open among counties with no disability preference on each of our outcome variables. Columns (1) and (2) show a precise null effect on applications; Columns (3) and (4) show an effect that is not statistically different from zero and is a tightly estimated zero in Column (4). This placebo test helps to confirm that our results are not spurious.

We include additional robustness checks in the Appendix. First, we drop the first year of our data in Panel A of Table A.1. We do this because we are concerned that PHAs may not have provided accurate data for the first year (2010), especially since there was likely turnover in some PHA staff between the time of contact and 2010. Second, we drop counties without full coverage (meaning, we are missing PHAs within that county) in Panel B of Table A.1. Our results remain robust to both sample modifications.

Third, we show that our results are comparable in sign and magnitude if we change our independent variable of interest to instead measure whether or not any PHA in the county with a disability preference was open at all during the given year (Table A.2). We caution that these results become noisier, as they miss the additional variation in the duration of time open: one month or all twelve months. Since it could be the case that eligible residents do not have enough time to respond to waitlists that are open for a month or less, this likely understates our effect in absolute value.

Fourth, we change the functional form of our dependent variable in Table A.3 to be the number of applications or awards per 10,000 prime-aged individuals. We model this as a negative binomial, which accounts for the zeros in the data and the count nature of the dependent variable. Our results remain robust.

Fifth, Table A.4 weights our main regressions by population size to provide an estimate that reflects the full U.S. population and does not over-weight small counties. In this specification, coefficients on SSI applications and awards become larger in magnitude (even more negative).

Sixth, we explore one state with the closest to full coverage: Pennsylvania. Because one of the research

assistants on the team was from Pennsylvania and knew people working in housing authorities, we had better luck successfully reaching out to Pennsylvania PHAs. Table A.5 shows these results, and though our sample size is smaller, our coefficients are generally similar in sign and magnitude.

Table 2: Placebo test: counties with no disability preference see no effect of additional months of waitlist openings on SSI applications or awards

	(1) ln(SSI Apps)	(2) ln(SSI Apps)	(3) ln(SSI Awards)	(4) ln(SSI Awards)
MO	-0.0006	-0.0004	-0.0015	-0.0007
	(0.0019)	(0.0016)	(0.0030)	(0.0029)
Lag MO		0.0010		-0.0005
		(0.0017)		(0.0023)
N	2,606	2,279	2,579	2,252
R^2	0.993	0.993	0.986	0.986

Notes: Robust standard errors clustered at the county-level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. $MO_{ct} = \frac{1}{Units_{ct}} \sum_{j=1}^{J} mo_{jt} \times units_{jt}$, where units is the number of HCV units in a local PHA j in year t and mo is the number of months that PHA had an open waitlist in year t. Units is the total number of HCV units in the county. For this analysis, we drop all of the counties with PHAs that have disability preferences.

7 Discussion

This project documents the presence of local PHAs with disability preferences in operating their HCV waitlists across the country. It then shows that when PHAs with disability preferences open their waitlists, SSI applications fall. These findings suggest that the potential benefits of rental assistance to low-income household heads with disabilities are important enough to skip SSI applications—even for households who likely would have received SSI awards after the first round of application. We further do not observe a change in SSI applications (or awards) one year after preference-based waitlist openings, suggesting the waitlist openings are an important event for this subset of households.

While our results explore the potential relationship between two policies aimed at low-income adults with disabilities, more research should work to understand how eventually obtaining HCVs affects program participation for household heads with disabilities—a group largely ignored in the HCV and MTO literatures. While using lottery systems to measure the effects of receiving HCVs is useful, future research focusing on measuring the costs or potential benefits of operating housing assistance through a rationing mechanism remains of great interest to policymakers and economists.

Our results ultimately suggest that a major investment in housing assistance, particularly for vulnerable populations that may not have extensive labor market opportunities, may actually reduce reliance on SSI.

