

Source of Income Discrimination and the Housing Choice Voucher Program*

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Abstract

Source of income (SOI) housing policies prohibit discrimination against prospective renters on the basis of the source of income they report on rental applications. Such policies, which have been implemented in 20 states and more than 100 local jurisdictions as of 2021, are primarily intended to prevent discrimination against applicants receiving public assistance, but these policies vary in terms of the particular *sources* of income they cover. In this paper, I examine the effects of SOI policies which explicitly protect housing choice vouchers as a protected source of income. Using county- and housing agency-level data, I exploit time-variation in the implementation of SOI policies across jurisdictions to identify the effects of these policies on renters using housing choice vouchers and the local housing agencies that administer the voucher program. I find that such policies are associated with reductions in average wait times prior to moving into rental units for voucher recipients. Additionally, I provide evidence that SOI policies increase the fraction of vouchers under lease for housing agencies with lower average utilization rates. These findings are robust to the implementation of alternative estimation strategies proposed in light of recent concerns about the internal validity of the traditional OLS with two-way fixed effects approach to estimation for difference-in-differences research designs.

Keywords: Housing Choice Vouchers, Source of Income, Housing Discrimination

JEL: R31, I38, H23, J15

“Our nation’s veterans and vulnerable families should have the same right to a home as any other American, regardless of how they pay rent. I’ve seen firsthand the impact that discrimination has on a person searching for a home. We can no longer allow these barriers to keep families and veterans from finding a stable place to live.”

– Senator Tim Kaine introducing the Fair Housing Improvement Act of 2019

1. INTRODUCTION

Housing rental applications generally feature questions about applicants’ income as a measure of their ability to make rent payments. Such applications also regularly inquire about the source of applicants’ income (e.g., “Are you employed?” or “Who is your current employer?”). Many landlords report using not just the *level* of income but also the *source* of income in determining whether or not to accept a rental application and extend a lease offer. Landlords are especially likely to report denying rental applications to applicants who report income from welfare and housing assistance programs (Garboden et al., 2018, Cunningham et al., 2018; Tighe et al., 2017). In response, 20 states including the District of Columbia and more than 100 cities and counties as of 2021 have enacted legislation preventing landlords from discriminating against rental applicants on the basis of their source of income listed on their rental applications. These policies cover income from public programs such as Social Security, Supplemental Security Income, Temporary Assistance for Needy Families (TANF), and in some cases, Housing Choice Vouchers (HCV).

Proponents of SOI policies argue that such policies expand the range of available housing options for renters receiving public assistance. By barring discrimination on the basis of source of income, renters are given a chance to “get their foot in the door” and submit applications to rental housing units which previously may have had a policy of rejecting applicants reporting income from public assistance programs (in jurisdictions without SOI policies, rental listings including

phrases such as “No Section 8 Applicants” are not uncommon – see Appendix Materials A1).¹ In doing so, policy proponents argue that SOI policies facilitate moves to lower poverty neighborhoods that may offer improved amenities and economic prospects (Fasanelli & Tegeler, 2019; PRRAC, 2020). Additionally, proponents argue that SOI policies may reduce patterns of racial segregation exhibited in rental housing markets. Opponents of such policies, however, argue that SOI policies place excessive restrictions on the ability of landlords to screen prospective renters. Additionally, in the case of SOI policies that cover HCVs, such policies amount to a requirement that (at least in principle) all landlords covered by the policy must begin accepting HCVs even if they had previously declined to do so. Opponents of SOI policies which cover vouchers cite the administrative costs of renting to voucher holders including the time cost of regular reporting to local housing agencies and the HUD-mandated requirement for regular apartment inspections (NMHC/NAA Joint Legislative Program, 2014).

While there has been considerable popular and academic attention paid to the issue of housing discrimination in general, there has been relatively limited quantitative academic work evaluating the impact of SOI laws in particular. In this paper, I assess the impact of SOI policies which prohibit discrimination against HCV recipients. Using housing agency- and county-level data, I exploit time-variation in the implementation of SOI policies across jurisdictions to identify the effects of these policies on renters using housing choice vouchers and the local housing agencies that administer the voucher program. I find evidence that SOI policies covering HCV as a protected source of income decrease wait times prior to finding housing for HCV recipients in conjunction with reductions in average length of tenure in current apartment units. Additionally, for housing agencies with below-median voucher utilization rates, SOI policies appear to increase the fraction of vouchers under lease.² These findings are robust to several alternative approaches

¹It is important to note, however, that SOI policies do *not* bar landlords from rejecting applicants reporting protected sources of income for other reasons. Landlords may still decline to extend rental offers to applicants on the basis of e.g., insufficient monthly earnings, failed background checks, and so on.

² Voucher utilization rates are defined as the fraction of total housing choice vouchers issued by a local housing agency that are currently being used to rent apartments. Voucher utilization rates are an important outcome used in assessing the performance of local housing agencies by program administrators and policy advocates. A voucher utilization rate

to estimation including the use of a robust imputation estimator proposed in light of recent concerns about the internal validity of the traditional OLS with two-way fixed effects approach to estimation for difference-in-differences research designs.

To the best of my knowledge, only two prior papers quantitatively assess the impact of SOI policies on a similar set of housing and mobility-related outcomes – a 2012 paper by Freeman and a 2014 paper by Freeman and Li. Taken together, these papers use data from 1995 to 2008, and SOI policy changes within nine jurisdictions, to identify the effects of SOI policies on voucher utilization rates for housing agencies and the demographic composition of the neighborhoods where voucher recipients live. Freeman (2012) reports a statistically significant increase in voucher utilization rates of between 4 to 11 percentage points, while both Freeman (2012) and Freeman and Li (2014) provide suggestive evidence for declines in average Census tract-level poverty rates of the neighborhoods in which voucher recipients live. While these papers are well-executed, my paper makes several important contributions and extensions. First, I explore a time period during which there has been a substantial increase in the number of jurisdictions implementing SOI policies (from the nine jurisdictions included in prior studies to more than 20 states including the District of Columbia and 100 counties and cities). Furthermore, rental housing market conditions and the HCV program have shifted in important ways from the time period evaluated in these prior studies to the time period (2004 to 2019) evaluated in this current paper, most notably with respect to the rental housing market tightness and high voucher utilization rates exhibited in many of the largest metro areas in the US. Additionally, I am able to use data available from HUD to identify changes in the characteristics of voucher recipients as well as the demographic makeup of the neighborhoods in which those recipients live. Results from this

less than 100 percent implies that some fraction of available housing vouchers are unused – while this may be the case simply because a new voucher recipient is searching for rental housing (in which case the voucher will be counted as “utilized” once that recipient moves into a new apartment and begins using the voucher to make rental payments) it may also be indicative of broader issues with housing agency management if new voucher recipients are systematically unable to secure housing and utilization rates are persistently well below 100 percent (Rice, 2019). As a technical note, HUD’s Section 8 Management Assessment Program (SEMAP) defines a measure of utilization for housing agencies that incorporates both voucher *and* funding utilization; throughout this paper, I use the term “utilization” only to refer to the fraction of vouchers under lease for housing agencies.

component of my analysis suggest an important role for SOI policies in reducing wait times for voucher recipients prior to moving into rental units. Finally, I am able to apply advances from recent methodological literature highlighting potential issues with research designs that leverage within-unit, across-time variation in treatment to establish credible causal estimates of the effects of SOI policies on housing-related outcomes.

Understanding the impact of source of income policies can help shed light on the nature and extent of discrimination within rental housing markets, in particular for housing choice voucher recipients, which is of interest both in its own right and with respect to its ability to inform low-income housing policy discussions. Prior studies examining the Moving to Opportunity (MTO) experiment, which randomly assigned vouchers to families living in public housing in high-poverty neighborhoods to allow them to move to private housing in lower-poverty neighborhoods have established the importance of neighborhood conditions on a range of outcomes including mental and physical health, education, and earnings.³ Reaping these benefits and maximizing the social returns on investments in the housing voucher program, however, requires that families are able to secure housing in such neighborhoods; discrimination against voucher holders has the potential to lock voucher recipients into areas of concentrated poverty. Although my analysis does not find consistent evidence for changes in the characteristics of the neighborhoods in which voucher recipients live following the implementation of SOI policies, I find evidence that voucher recipients face frictions in their search for apartments in the absence of such anti-discrimination policies. The national policy context provides further motivation for the aims of this study. A hallmark of the voucher program as it currently exists is chronic underfunding – approximately 75 percent of eligible individuals are unable to receive a voucher (Center on Budget and Policy Priorities, 2021), and waitlists can span years in large metro areas. In response to this, members of Congress and the Biden administration have proposed

³ MTO has been studied extensively; see Sanbonmatsu et al. (2011) for a survey of the impact of the program on a range of outcomes including mobility, housing and neighborhood quality, mental and physical health, education, and earnings. Chetty, Hendren, and Katz (2016) provide a more recent discussion of the longer-term impacts of moves to lower-poverty neighborhoods on children in participating households.

substantial increases in the total number of housing vouchers issued by the Federal government. An even more sweeping proposal formed the backbone of Biden's housing policy platform during his 2020 presidential campaign, which proposed making housing choice vouchers universal meaning that sufficient funding would be allocated to the program such that everyone who qualified for a voucher would be granted one. Policymakers and policy advocates have emphasized that such expansive changes to the voucher program should be paired with policies such as SOI laws that restructure rental housing markets to deliver the highest returns on increased investments in the voucher program.

In Section 2, I summarize the history of SOI policies. I discuss my data sources and methodological approach in Section 3, and in Section 4, I present results showing that SOI policies are associated with decreases in wait times for voucher recipients prior to moving into new apartment units, while finding evidence that SOI policies increase voucher utilization rates for local housing agencies with below-median pre-treatment utilization rates. Finally, in Section 5, I conclude with a discussion of the policy relevance of these findings and avenues for future research.

2. BACKGROUND

In this section, I briefly discuss the rental housing application process, and the role that source of income reporting plays in that process, before describing the range of policies state and local governments have implemented in order to limit discrimination against rental housing applicants receiving public assistance. I then summarize several prior studies assessing the impact of source of income laws as well as the broader academic literature on the housing choice voucher program and housing discrimination.