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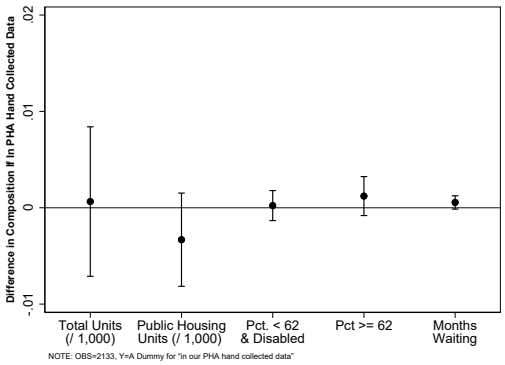
8 Appendix

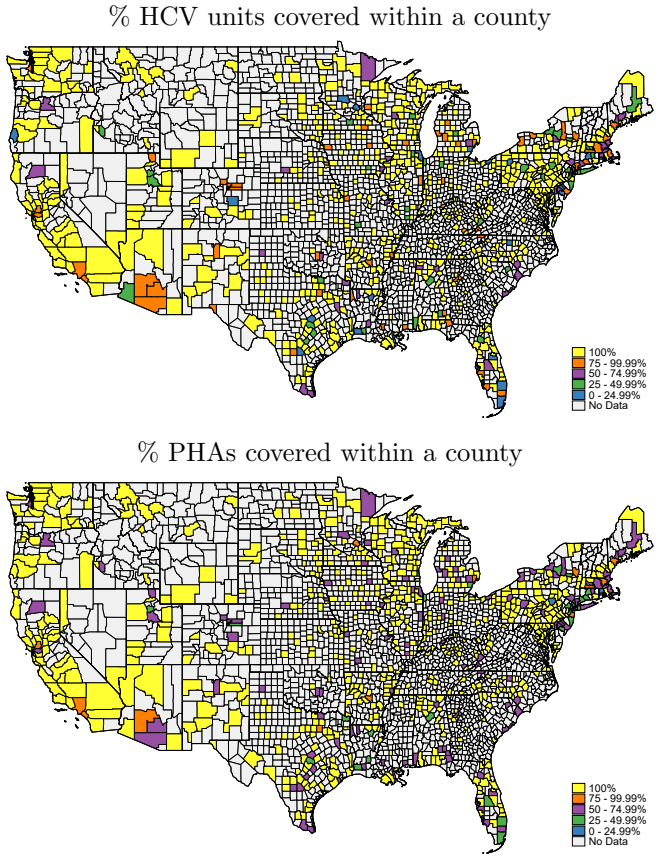
8.1 Selection into PHA data

Figure A.1: Likelihood of being in our data



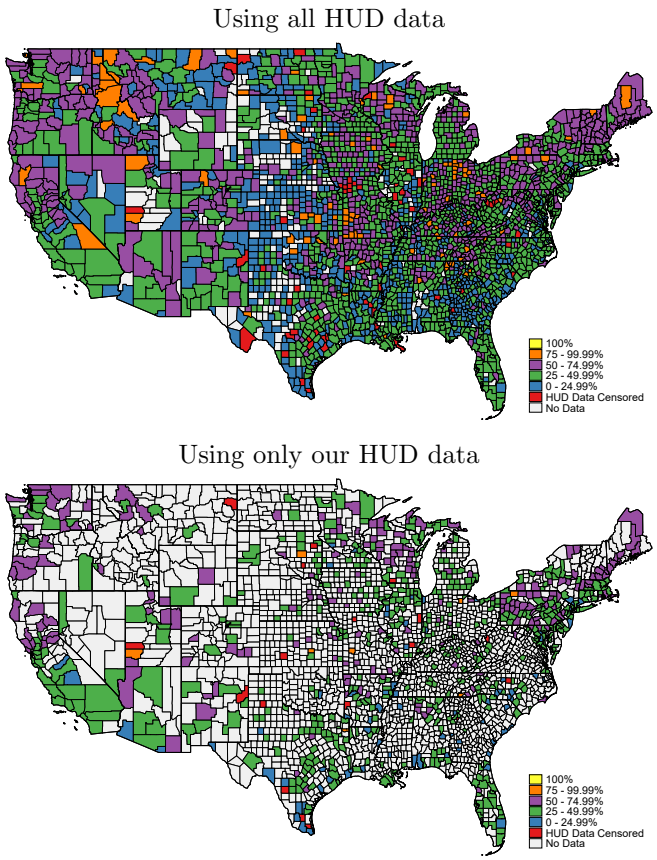
Notes: The figure shows the coefficients and standard errors of a regression of whether or not we have data on the PHA on total HCV units (in thousands), public housing units (in thousands), the fraction of prime-aged recipients with disabilities, the percent of recipients over 62, and the average number of months recipients waited before receiving their HCV. We also control for state-level fixed effects. Source: Authors' hand-collected data from local PHAs and HUD's Picture of Subsidized Housing for 2010-2017.

Figure A.2: Coverage of PHAs within Counties



Notes: The top panel reports the fraction of HCV units within a county covered in our hand-collected data, and the bottom panel reports the fraction of PHAs within a county we have hand-collected data for. Source: Authors' hand-collected data from local PHAs and HUD's Picture of Subsidized Housing for 2017.

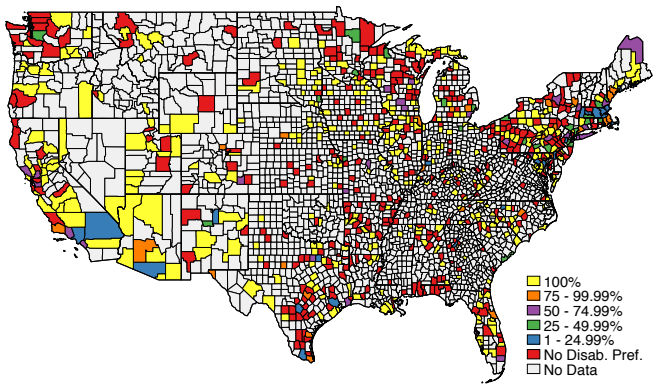
Figure A.3: Fraction prime-age with disabilities in HCVs (All Counties)



Notes: The top panel reports the fraction of prime-aged HCV recipients with disabilities in all HUD data. and the bottom panel reports the same fraction but only includes the counties for which we have hand-collected PHA data for. Source: Authors' hand-collected data from local PHAs and HUD's Picture of Subsidized Housing for 2017.

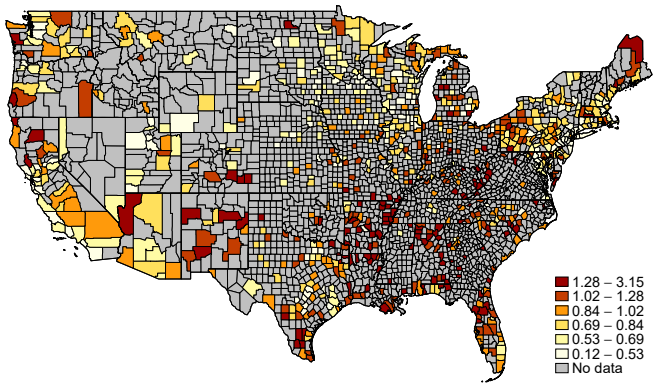
8.2 Descriptive Components of Dataset

Figure A.4: Percent of HCV units with disability preferences in the county



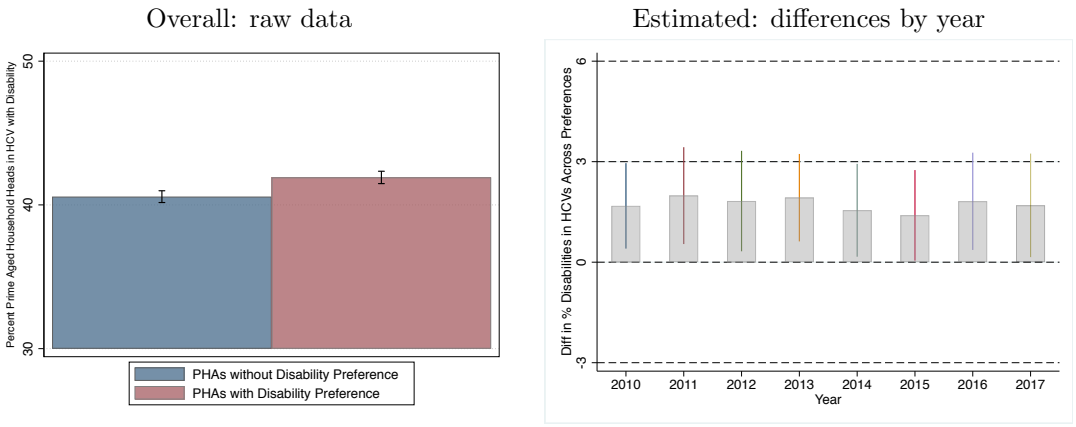
Notes: Each county is labeled as having a disability preference if at least one PHA in the county has a preference in their HCV waitlist for prime-aged household heads with disabilities. We calculate the fraction of HCV units with disability preferences in a county using HCV unit counts and the disability preference data. Source: Authors' hand-collected data from local PHAs and HUD's Picture of Subsidized Housing for 2017.