2.1 The Rental Housing Application Process and SOI Policies

Securing private-market rental housing in the United States requires submitting applications to prospective landlords. While such applications can vary substantially in terms of the information they require, most rental housing applications inquire about applicants' income in order to determine their ability to pay rent reliably (popular online guides to the rental process online recommend income-verification as a core component of the tenant screening process – see e.g. Rentspree, 2021; Scott, 2021). As part of this process, rental applications may require that applicants describe the source of their reported income. A series of studies has demonstrated that landlords screen potential applicants not just on the level of their reported income but on the source of that income. In particular, landlords report in the surveys that they are disinclined to rent to housing choice voucher holders (Tighe et al., 2017) with survey and qualitative research suggesting that landlords are concerned about the “quality” of voucher holders as rental tenants, raising such concerns as the prospect of tenant damage to rental units, perceptions of increased propensity for criminality, and an elevated likelihood of requiring eviction (Cunningham et al., 2018, Garboden et al., 2018, Rosen, 2020). These perceptions, however, are frequently at odds with the characteristics of the voucher holding population as a whole. Federal regulations require that housing agencies screen voucher holders. Applicants who have committed certain categories of criminal offenses, are currently engaged in drug or alcohol abuse, or have been evicted while using a housing voucher are banned from program participation.⁴ Additionally, many housing voucher holders are from demographic groups with relatively low propensities to engage in criminal activity (U.S. Department of Justice, 2016). In Appendix Table 3, I report demographic statistics for the sample of voucher holders considered in this study; more than 21 percent of heads of voucher households and their spouses are aged 62 or older, while 24 percent of residents in voucher households have a disability.

⁴ Curtis, Garlington, and Schottenfeld (2013) note that while HUD stipulates a basic set of screening criteria for HCV holders, local housing agencies have generally elected to augment these criteria with restrictions on e.g., additional criminal or drug-related offenses considered disqualifying from voucher reciprocity.

Within this context, SOI policies are designed to prevent landlords from initially screening applicants on the basis of their reported income sources. Under such policies, landlords are prohibited from posting rental listings with express restrictions on the sources of income of prospective renters (e.g., placing “no Section 8” in a rental advertisement or requiring that all applicants must be employed – section Appendix Materials A1 for examples of such listings). Additionally, landlords are prohibited from placing requirements on income sources during the application process itself (e.g., requiring pay stubs or employer contact information). SOI policies do not, however, bar landlords from declining to extend a lease offer to applicants with protected sources of income for reasons other than their reported income sources.

The first SOI policy was implemented in 1971 in the state of Massachusetts. In the years that followed, more than 20 states including the District of Columbia and 100 counties and cities have implemented SOI policies. In Figure 2, I show SOI policies across counties in the United States implemented as of December 2019 (this is the set of all SOI policies evaluated in this study; for a map of all SOI policies implemented as of December 2020, see Appendix Figure 1). In recent years, source of income policies have received attention from national policymakers, including being featured as components of housing policy platforms offered by then-Democratic Presidential candidate Joe Biden and Senator Elizabeth Warren, with Senator Warren’s campaign platform calling for a nationwide SOI policy that would cover HCV as a protected source of income (Warren, 2019).

It is important to note that SOI policies are not homogenous across jurisdictions and that such policies vary in terms of exactly what sources of income are covered; some jurisdictions implemented SOI policies which were ambiguous with respect to their coverage of vouchers as a protected source of income which were later clarified by judicial rulings, while other jurisdictions specifically exempted HCVs. In this paper, I consider only SOI policies which *explicitly* cover HCVs as a protected source of income, either through their explicit mention in relevant legislation or as a result of subsequent judicial rulings. In Table 1, I note several cases in which the coverage of HCVs by state-level SOI policies has been impacted by subsequent legislative amendments and judicial rulings. Several studies have noted that compliance with SOI policies is imperfect

and landlords in jurisdictions with SOI policies may continue to screen applicants on the basis of reported income sources. Additionally, the enforcement practices for violations of SOI policies can vary across jurisdictions as noted by Tighe et al. (2017).⁵

2.2 SOI Policies and the Housing Choice Voucher Program

The Housing Choice Voucher program is the largest federal rental assistance program, providing assistance to 5 million people living in more than 2 million households across the United States (Center on Budget and Policy Priorities, 2021). Because the HCV program is not an entitlement program, and funding in recent decades has not grown sufficiently to match the demand for vouchers among eligible households, the number of eligible households far exceeds the supply of new vouchers each year with only 25 percent of voucher-eligible households receiving housing assistance of any kind (Fischer et al., 2021).

The HCV program is targeted to low-income households, with the Department of Housing and Urban Development (HUD) setting policy guidelines at the Federal level, and local housing agencies responsible for the day-to-day administration of the program. While housing agencies may set additional criteria for voucher assignments, agencies are required by HUD to ensure that the majority of HCV recipients have household incomes either below the poverty line, or 30 percent of local median incomes, with the higher of the two criteria binding for a given housing agency (Center on Budget and Policy Priorities, 2021). Households who receive a voucher are then given a finite amount of time to find private-market housing that will accept vouchers as a form of rental payment.⁶ HUD calculates local payment standards, which determine the maximum rental price vouchers will subsize. Having secured a suitable rental unit, with a

⁵ The Urban Institute (Greene et al., 2020) has collected a range of measures intended to facilitate the categorization of SOI policies along such dimensions as assignment of a designated office or department to handle policy violations and enumeration of penalties for violations.

⁶ Per HUD regulations, voucher recipients generally have at least 60 days following the award of the voucher to search for a rental unit although local housing agencies are able to extend this time period. Vouchers which go unused because the recipient was unable to find housing are awarded to a new applicant and applicants who were unable to secure housing must reapply for a new voucher (Center on Budget and Policy Priorities, 2021).

landlord willing to accept HCVs, voucher holders are then required to pay up to 30 percent of their household income (or \$50, in the event that 30 percent of their household income does not exceed that amount) as rent each month to their landlord. The remaining balance is paid by the local housing authority directly to the landlord; indeed, for landlords who rent to voucher holders the payment stability afforded by this arrangement is frequently cited as being an appealing component of participation in the program (P. Garboden et al., 2018).

An important feature of the HCV program in discussing SOI policies is the requirement that rental units pass an initial inspection administered by local housing authorities. This inspection is intended to serve as a check on the confirmation of the habitability of the rental unit according to Federally mandated guidelines; landlords who report declining to rent to HCV holders in survey research report that such inspections are one of their primary motivations. SOI policies that specifically cover HCV recipients, then, in effect mandate participation in this inspection process insofar as landlords are induced to extend the lease offers to HCV recipients as a result of these policies (NMHC/NAA Joint Legislative Program, 2014).⁷

2.3 Relevant Academic Literature

The academic literature most directly relevant to this project is two papers authored by Lance Freeman (including a 2012 academic publication and report produced for HUD's Office of Policy Development and Research as well as a 2014 academic paper co-authored with Yunjing Li). Taken together, these papers examine the impact of SOI policies on voucher utilization rates and the demographic characteristics of the Census tracts in which voucher recipients live. Freeman (2012) finds that SOI policies are associated with increases in voucher utilization rates of approximately 4 to 11 percentage points, while both Freeman (2012) and Freeman and Li (2014) provide

⁷ These inspections are intended to satisfy the HCV's program mandate to provide "decent, safe, and sanitary" housing for participants; as part of the program, a set of minimum housing quality standards (HQS) are defined which assess rental units across 13 broad criteria including their structural integrity, the presence of environmental health risk factors such as lead paint, and accessibility. These inspections are conducted prior to move-in and on an annual basis for units rented by voucher holders (Housing and Urban Development, 2001).

suggestive evidence that SOI policies are associated with declines in the average Census tract-level poverty rates of the neighborhoods in which HCV recipients live, although these findings are not consistent across specifications.

Using data from 1995 to 2008, Freeman (2012) and Freeman and Li (2014) employ a difference-in-differences strategy and border-counties identification strategy using a matched sample of housing agencies (and Census tracts) in jurisdictions that implemented SOI policies as well as housing agencies (tracts) located in neighboring countries that did not implement such policies. While both studies are capably executed, there are several limitations the authors faced which this present study is able to bypass. First and most importantly, the sample time period used in the above studies (1995-2008) offers limited identifying variation in terms of SOI policy implementation. Only 2 states (New Jersey and Washington D.C.) implemented SOI policies, in addition to 5 cities and 2 counties.⁸ While data may be available at the county or tract level, the level of “effective” policy variation is at the jurisdictional level where policy changes occur. Given recent advances in inference for two-way fixed effects specifications with a small number of treated units (Abadie et al., 2017), having only nine treated jurisdictions raises concern for the sort of difference-in-differences strategy employed in these papers. In the years since the period analyzed in this studies, SOI policies have become increasingly common, allaying concerns about limited policy variation.

There is a wide-ranging literature examining the effects of the HCV program on outcomes including the effect of the voucher program on poverty and rent burdens, housing quality and locational choices, and longer-run employment, earnings, and health impacts. While I will not attempt to summarize this literature here, Ellen (2020) offers a concise review of the key findings from this literature, several of which are of specific relevance for the analysis conducted in this paper. Of particular note is the ability of vouchers to reduce rent burdens for recipients (Mills et al., 2006) and reduce to reduce the probability of recipients experiencing homelessness (Gubits et al., 2016), thereby reducing housing insecurity for recipients.

⁸ Additionally, two states – Minnesota and Oregon – had policy changes which in effect repealed existing SOI policies.

The impact of the voucher program on the locational choices of voucher holders has been more mixed. While voucher holders are more dispersed geographically than residents of public housing and less likely to live in high-poverty neighborhoods (Galvez, 2010), on average they tend to live in areas that have poverty rates that are only slightly lower than the typical low-income household (Galvez, 2010, Ellen, 2020). Given that expanded locational choice is an oft-cited argument from policy advocates in favor of the voucher program, and in light of the evidence suggesting the possible benefits of moving to higher-opportunity neighborhoods, a series of studies have attempted to explain the relatively limited impact of voucher reciprocity on neighborhood quality. Housing search costs and social networks are an important factor (Rosen, 2020), in addition to incentives created by manner in which local payment standards are determined (Collinson & Ganong, 2018). Discrimination against voucher holders also plays an important role. Rosen (2014) documents how landlord behavior can contribute to the concentration of voucher recipients in lower-income area, while a 2018 field experiment study conducted by HUD documented high voucher-denial rates among landlords. This study also provides cross-sectional evidence across 5 cities that landlords were less likely to report that they refused to rent to voucher holders in the cities that had implemented SOI policies (Cunningham et al., 2018).⁹

3. DATA AND METHODOLOGY

To identify source of income policies across the United States, I begin with records collected by the Poverty and Race Research Action Council's (PRRAC) 2021 summary of these policies. I then confirm enactment and implementation dates using relevant legislation for each jurisdiction. In

⁹ Researchers with HUD found rental listings from landlords in Fort Worth, TX, Los Angeles, CA, Newark, NJ, Philadelphia, PA, and Washington, DC. They then contacted landlords and asked if they accepted housing vouchers. In Newark and DC, which at the time of the study had implemented SOI policies, only 31 and 15 percent of landlords respectively responded that they did not lease to voucher holders, while in the remaining cities which did not have SOI policies in effect, between 67 and 78 percent of landlords reported not leasing to voucher holders (Los Angeles implemented an SOI policy subsequent to this study).

Table 1, I list all state-level source of income policies as of August 2021 and flag those states with policies that specifically include housing choice voucher recipients. In Appendix Tables 1 and 2, I list county- and city-level source of income policies across all states included in this study. In Figure 1, I plot all counties across the United States that implemented source of income policies as of December 2019; these policies represent the identifying variation used in this study (a corresponding map depicting all SOI policies in implemented as of 2020 is presented in Appendix Figure 2).

3.1 Expected Relationship between SOI Policies and Housing Outcomes

Source of income laws are intended to prevent discrimination against prospective renters based on the sources of income that they report on their rental applications. For jurisdictions with source of income laws that include housing choice vouchers, landlords are barred from categorically denying applications from prospective renters who express a desire to use a housing choice voucher to pay for rent. In principle, therefore, source of income laws should expand the pool of possible rental units into which prospective renters may move, thereby reducing search costs and improving match quality. This should in turn allow voucher recipients to find better-fitting housing more quickly, an important consideration given the extended wait times prior to voucher reciprocity experienced by many voucher applicants. Additionally, if the tendency of landlords to discriminate on the basis of sources of income is not uniformly distributed across either geographic or demographic characteristics of neighborhoods or regions, then we may expect to see a shift in the locational and demographic composition of the areas in which renters impacted by such policies live, as areas that had previously been inaccessible to prospective renters because of source of income discrimination become accessible. Importantly, however, landlords may still decline such rental applications on the basis of criteria such as total monthly income, references, etc. Thus, while source of income laws may serve to help prospective renters get their foot in the door, they may still be declined the opportunity to rent a particular unit. Finally, there is the possibility that some landlords may refuse to rent to voucher holders despite the implementation

of an SOI policy; by barring the ability of such landlords to state this policy openly, voucher holders may experience increased search costs as they spend time finding and submitting applications to such landlords.

Source of income laws affect both those who (1) are searching for housing on the rental market and (2) those who are currently living in rental units but may consider moving in the future. For individuals currently searching for housing, source of income laws expand the pool of possible rental units in which they may apply and ultimately reside. However, source of income laws also affect the future choices of residence who are currently occupying rental housing, but whose housing choice was made across a constrained set of housing options prior to the implementation of source of income laws. Therefore, residents who currently reside in rental housing may elect to move as potential match quality is improved through the implementation of source of income laws, and the commensurate expansion in the range of accommodations both specific to the housing unit itself as well as neighboring characteristics. It is important to make a distinction between the average and marginal voucher recipient in the context of assessing the impact of source of income laws on voucher holders. Average tenure for housing choice voucher holders is approximately 65 months in the sample considered in this paper, and therefore, for many residents who are already residing in existing accommodations, source of income laws except insofar as they induce mobility by making previously inaccessible units available, may not impact currently housed residents. In contrast, for voucher holders who have just received or will receive vouchers in the future, source of income laws may be more immediately impactful, insofar as they expand the stock of rental housing that voucher holders are currently considering.¹⁰

¹⁰ Performance evaluation for local housing agencies distinguish between voucher utilization rates (defined above) and voucher *success rates* (Rice, 2019), where success rates are defined as the proportion of newly issued vouchers that are used to rent apartments (and are therefore not returned to the housing authority to be reissued to new renters). Marginal renters as described here are those captured in current or forward-looking measures of housing agency success rates.

3.2 Renter Outcomes: Department of Housing and Urban Development's (HUD) Picture of Subsidized Households (PSH)

To estimate the effect of SOI policies on renters with HCVs, I collect county-level data from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households (PSH) for the years 2004 to 2019. These data provide county-by-year records of the number of reported HCV households in addition to basic characteristics of these households and the neighborhoods in which they reside. In the first panel of Table 2, I report summary statistics for the primary outcomes from this data set used below. Throughout the analysis presented below, I restrict the sample to those 1,640 counties which have a full or "complete" panel of wait time and length of tenure data reported for each year in the sample. In Appendix Figure 2, I show a map of the counties comprising this sample. The top-25 largest counties in the US by 2019 population are all included in this sample, and counties which are omitted to have smaller than average populations and have correspondingly smaller populations of HCV recipients.¹¹

My analysis begins by examining the relationship between source of income laws and the characteristics of renters who use housing vouchers. I estimate the following county-level regression specification via OLS:

$$Y_{cst} = \beta_0 + \delta SOI_{cst} + \beta_1 X_{st} + \gamma_c + \tau_t + v_{cst} \quad (1)$$

Where Y_{cst} denotes the outcome of interest in county c in state s and year t and SOI_{cst} is a binary indicator set equal to 1 if an SOI policy has been implemented in county c at any point during year t . SOI policies implemented at either the state s or county c level set SOI_{cst} equal to 1; cities that implement SOI policies are matched to all counties which overlap with that city's boundaries

¹¹ Supplemental results including all available county-by-year observations are provided in Appendix Table 7; they do not differ markedly from the complete-sample results.

and all intersecting counties are coded as treated by that city’s SOI policy.¹² X_{st} is a vector of state-level, time-varying controls comprised of demographic shares for female, married, Black, Hispanic, and high school graduates, as well as average age, in addition to economic controls including the average state-level employment rate, the log value of average household incomes, the fraction of families with total incomes below the poverty threshold, and the fraction of all individuals participating in SNAP and receiving SSI benefits. County- and year-specific fixed effects are given by γ_c and τ_t respectively. Standard error errors are clustered at the county level.

Interpreting the coefficient δ in equation (1) above as the causal impact of SOI policies on the outcome of interest Y_{cst} requires satisfying the identifying assumptions underlying difference-in-differences research designs. In particular, we require that the outcome Y_{cst} is not correlated with the implementation of SOI policies in the years prior to the actual implementation of such policies in jurisdictions that implemented SOI policies; in other words, we require “parallel trends” in Y_{cst} between treated and control jurisdictions in the absence of the implementation of SOI policies. Drawing on a series of recent methodological papers that have raised concerns about traditional OLS estimation of difference-in-differences and event study specifications,¹³ I present the results of the estimation of an event-study variation of equation (1) above, using the imputation-based method proposed by Borusyak et al. (2021).¹⁴ Using this method, I am able to estimate both static and dynamic effects of SOI policies and conduct a robust test for pre-trends in Y_{cst} in treatment counties prior to implementation, with results that are robust to the pitfalls associated with traditional OLS estimation of event studies.¹⁵ To allay concerns about data

¹² For example, the city of Naperville, IL implemented an SOI policy in 2000. Naperville is located primarily within the county of DuPage but also partly extends into neighboring Will County; thus, both DuPage and Will counties are coded as having SOI policies beginning in 2000. In practice, the large majority of cities implementing SOI policies in my sample are contained within only one county’s borders.

¹³ Goodman-Bacon (2021) highlights potential pitfalls associated with OLS estimation of two-way fixed effects models to identify the effects of binary treatment implemented with differential timing including event-study specifications. A series of papers including those de Chaisemartin and D’Haultfœuille (2020), Callaway and Sant’Anna (2020), and Sun and Abraham (2020) propose alternative estimators.

¹⁴ Calculation of the results presented here was conducted using the Stata package `did_imputation` (Borusyak, 2021).

¹⁵ For a detailed description the imputation method used here, as well as a useful survey of the potential issues associated with traditional OLS estimation of event studies, see Borusyak et al., (2021). For all event studies, I show

availability and selection issues to contaminate the event study results presented below, I present event studies with a balanced sample of treated counties, such that the sample of treated counties identifying the event-time coefficients is comprised only of counties that have sufficient data to identify all such coefficients.¹⁶ The event study approach described above allows us to test the degree to which outcomes Y_{cst} were trending differentially in counties where source of income laws were eventually implemented, thereby assessing the internal validity of the research design, and bolstering a causal interpretation of the estimates presented below. Additionally, where there is sufficient post-implementation data, we can extend the event-study post-period window to study how the effects of SOI policies evolve over time.

3.3 Housing Agency Outcomes: Department of Housing and Urban Development (HUD) Voucher Management System (VMS)

To estimate the effect of SOI policies on the local housing agencies that administer housing choice voucher programs, I collect agency-level data from the Department of Housing and Urban Development's (HUD) Voucher Management System (VMS) for the years 2010 to 2019. These data provide housing agency-by-month records that report the number of total vouchers issued by the housing agency, the number of those vouchers that are under lease, and total payments to rental housing owners. I aggregate these data to the agency-by-year level and report summary statistics for these figures in the second panel of Table 2. As with the county-level outcomes, I again restrict the sample to those 2,076 housing agencies that present a complete panel of non-missing outcomes for the variables listed in Panel II of Table 2.

corresponding imputation-based estimates of the “static” difference-in-difference estimator described in equations (1) and (2). Because estimates do not vary substantially from the OLS estimates reported in the main set of results, I report the results from OLS estimation throughout the main set of results.