Figure A.5: Fraction of prime-age SSI applications per capita



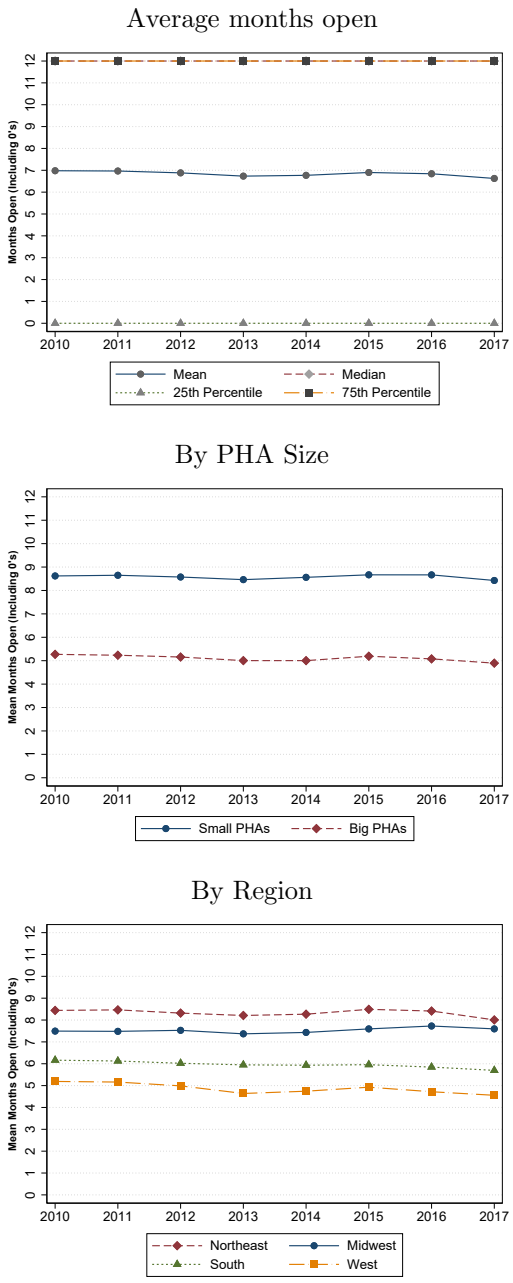
Notes: The figure shows the number of prime-aged SSI applications per 100 people. Source: 2017 SSI applications at the county-level directly from SSA. Counties with fewer than 10 applications are censored.

Figure A.6: PHAs with disability preferences have more household heads with disabilities



Notes: The left panel shows the mean differences across PHAs with and without disability preferences from 2010-2017. The right panel shows differences across the two groups each year when controlling for state-level fixed effects. Source: Authors' hand-collected data from local PHAs and HUD's Picture of Subsidized Housing for 2010-2017.

Figure A.7: Months open over time



Notes: Average months the waitlist was open by county, weighted by the number of HCV units in each PHA reported over time. Source: Authors' hand-collected data from local PHAs and HUD's Picture of Subsidized Housing for 2010-2017.

8.3 Robustness Checks

Table A.1: Robustness checks

Panel A: Drop first year

	(1) ln(SSI Apps)	(2) ln(SSI Apps)	(3) ln(SSI Awards)	(4) ln(SSI Awards)
X	-0.0023	-0.0034**	-0.0029	-0.0048**
	(0.0015)	(0.0016)	(0.0018)	(0.0020)
Lag X		0.0025*		0.0015
		(0.0015)		(0.0024)
N	5,452	4,669	5,373	4,596
R^2	0.995	0.995	0.990	0.991

Panel B: Drop counties without full coverage

	ln(SSI Apps)	ln(SSI Apps)	ln(SSI Awards)	ln(SSI Awards)
X	-0.0029*	-0.0032**	-0.0021	-0.0033*
	(0.0015)	(0.0015)	(0.0016)	(0.0018)
Lag X		0.0019		0.0017
		(0.0015)		(0.0022)
N	5,293	4,586	5,212	4,509
R^2	0.994	0.995	0.989	0.989