¹⁶ For the sake of clarity, and to align with the framing used by Borusyak et al. (2021), I use “balanced” throughout this paper only to refer to the sample of treated counties with sufficient data to identify a given set of event-study coefficients. Elsewhere, I use “complete” to refer panels of county- and agency-level data with non-missing values for key outcomes in each year of the sample (such data might in other contexts be referred to as balanced panels).

I begin by exploring the relationship between source of income laws and local housing agency-level outcomes using a variation of equation (1) from above:

$$Y_{hst} = \beta_0 + \delta SOI_{hst} + \beta_1 X_{st} + \gamma_h + \tau_t + v_{hst} \quad (2)$$

Where outcomes are now at the agency-year level, with Y_{hst} denoting the outcome of interest in housing agency h in state s and year t and SOI_{hst} again a binary indicator for the presence of a SOI policy in the city, county, or state the housing agency serves. SOI policies implemented at the city level are matched to all housing agencies that have that city listed as their primary address (i.e. SOI policies do not vary at the agency level h within the same city), while SOI policies implemented at the county level are matched to all housing agencies located in cities inside or overlapping with the boundaries of that county. As above, X_{st} is the same vector of state-level, time-varying controls described for equation (1). Finally, housing agency and year-specific fixed effects are included in γ_h and τ_t respectively. Standard error errors are clustered at the housing-agency level. As discussed above, we can use Borusyak et al.'s imputation-based event-study estimator to both assess the internal validity of the research design used here as well as assess the longer-run effects of SOI policies.

4. RESULTS

I begin by estimating the impact of SOI policies on renter outcomes. I show that the time that voucher holders spend waiting for housing decreases following the implementation of SOI policies, with an average decrease in wait times of approximately 14 percent. Additionally, I consider other apartment and locational choice outcomes, before assessing several robustness checks. I then turn housing-agency outcomes, where I find evidence that SOI policies are associated with increases in the rental payments made by housing agencies and higher utilization rates for some housing agencies.

4.1 SOI Policies and Wait Times for Housing

I begin by exploring the effect of source of income laws on renter characteristics using county-level outcomes. In Table 3, I estimate effect of SOI policies on the (log value) of the average wait times in months that HCV recipients report prior to moving into new rental units using their vouchers. I present results from estimating a variation of equation (1) with only county and year fixed effects in column (1), then add state-level, time-varying demographic controls in column (2), and finally estimate the full specification given in equation (1) by including state-level, time-varying economic controls in column (3). Where estimates are consistent across specifications, I will refer to column (3) as the preferred specification. Here, I find evidence that SOI policies are associated with reductions in average wait times of approximately 14 percent. Because there are limits on the amount of time voucher recipients may search for housing (mandated by HUD to be at least 60 days although local housing authorities may extend this timeline), and many local housing agencies have wait times that can extend over multiple years, reducing wait times allows renters to secure housing more quickly, and reduces the risk of losing access to their voucher. SOI policies association with reduced wait times additionally suggests that renters face frictions in their search for housing in the absence of such policies. To assess our ability to interpret this finding as a causal effect of SOI policies, I estimate an event-study specification to produce the top panel of Figure 2. I plot point estimates for the event time coefficients along with corresponding 95 percent confidence intervals. I conduct a robust test for the identifying assumption of parallel trends via a joint significance test that pre-treatment event time coefficients jointly differ from 0; the p-value from this test is 0.546 and thus the test fails to reject the null hypothesis indicating that the (log value) of waiting times do not exhibit differential trends prior to SOI policy implementation.

In Table 4, I estimate the effect of SOI policies on the (log value) of the average length of time in months that renters have resided in their current homes. Here, I find that the average length of residence declines in counties that implement source of income laws by approximately

3 percent (column 3). A corresponding event study is plotted in the bottom panel of Figure 2.¹⁷ Here, we see that the trend in average length of residence is again close to 0 in the years prior to implementation of SOI policies in treated counties, and we fail to reject the null hypothesis that length of residence was trending differentially in treatment counties compared to control counties. Across Tables 3 through 4, I interpret the pattern of evidence as suggesting that SOI policies allow voucher recipients to move into rental units in shorter periods of time, and that these reductions in waiting times prior to move-in are reflected in decreased average length of residence, as new voucher holders are able to find housing who may previously have been unable to secure a rental unit prior to the expiration of their voucher.

4.2 Apartment and Locational Choice

Having provided evidence that SOI policies facilitate quicker moves into housing for voucher recipients, I now evaluate the effect of SOI policies on the types of apartments into which HCV recipients move. I consider two broad measures: (1) the (log value) of the average rent paid by voucher recipients and (2) a measure of the fit between the size of housing units and the number of residents in a given apartment. This second measure, the fraction of voucher holders categorized by HUD as “overhoused,” is defined as the fraction of voucher holders that are living in apartments with more bedrooms than adults living with them. Voucher recipients have a limited amount of time to secure housing and may face pressure to sign a lease on the first available apartment (especially in tighter housing markets) regardless of how well it fits their search criteria. Additionally, qualitative literature suggests that many HCV holders forgo searching for housing in higher-income neighborhoods when facing time constraints, given that their social networks may be less well-equipped to navigate the search process in such neighborhoods, and the impression many voucher recipients have that landlords in higher-

¹⁷ For the both panels of Figure 2, I provide a corresponding table of the event-study estimates used to generate these figures, as well as robust estimates of equation (1), in Appendix Table 8.

income neighborhoods are less likely to accept vouchers (Rosen, 2020). The reduced search frictions that SOI policies provide may offer HCV holders the chance to find apartments in higher-income neighborhoods, or that better match their search criteria (here defined coarsely as matching the size of their household with the size of prospective apartments).

In the first panel of Table 5, I evaluate the effect of SOI policies on the log value of the average rent per month paid by HCV holders. I find no evidence of a relationship between SOI policies and average rents, with point estimates that are close to zero and statistically insignificant (in the housing-agency level results, I will revisit the impact of SOI policies on the rental price effects of apartments leased by HCV holders). In the second panel of Table 5, I find at least suggestive evidence that SOI policies may be associated with a reduction in the fraction of recipients categorized as overhoused, with coefficients that are uniformly negative across each column. These estimates are not consistent in terms of magnitude or statistical significance, however, and the addition of time-varying economic controls in column (3) yields a point estimate that is not statistically distinguishable from 0. As such, I conclude that there is little conclusive evidence that SOI policies impact the types of apartments into which voucher recipients move.

Next, I consider the effect of source of income laws on the demographic characteristics of the neighborhoods in which voucher recipients reside. As discussed in the Background section above, there is a substantial academic literature on neighborhood effects and one of the primary motivations of the HCV program for legislators and policy advocates is offering the opportunity to voucher recipients to move into higher-income neighborhoods, which may offer better educational and labor market prospects, improved amenities, etc. Prior empirical and descriptive literature, however, has found that HCV recipients frequently do not move into substantially higher-income neighborhoods than those from where they had previously been living (Galvez, 2010). This finding, however, may be due at least in part to discrimination that HCV holders face when searching for housing in such neighborhoods. SOI policies, then, may facilitate moves to higher-income neighborhoods by “opening the door” for rental housing applicants during the initial screening component of the search process.

In Table 6, Panel 1, I find limited evidence that SOI policies are associated with changes in average poverty rates of the census tracts in which voucher recipients live, with point estimates that are uniformly negative. These estimates are not consistent across specifications, however, and in column (3) the estimated effect is statistically distinguishable from 0. In Panel 2 of Table 6, I evaluate the effect of SOI policies changes on the racial composition Census tracts in which recipients live; I find no evidence of a significant relationship here with coefficients that vary in sign and magnitudes across columns and are consistently indistinguishable from 0. In the final panel of Table 6, I consider the impact of SOI policies on the home-ownership rates of Census tracts in which recipients live. As in Panel 1, I report uniformly negative point estimates, but these results are not robust to the inclusion of state-level, time-varying controls in columns (2) and (3). Across Table 6, I conclude that while there is some limited evidence for reductions in the rates of poverty and homeownership in the neighborhoods in which voucher recipients live, these findings are merely suggestive and thus I am unable to draw strong conclusions about how SOI policies may impact the locational choices of voucher recipients.

4.3 Robustness Checks for Renter Outcomes

The results above suggest that SOI policies are associated with reductions in wait times for housing for voucher holders. The policy significance of these findings, however, hinges on the degree to which these reductions are likely to be experienced by the average voucher holder. If SOI policies shift the composition of the population of voucher holders who find housing post-policy (for example, to higher-income or able-bodied voucher holders who are better able to navigate the costs and frictions associated housing searches), then it is unclear to what degree the estimates reported above are attributable to the effect of SOI policies on improved housing search efficiency as opposed to population selection effects. In Appendix Table 4, I assess how the demographic characteristics of the voucher-holding population changes following the implementation of SOI policies to assess the scope of this potential issue. The PSH data used for this analysis provides a range of measures describing the demographic makeup of this

population; in Panel 1, I estimate the effect of SOI policies on the log value of the average income of voucher-holding households, while in Panels 2 through 4, I consider the racial and ethnic composition of the population of the heads of voucher households, and finally in Panel 5, the fraction of the population with a disability. Across all five panels, I find no consistent evidence that these characteristics are systematically affected by SOI policies. This pattern of findings bolsters an interpretation of the observed reductions in wait times reported above as the causal effect of SOI policies on housing search wait times and search efficiency as compared to an artifact of post-treatment sample selection.

Additionally, I find that the pattern of results presented above are not sensitive to several alternative approaches to estimation. The baseline specification given by equation (1) employs state-level, time-varying controls in order to control for possible confounding factors such as shifts in public policy or housing markets that may be correlated with housing outcomes for voucher holders and changes in housing policies including SOI policies. State- as compared to county-level controls are selected given the broader set of control measures available at the state-level. However, one may be concerned that unobserved, county-specific heterogeneity in economic or housing conditions may vary across time in such a way that is both (a) not fully accounted for with the inclusion of county fixed effects and (b) not captured by state-level controls. In Appendix Table 5, I augment the baseline specification from equation (1) with the inclusion of county-by-year unemployment rate data taken from Bureau of Labor Statistics Local Area Unemployment (LAU) records, which provides the most widely available economic outcome comparable to the state-level economic controls included in my baseline specifications. As before, column (1) reports the estimate of δ in equation (1) with only state- and year-fixed effects, while in column (2), I add the LAU measure of county unemployment rates to the specification from column (1). Finally, in column (3), I include the full vector of state-level, time-varying controls described above in addition to the county-level unemployment rate measure. Across each specification, and relative to the main results presented above, I find little evidence that the decision to rely on state-level, time-varying controls materially impacts the results reported above.

In addition to the use of county-level unemployment rate data, I consider an alternative approach to controlling for unobserved, time-varying heterogeneity in local conditions which may confound the impact of SOI policies on voucher holders and local housing agencies by estimating a variation of equation (1) above that includes state-by-year fixed effects terms. In practice, this means that the comparisons identifying δ are now made across counties *within* a given state and year. The benefit of this approach is that the inclusion of these fixed effects terms allows me to control for idiosyncratic differences in state-wide rental housing markets and housing policies that may contaminate the baseline estimates presented above. However, this approach also reduces the residual identifying variation in SOI policies available to estimate δ . I report the results from this exercise in Appendix Table 6; all specifications include county, year, and state-by-year fixed effects (state-level, time-varying controls are naturally omitted given their redundancy with the state-by-year fixed effects). In the column (1) of Appendix Table 5, I find that the inclusion of state-by-year fixed effects results in a moderate increase in the magnitude of the estimated effect of SOI policies on average wait times, with a statistically significant estimated effect of -0.19. However, in column (2), I find that the coefficient on length of average residency is now statistically indistinguishable from 0. Insofar as the state-by-year fixed effects specification naturally reduces residual identifying policy variation, this is perhaps not surprising. Because wait times are most direct outcome of interest in assessing the impact of SOI policies on housing search efficiency, I interpret the results from this exercise as suggesting that residual unobserved heterogeneity across states does not pose a threat to the baseline identification strategy used to uncover the results presented above.

Finally, in Appendix Table 7, I assess the impact of the complete-sample restriction used to create the analysis sample of counties considered in the results from Tables 3 through 6, by allowing all counties which have data for a particular outcome available in a given year to be included in the regression sample for that outcome. Across the four panels presented in this table, I find little evidence that this complete-sample restriction materially impacts the pattern of results found above.

4.4 SOI Policies and Local Housing Agencies

Having assessed the impact of SOI policies on renters, I turn to evaluating the impact of these policies on housing agency-level outcomes. A key performance measure for housing agencies is the fraction of vouchers issued by the agency that are used to lease an apartment by recipients (as opposed to sitting unused during an extended search process or being recycled back to a new recipient in the event the prior recipient was unable to find housing). Termed the voucher utilization rate, this measure is defined as the number of total vouchers issued by a housing authority that are attached to a lease agreement divided by the total number of vouchers issued by that housing authority. In Table 7, I estimate the relationship between SOI policies and housing agency-level voucher utilization rates, beginning with both components of that rate – vouchers under lease and total vouchers – in Panels 1 and 2, and then the utilization rate itself in Panel 3. Across all three panels, I find little evidence for a relationship between these measures and SOI policies. In Panel 3, column (3), I estimate an effect size of 0.2 percent with an associated 95 percent confidence interval of -0.3 to 0.6 percent. Prior estimates of the effect of SOI policies on housing agency-level utilization rates, which ranged from 4 to 11 percent, are substantially larger than the estimates produced here, a finding which suggests that the relationship between SOI policies and housing agency outcomes may have evolved in the intervening years.

In the final panel of Table 7, I estimate the effect of SOI policies on the (log value) of the spending housing agencies direct towards property owners renting to HCV holders. Here, I find that average spending increases for housing agencies in jurisdictions that implement SOI policies by approximately 3 percent (column 3). This finding stands in apparent contrast to the county-level results presented above for renters, where the rents paid by HCV holders did not appear change following the implementation of SOI policies. However, the distribution of the rental payment burden between voucher holders and housing agencies depends on a number of factors – payments made by renters are the maximum of 30 percent of their income or a minimum rent floor of \$50. If SOI policies expand the pool of housing options for voucher recipients, including higher-rent apartments, increases in average rents are paid by housing agencies or apartments

that are below the rental payment standard (the maximum payment amount that vouchers will cover, above which voucher recipients are required to cover additional costs) as opposed to renters themselves. I decline to draw strong conclusions from this result, however, because the robust event study results presented in Figure 3 suggest that this spending measure may be trending upwards in treatment counties prior to policy implementation; a joint test of the significance of these pre-treatment coefficients is 0.048. It is perhaps worth noting, however, that a conventional OLS approach to estimating the same event-study specification – reported in Appendix Figure 3 – finds pre-treatment coefficients much closer to 0 and jointly indistinguishable from 0. In all cases where there are discrepancies between results estimated via OLS and the robust imputation approach, I view the imputation-based results as more reliable, and thus interpret the evidence for an increase in spending by housing agencies as at most suggestive.

One reason that SOI policies may have a muted effect on voucher utilization rates is that many housing agencies have utilization rates approaching or equal to 100 percent, meaning that all available vouchers for that agency are attached to a leased rental unit. In such a context, the scope of SOI policies to influence utilization rates is naturally limited. To explore this possibility, in Table 8, I estimate a variation of equation (2) which includes the interaction of SOI_{hst} with an indicator variable defined at the housing-agency level, flagging housing agencies with below-median utilization rates over the 2004-2019 sample window. For housing agencies that are eventually treated by SOI policies, this measure is defined during the pre-treatment period. The interaction of SOI_{hst} and this indicator variable then gives us the differential effect of SOI policies specifically for housing agencies with lower utilization rates. For these agencies, SOI policies have a greater scope to influence utilization rates, as these agencies have a higher proportion of vouchers not attached to leases, and thus SOI policies' ability to mitigate search frictions may result in an increase in lease rates for outstanding vouchers.

As in Table 7, in the first two panels of Table 8 I report the estimated effect of SOI policies on total vouchers and vouchers under lease. The primary outcome of interest, utilization rates, is reported in Panel 3. In contrast to Table 7, we now find that the coefficient on the main effect of

SOI policies, as well as the interaction of SOI policies, is statistically significant. The parameter of interest is the sum of these coefficients, which gives the effect of SOI policies on utilization rates for housing agencies that had below-median utilization rates in the years prior to the implementation of their SOI policies. Using the estimates from column (3), the sum of these coefficients is 0.015, with a standard error of 0.003,¹⁸ which indicates SOI policies in such agencies increased voucher utilization rates by approximately 1.5 percent. This finding implies that for agencies where SOI policies have more scope to increase lease-up rates for outstanding vouchers such policies can in fact improve voucher utilization rates. In the second panel of Figure 3, I report the results from an event-study specification; in order to use the robust imputation-based estimator (and produce event-time coefficients for a single treatment variable of interest using this estimator), I restrict the sample to housing agencies that either (1) are never treated with SOI policies or (2) had below-median voucher utilization rates prior to the implementation of an SOI policy. Thus, the coefficients plotted here depict the effect of SOI policies on utilization rates specifically for below-median utilization rate agencies. I find no evidence that this outcome is trending differentially prior to policy implementation; a joint test of the significance of these pre-treatment coefficients reports a p-value of 0.40.

As with the robustness checks for county-level results presented above, I estimate a variation of equation (2) that includes state-by-year fixed effects terms to control for unobserved, time-varying heterogeneity in local conditions which may confound the impact of SOI policies on local housing agencies. The results from this exercise are reported in Appendix Table 10; in the first column, I consider the effect of SOI policies on the value of payments made by housing agencies to rental housing owners. As noted above, the inclusion of state-by-year fixed effects naturally reduces the level of residual identifying policy variation, and this effect is borne out in Panel 1, where although the estimated effect is consistent in magnitude with that reported in Table 7, Panel 4, column (3), the standard error is now larger, and the estimate is no longer statistically significant. Likewise, in the second panel, I find little consistent evidence of a

¹⁸ Calculated using Stata's `lincom` command.

significant relationship between SOI policies and payments; a statistical test of the value of the sum of both coefficients fails to reject the null of equality with 0 with a corresponding p-value of 0.23. In the second column of Appendix Table 10, I find that the inclusion of state-by-year fixed effects does little to change the conclusions drawn from the main results presented in Table 8. For below-median housing agencies, SOI policies are associated with a statistically significant increase in voucher utilization rates of approximately 1.8 percent in this specification.

5. DISCUSSION

Source of income laws have been implemented in 20 states including the District of Columbia and more than 100 local jurisdictions as of 2021. This paper leverages this variation to identify the effects of these policies on renters using housing choice vouchers and the performance of housing agencies. I find that such policies are associated with reductions in average wait times of approximately 14 percent prior to moving into rental units for voucher recipients; additionally, average length of residence in current housing units declines by approximately 3 percent for voucher holders. This pattern of results suggest that HCV holders face frictions in their search for housing and that SOI policies may improve the ability of HCV holders to find suitable housing and move into housing more quickly. Using event-study specifications, I show that these findings are not due to pre-existing trends in these outcomes prior to the implementation of such policies. For housing agencies, I find that SOI policies increase voucher utilization rates for agencies with lower average utilization prior to the implementation of these policies. Additionally, I find suggestive evidence that these policies associated with increased payments made to rental property owners leasing voucher recipients, which may occur as a result of HCV holders moving into higher-rent housing units following the implementation of these policies.

These findings are especially relevant in light of recent proposals from national policymakers to expand the HCV program. Legislation proposed by Democratic members of Congress have called for increased funding for the HCV program to facilitate the increased issuance of new housing vouchers. During the 2020 Presidential campaign, then-Candidate

Biden's housing policy platform included a call for making the voucher program universal and granting vouchers to all eligible applicants. The findings from this paper, as well as from the broader literature on the HCV program and housing discrimination, suggest that voucher holders face frictions in their search for suitable housing. Policies that are complementary to HCV expansion such as SOI policies have the ability to reduce such frictions and maximize the social returns on additional investments in the voucher program.