Notes: Robust standard errors clustered at the county-level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. $X_{ct} = \frac{1}{Units_{ct}} \sum_{j=1}^{J} mo_{jt} \times dp_{jt} \times units_{jt}$, where units is the number of HCV units in a local PHA j in year t, dp is whether or not that PHA has a disability preference, and mo is the number of months that PHA had an open waitlist in year t. Units is the total number of HCV units in the county. Panel A drops 2010 data, as PHAs are less likely to have data going back that far. Panel B drops counties where we do not have data from all PHAs within that county.

Table A.2: Changing independent variable

	ln(SSI Apps)	ln(SSI Apps)	ln(SSI Awards)	ln(SSI Awards)
Open X DP	-0.0042	-0.0033	-0.0098	-0.0125
	(0.0063)	(0.0064)	(0.0072)	(0.0081)
Lag Open X DP		0.0075		
		(0.0065)		(0.0095)
N	6,231	5,448	6,148	5,369
R^2	0.995	0.995	0.990	0.990

Notes: Robust standard errors clustered at the county-level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. OPEN $\times$ DP equals one if there was at least one PHA in the county with a disability preference and an open waitlist in a given year and zero otherwise.

Table A.3: Changing dependent variable: Levels per 10,000 prime-aged adults (negative binomial)

	(1) SSI Apps Per Cap.	(2) SSI Apps Per Cap.	(3) SSI Awards Per Cap.	(4) SSI Awards Per Cap.
X	-0.0023*	-0.0028**	-0.0009	-0.0020
	(0.0014)	(0.0014)	(0.0014)	(0.0015)
Lag X		0.0016		0.0016
		(0.0012)		(0.0017)
N	6,233	5,450	6,225	5,436
DV Mean	89.975	83.832	27.540	26.380

Notes: Robust standard errors clustered at the county-level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. $X_{ct} = \frac{1}{Units_{ct}} \sum_{j=1}^{J} mo_{jt} \times dp_{jt} \times units_{jt}$, where units is the number of HCV units in a local PHA j in year t, dp is whether or not that PHA has a disability preference, and mo is the number of months that PHA had an open waitlist in year t. Units is the total number of HCV units in the county. The model changes the dependent variable to be the number of applications or awards per 10,000 prime-aged adults using a negative binomial.

Table A.4: Regressions weighted by population

	(1) ln(SSI Apps)	(2) ln(SSI Apps)	(3) ln(SSI Awards)	(4) ln(SSI Awards)
X	-0.0024**	-0.0042***	-0.0019	-0.0040**
	(0.0010)	(0.0013)	(0.0018)	(0.0018)
Lag X		0.0038**		0.0029
		(0.0016)		(0.0035)
N	6,213	5,435	6,130	5,356
R^2	0.998	0.998	0.997	0.997

Notes: Robust standard errors clustered at the county-level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. $X_{ct} = \frac{1}{Units_{ct}} \sum_{j=1}^{J} mo_{jt} \times dp_{jt} \times units_{jt}$, where units is the number of HCV units in a local PHA j in year t, dp is whether or not that PHA has a disability preference, and mo is the number of months that PHA had an open waitlist in year t. Units is the total number of HCV units in the county. We weight the regressions by the prime-aged population.

Table A.5: Results in Pennsylvania only

	(1) ln(SSI Apps)	(2) ln(SSI Apps)	(3) ln(SSI Awards)	(4) ln(SSI Awards)
X	-0.0047*	-0.0019	-0.0013	-0.0020
	(0.0028)	(0.0031)	(0.0054)	(0.0067)
Lag X		0.0049		-0.0022
		(0.0072)		(0.0061)
N	432	378	432	378
R^2	0.994	0.994	0.987	0.986

Notes: Robust standard errors clustered at the county-level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. $X_{ct} = \frac{1}{Units_{ct}} \sum_{j=1}^{J} mo_{jt} \times dp_{jt} \times units_{jt}$, where units is the number of HCV units in a local PHA j in year t, dp is whether or not that PHA has a disability preference, and mo is the number of months that PHA had an open waitlist in year t. Units is the total number of HCV units in the county. This specification only includes Pennsylvania, where we have close to full coverage.