Naturally, this study is not without its limitations. For one, while this study focuses on source of income policies specifically covering housing choice vouchers, source of income laws have been passed at both the state and local level which specifically exempt housing vouchers, and therefore affect a different subpopulation of low-income renters. While there is less identifying variation currently available to assess these policies, the effects of these laws may differ insofar as landlords view other sources of public assistance in a systematically different fashion from housing choice vouchers. Additionally, an important policy margin which this study does not evaluate is recent efforts that local governments and housing agencies have made to work with property owners to lessen the administrative costs and frictions associated with leasing to HCV holders. These growing efforts, while heterogeneous, have the potential to complement SOI policies by encouraging property owners to comply with anti-discrimination regulation and alleviate concerns that landlords may have about participation in the HCV program.

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TABLES

Table 1: State-level source of income (SOI) policies across the United States as of October 2021

State	Year of Enactment	Year of Implementation	Subsequent Amendments and Judicial Rulings	Policy Covers Housing Choice Vouchers?
Massachusetts	1971	1971		Yes
Maine	1975	1975		Yes
Wisconsin	1980	1980		No
New Jersey	1981	1981	Existing regulations amended in 2002 to cover SOI discrimination	Beginning in 2002
North Dakota	1983	1983		Yes
Oklahoma	1985	1985		No
Vermont	1987	1987		Yes
Connecticut	1989	1989		Yes
Minnesota	1990	1990	2010 judicial ruling removed HCV as protected source of income	Prior to 2010
Utah	1993	1993		Yes
California	2000	2000	Amended in 2019 to cover HCV as protected source of income	Beginning in 2020
Washington, DC	2005	2005		Yes
Oregon	2013	2014		Yes
Delaware	2016	2016		Yes
Washington	2018	2018		Yes
New York	2019	2019		Yes
Maryland	2020	2020		Yes
Virginia	2020	2020		Yes
Colorado	2020	2021		Yes
Rhode Island	2021	2021		Yes

NOTES: While not listed above, the state of Texas has passed legislation specifically preempting all city- and county-level source of income policies. For a list of SOI policies implemented at the county and city level, see Appendix Tables 1 and 2, respectively.

Table 2: Summary statistics for the county- and housing agency-level data used in this study

	Mean	SD	10 th Pct	90 th Pct
Panel 1: County-Level Renter Outcomes				
<i>1,640 Counties in Analysis Sample</i>				
Log(Months Waiting to Move into Housing)	2.7	0.9	1.5	3.7
Log(Average Length of Residence in Months)	4.1	0.4	3.6	4.6
Log(Average Rent per Month)	5.7	0.2	5.4	5.9
Fraction of Residents Categorized as Overhoused	23.0	11.0	10.0	38.0
Average Census Tract-Level Poverty Rate	18.1	7.2	9.0	28.0
Average Census Tract-Level Fraction Non-White	26.3	22.8	3.0	62.0
Average Census Tract-Level Homeownership Rate	57.58	13.5	41.0	74.0
Panel 2: Housing Agency-Level Voucher Outcomes				
<i>2,076 Housing Agencies in Panel Sample</i>				
Total Vouchers	1,051.2	3,915.6	51.5	2,023.2
Total Vouchers Under Lease	1,045.3	4,275.5	50.5	1,989.0
Voucher Utilization Rate (%)	98.0	5.1	94.7	100.0
Log(Total Payments to Rental Unit Owners)	13.6	2.0	11.0	16.2

NOTES: Data in Panel 1 is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2004 to 2019 and is aggregated to the county-by-year level. The analysis sample is comprised of the 1,640 counties for which non-missing records for the first two variables in Panel 1 – log months waiting and average length of residency – were available in all years between 2004 and 2019 and is comprised of 26,460 county-year observations. Data in Panel 2 is from the Department of Housing and Urban Development (HUD) Voucher Management System's public housing agency-level records from 2010 to 2019 and is aggregated to the agency-by-year level. Sample of housing agencies is restricted to the 2,076 counties for which non-missing records for each of the outcomes in Panel 2 were available in all years between 2010 and 2019; resulting sample is comprised of 20,760 agency-by-year observations.

Table 3: *Housing voucher recipients report waiting fewer months for housing in jurisdictions that implement source of income (SOI) policies*

<i>Outcome: Log(Months Waiting)</i>	(1)	(2)	(3)
Source of Income Law	-0.157*** (0.037)	-0.154*** (0.037)	-0.138*** (0.037)
Observations	26,240	26,240	26,240
Mean(Outcome)	2.65	2.65	2.65
<i>Controls</i>			
Demographic Shares	.	Y	Y
Economic Controls	.	.	Y

NOTES: Outcome data is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2004 to 2019. These records are aggregated to the county-by-year level and include 1,640 counties; see footnotes to Table 2 for a discussion of inclusion criteria. All specifications include county and year fixed effects. Demographic shares include a vector of controls for the fractions of the state population that are Black, Hispanic, and female, as well as average age, high school graduation rate, and the fraction of population that is married. Economic controls include state employment-to-population ratio, the log value of average household income, fraction of the population with incomes below the poverty threshold, as well as SSI and SNAP reciprocity rates. All standard errors are clustered at the county level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 4: Average length of residence in current housing units for voucher recipients declines in jurisdictions that implement source of income (SOI) policies

Outcome: Log(Length of Residence)	(1)	(2)	(3)
Source of Income Law	-0.039*** (0.013)	-0.044*** (0.012)	-0.033*** (0.012)
Observations	26,240	26,240	26,240
Mean(Outcome)	4.12	4.12	4.12
<i>Controls</i>			
Demographic Shares	.	Y	Y
Economic Controls	.	.	Y

NOTES: Outcome data is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2004 to 2019. These records are aggregated to the county-by-year level and include 1,640 counties; see footnotes to Table 2 for a discussion of inclusion criteria. All specifications include county and year fixed effects. Demographic shares include a vector of controls for the fractions of the state population that are Black, Hispanic, and female, as well as average age, high school graduation rate, and the fraction of population that is married. Economic controls include state employment-to-population ratio, the log value of average household income, fraction of the population with incomes below the poverty threshold, as well as SSI and SNAP reciprocity rates. All standard errors are clustered at the county level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 5: *There is little evidence that SOI policies affect the composition of apartments into which voucher recipients move post-policy*

	(1)	(2)	(3)
Panel 1: Log(Average Rent per Month)			
Source of Income Law	-0.002 (0.007)	0.001 (0.007)	0.004 (0.007)
Observations	26,234	26,234	26,234
Mean(Outcome)	5.65	5.65	5.65
Panel 2: Fraction of Residents Categorized as Overhoused			
Source of Income Law	-1.090** (0.430)	-0.608 (0.437)	-0.058 (0.421)
Observations	26,195	26,195	26,195
Mean(Outcome)	23.15	23.15	23.15
<i>Controls</i>			
Demographic Shares	.	Y	Y
Economic Controls	.	.	Y

NOTES: Outcome data is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2004 to 2019. These records are aggregated to the county-by-year level and include 1,640 counties; see footnotes to Table 2 for a discussion of inclusion criteria. All specifications include county and year fixed effects. Demographic shares include a vector of controls for the fractions of the state population that are Black, Hispanic, and female, as well as average age, high school graduation rate, and the fraction of population that is married. Economic controls include state employment-to-population ratio, the log value of average household income, fraction of the population with incomes below the poverty threshold, as well as SSI and SNAP reciprocity rates. All standard errors are clustered at the county level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 6: *There is limited consistent evidence that source of income (SOI) policies impact the demographic characteristics of the neighborhoods in which voucher recipients reside*

	(1)	(2)	(3)
Panel 1: Tract-Level Poverty Rate			
Source of Income Law	-0.470** (0.230)	-0.132 (0.233)	-0.106 (0.224)
Observations	26,240	26,240	26,240
Mean(Outcome)	18.09	18.09	18.09
Panel 2: Tract-Level Percent Non-White			
Source of Income Law	0.302 (0.232)	-0.081 (0.229)	-0.090 (0.246)
Observations	26,240	26,240	26,240
Mean(Outcome)	26.36	26.36	26.36
Panel 3: Tract-Level Homeownership Rate			
Source of Income Law	-0.873* (0.463)	-0.270 (0.457)	-0.164 (0.454)
Observations	24,600	24,600	24,600
Mean(Outcome)	57.58	57.58	57.58
<i>Controls</i>			
Demographic Shares	.	Y	Y
Economic Controls	.	.	Y

NOTES: Outcome data is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2004 to 2019. These records are aggregated to the county-by-year level and include 1,640 counties; see footnotes to Table 2 for a discussion of inclusion criteria. All specifications include county and year fixed effects. Demographic shares include a vector of controls for the fractions of the state population that are Black, Hispanic, and female, as well as average age, high school graduation rate, and the fraction of population that is married. Economic controls include state employment-to-population ratio, the log value of average household income, fraction of the population with incomes below the poverty threshold, as well as SSI and SNAP reciprocity rates. All standard errors are clustered at the county level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 7: While source of income (SOI) policies do not appear to affect voucher utilization rates on average, such policies are associated with increases in payments made by housing agencies to rental unit owners

	(1)	(2)	(3)
Panel 1: Log(Total Vouchers)			
Source of Income Law	0.011 (0.012)	0.008 (0.012)	0.008 (0.012)
Observations	20,760	20,760	20,760
Mean(Outcome)	5.76	5.76	5.76
Panel 2: Log(Total Vouchers Under Lease)			
Source of Income Law	0.010 (0.012)	0.007 (0.012)	0.007 (0.012)
Observations	20,760	20,760	20,760
Mean(Outcome)	5.74	5.74	5.74
Panel 3: Voucher Utilization Rates (Total Vouchers Under Lease / Total Vouchers)			
Source of Income Law	-0.001 (0.002)	0.001 (0.002)	0.002 (0.002)
Observations	20,760	20,760	20,760
Mean(Outcome)	0.98	0.98	0.98
Panel 4: Log(Total Payments to Rental Housing Owners)			
Source of Income Law	0.029** (0.013)	0.029** (0.013)	0.027** (0.013)
Observations	20,760	20,760	20,760
Mean(Outcome)	13.61	13.61	13.61
<i>Controls</i>			
Demographic Shares	.	Y	Y
Economic Controls	.	.	Y

NOTES: Outcome data is from the Department of Housing and Urban Development (HUD) Voucher Management System's public housing agency-level records from 2010 to 2019. These records are aggregated to the agency-by-year level and include 2,076 agencies. All specifications include housing-agency and year fixed effects. Demographic shares include a vector of controls for the fractions of the state population that are Black, Hispanic, and female, as well as average age, high school graduation rate, and the fraction of population that is married. Economic controls include state employment-to-population ratio, the log value of average household income, fraction of the population with incomes below the poverty threshold, as well as SSI and SNAP reciprocity rates. All standard errors are clustered at the housing-agency level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 8: Source of income (SOI) policies improve voucher utilization rates for those housing agencies that have below-median utilization rates prior to policy implementation

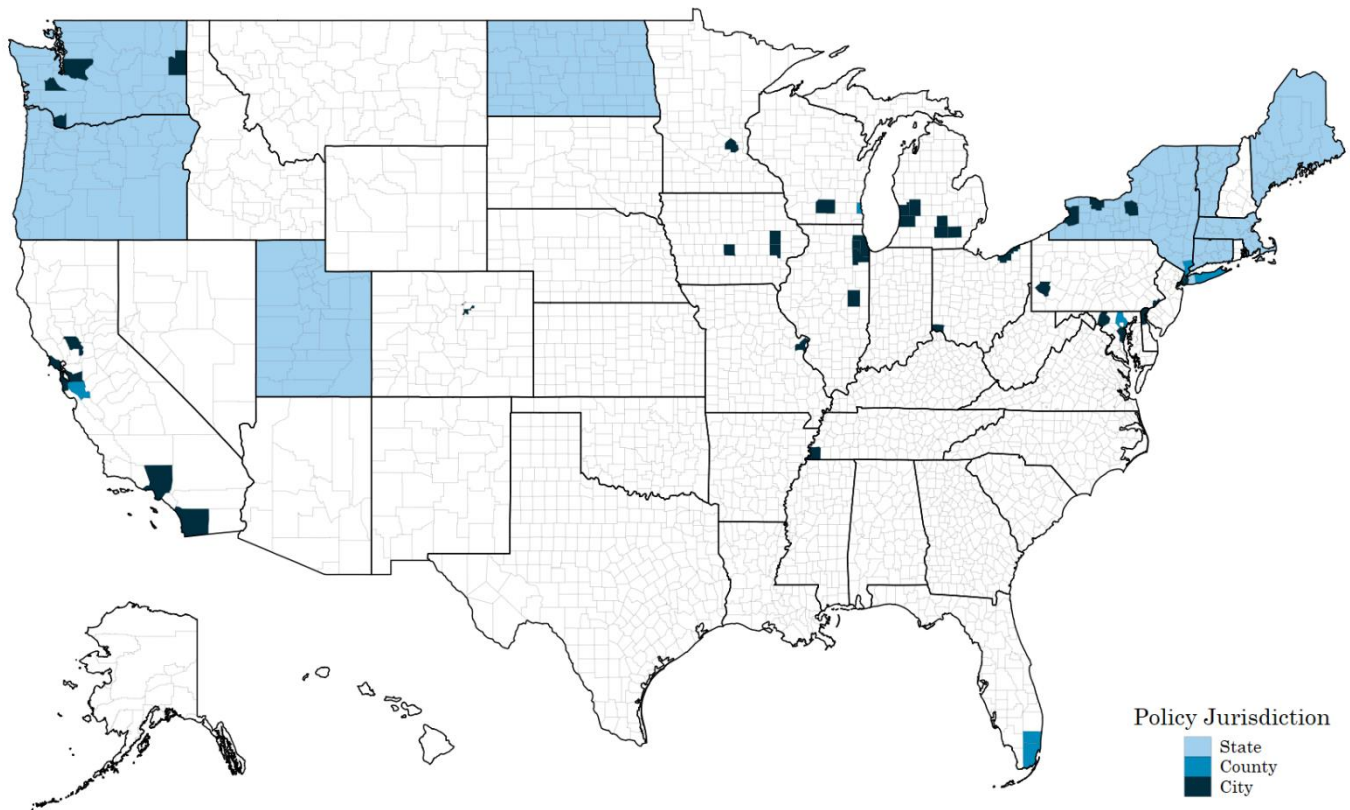
	(1)	(2)	(3)
Panel 1: Log(Total Vouchers)			
Source of Income Law	0.030* (0.017)	0.024 (0.017)	0.025 (0.017)
SOI Policies X Indicator for Below-Median Utilization Rate	-0.035 (0.024)	-0.031 (0.024)	-0.032 (0.024)
Observations	20,760	20,760	20,760
Mean(Outcome)	5.76	5.76	5.76
Panel 2: Log(Total Vouchers Under Lease)			
Source of Income Law	0.010 (0.017)	0.005 (0.017)	0.006 (0.017)
SOI Policies X Indicator for Below-Median Utilization Rate	-0.000 (0.023)	0.003 (0.024)	0.002 (0.024)
Observations	20,760	20,760	20,760
Mean(Outcome)	5.74	5.74	5.74
Panel 3: Voucher Utilization Rates (Total Vouchers Under Lease / Total Vouchers)			
Source of Income Law	-0.015*** (0.001)	-0.014*** (0.002)	-0.013*** (0.002)
SOI Policies X Indicator for Below-Median Utilization Rate	0.028*** (0.003)	0.027*** (0.003)	0.028*** (0.003)
Observations	20,760	20,760	20,760
Mean(Outcome)	0.98	0.98	0.98
Panel 4: Log(Total Payments to Rental Unit Owners)			
Source of Income Law	0.017 (0.019)	0.016 (0.019)	0.012 (0.019)
SOI Policies X Indicator for Below-Median Utilization Rate	0.022 (0.026)	0.024 (0.026)	0.028 (0.026)
Observations	20,760	20,760	20,760
Mean(Outcome)	13.61	13.61	13.61
<i>Controls</i>			
Demographic Shares	.	Y	Y
Economic Controls	.	.	Y

NOTES: Outcome data is from the Department of Housing and Urban Development (HUD) Voucher Management System's public housing agency-level records from 2010 to 2019. These records are aggregated to the agency-by-year level and include 2,076 agencies. All specifications include housing-agency and year fixed effects. The coefficient "SOI Policies X Indicator for Below-Median Utilization Rate" is the estimated effect of the interaction between SOI policies and an indicator variable set equal to 1 for housing agencies with below-median utilization rates (defined over the pre-policy period for agencies eventually being treated by SOI policies). There is no main effect reported for the below-median indicator because this measure is constant within housing agencies. Across all three columns, a statistical test that the sum of both coefficients is not equal to 0 is significant at the 1-percent level. Demographic shares and economic controls are included (see Notes to Table 7 for a description of these controls). All standard errors are clustered at the housing-agency level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

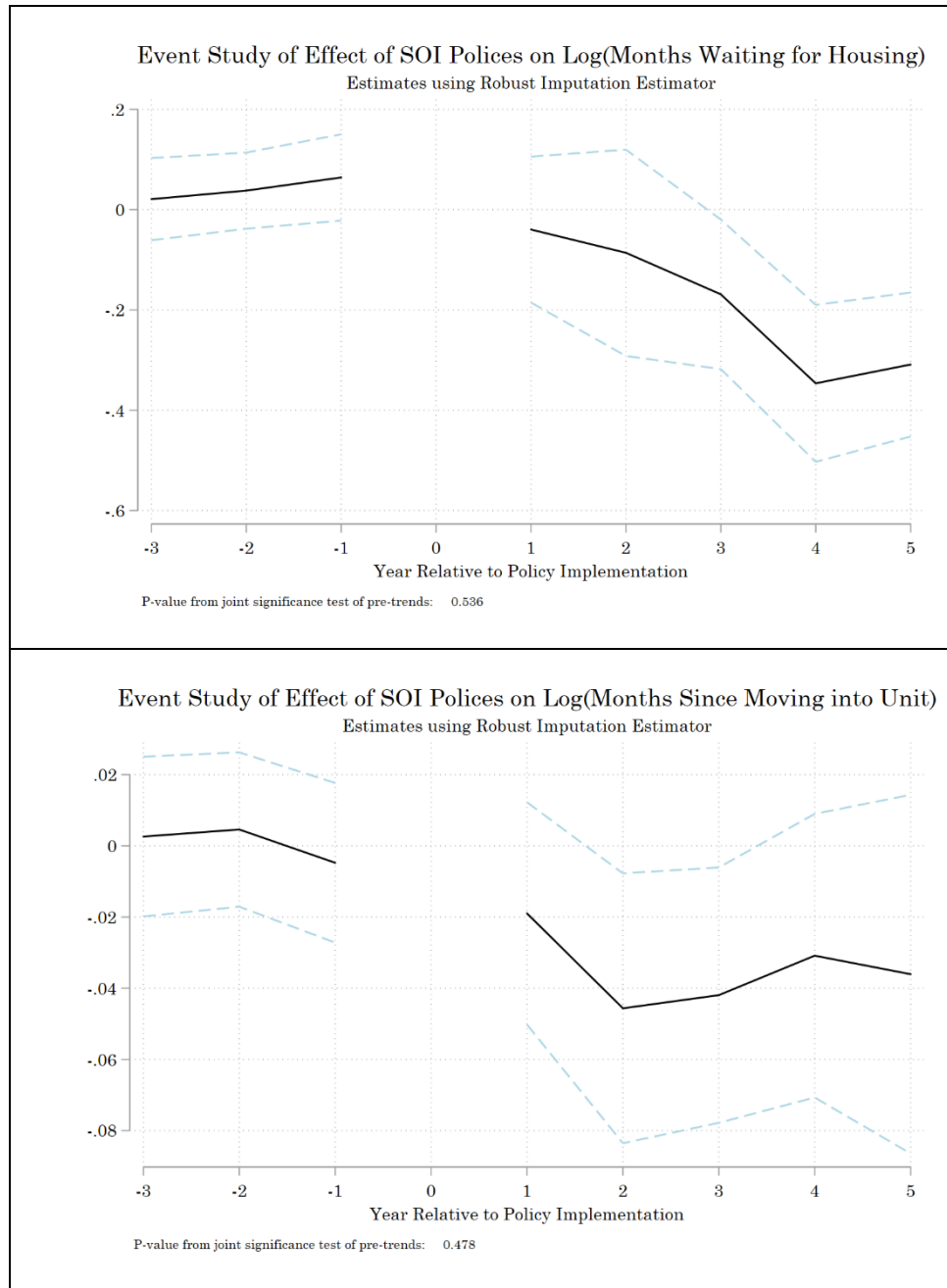
FIGURES

Figure 1: SOI policies implemented as of December 2019 and evaluated in this study



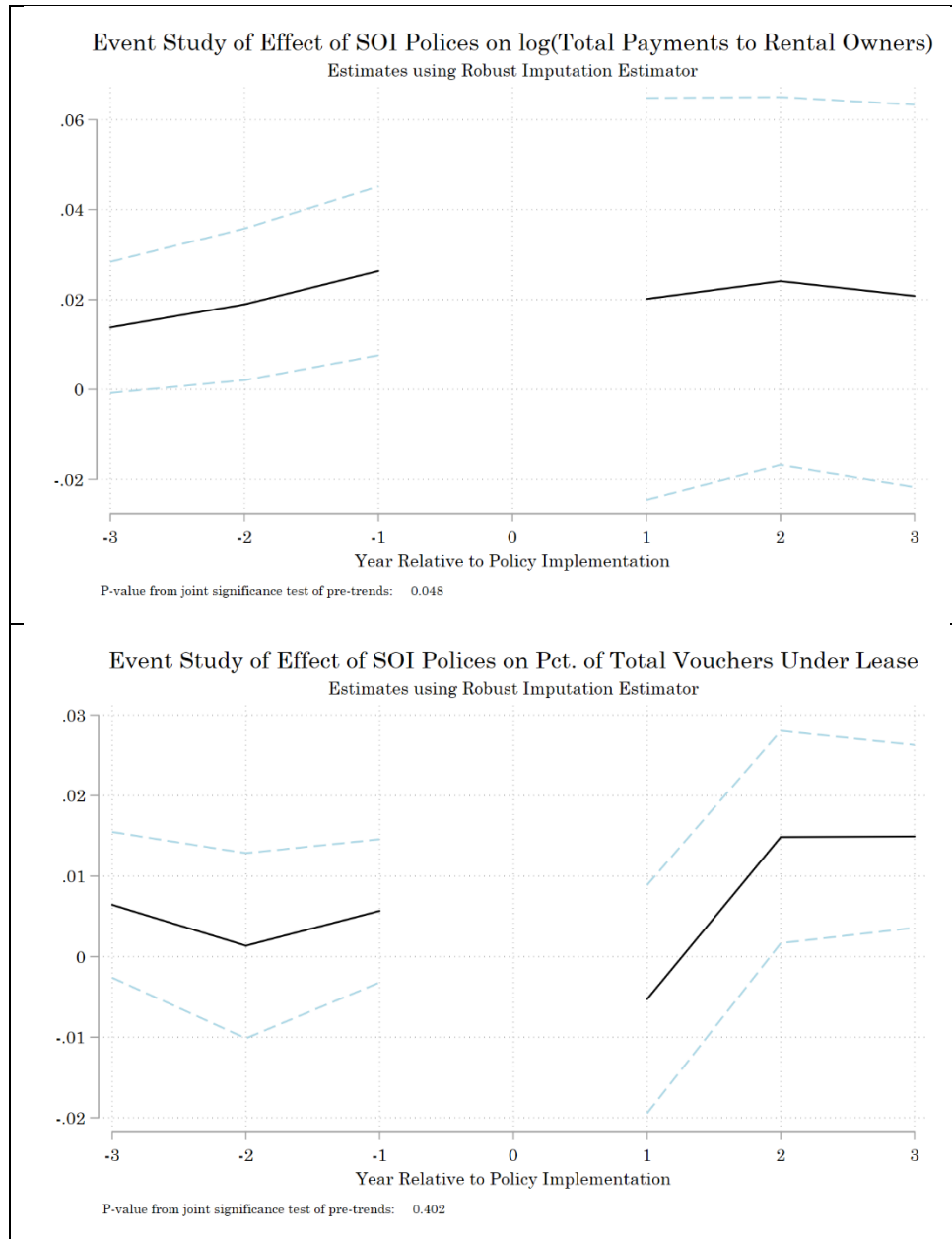
NOTE: All source of income (SOI) policies in effect as of the end of 2019 are plotted above; these policies contribute the identifying variation used in this study. Policies are plotted across counties; “Policy Jurisdiction” denotes whether the first SOI policy affecting a given county was implemented at the state, county, or city level. Cities which implement SOI policies are matched to all counties which intersect with that city’s boundaries and each intersecting county is counted as having an SOI policy. State policy implementation and effective dates are reported in Table 1; a list of counties and cities with SOI policies is provided in Appendix Tables 1 and 2, respectively. For a map of all effective SOI policies as of 2020, see Appendix Figure 1.

Figure 2: *Balanced-panel robust event studies for key county-level outcomes in Tables 3 and 4*



NOTES: Outcome data is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2004 to 2019. These records are aggregated to the county-by-year level and include 1,640 counties; see footnotes to Table 2 for a discussion of inclusion criteria. Event study estimates are calculated using the imputation-based estimator from Borusyak et al. (2021); all specifications include county and year fixed effects. Dashed lines denote 95 percent confidence intervals. Standard errors are clustered at the county level. The p-value from a test of the joint significance of the pre-treatment event time coefficients is reported at the bottom of each figure.

Figure 3: *Balanced-panel robust event studies for key housing-agency level outcomes from Tables 7 and 8*



NOTES: Outcome data is from the Department of Housing and Urban Development (HUD) Voucher Management System's public housing agency-level records from 2010 to 2019. These records are aggregated to the agency-by-year level and include 2,076 public housing agencies. To reflect the object of interest in the second figure – the effect of voucher utilization rates for below-median utilization rate agencies as reported in Table 8 – the sample is restricted to housing agencies that either (1) are never treated with SOI policies or (2) had below-median voucher utilization rates prior to the implementation of an SOI policy. Event study estimates are calculated using the imputation-based estimator from Borusyak et al. (2021); all specifications include county and year fixed effects. Dashed lines denote 95 percent confidence intervals. Standard errors are clustered at the housing-agency level. The p-value from a test of the joint significance of the pre-treatment event time coefficients is reported at the bottom of each figure.

APPENDIX

Appendix Table 1: County-level source of income (SOI) policies covering housing choice vouchers

<i>Jurisdiction</i>	<i>State</i>	<i>Year of Enactment</i>	<i>Year of Implementation</i>
Dane County	Wisconsin	1987	1988
King County	Washington	2006	2006
Miami-Dade County	Florida	2009	2009
Westchester County	New York	2013	2013
Suffolk County	New York	2015	2015
Marin County	California	2017	2017
Santa Clara County	California	2017	2017
Broward County	Florida	2017	2017
Erie County	New York	2018	2018
Alameda County	California	2019	2019
Los Angeles County	California	2019	2019
Baltimore County	Maryland	2019	2019
Milwaukee County	Wisconsin	2019	2019

Appendix Table 2: City-level source of income (SOI) policies covering housing choice vouchers

<i>State</i>	<i>Jurisdictions</i>
California	Berkeley, Corte Madera, East Palo Alto, Fairfax, Mill Valley, Novato, San Anselmo, San Diego, San Francisco, Santa Monica, and Woodland
Colorado	Boulder, and Denver
Delaware	Wilmington
Illinois	Chicago, Glenview, Harwood Heights, Naperville, Urbana, and Wheeling
Iowa	Iowa City, and Marion
Massachusetts	Boston, Cambridge, Quincy, and Revere
Maryland	Annapolis, Baltimore, and Frederick
Michigan	Ann Arbor, East Lansing, Grand Rapids, Jackson, Kentwood, Lansing, and Wyoming
Minnesota	Minneapolis
Missouri	St. Louis
New York	Buffalo, Hamburg, New York City, Rochester, Syracuse, and West Seneca
Ohio	Linndale, South Euclid, University Heights, Warrensville Heights, and Wickliffe
Pennsylvania	Philadelphia, Pittsburgh, and the Borough of State College
Texas	Austin, and Dallas
Tennessee	Memphis
Washington	Bellevue, Bellingham, Kent, Kirkland, Olympia, Redmond, Renton, Seattle, Spokane, Tumwater, and Vancouver
Wisconsin	Cambridge, Madison, Milwaukee, Ripon, Sun Prairie, and Wauwatosa

Appendix Table 3: Descriptive statistics for the sample of housing voucher recipients included in HUD Picture of Subsidized Households county-level sample from 2004 to 2019

	<i>Mean</i>	<i>10th Pct</i>	<i>90th Pct</i>	<i>N</i>
Number of Occupants per Housing Unit	2.3	1.8	2.9	26,234
Fraction of Heads of Household Black	30.0	1.0	85.0	25,482
Fraction of Heads of Household Hispanic	7.8	0.0	20.0	26,234
Fraction of All Residents with a Disability	24.1	13.0	37.0	26,234
Fraction of Heads of Household (or Spouses) Aged 62+	21.1	10.0	34.0	26,227

NOTES: Data is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2004 to 2019 and is aggregated to the county-by-year level. Sample includes 1,640 counties; see footnotes to Table 2 for a discussion of inclusion criteria. Not all demographic variables are reported for each county-year observation; "N" denotes number of non-missing reported observations for each outcome.

Appendix Table 4: *There is little consistent evidence that SOI policies are associated with changes in the demographic characteristics of voucher holders*

	(1)	(2)	(3)
Panel 1: Log(Average Household Income)			
Source of Income Law	-0.002 (0.005)	-0.005 (0.005)	-0.005 (0.005)
Observations	26,234	26,234	26,234
Mean(Outcome)	6.78	6.78	6.78
Panel 2: Fraction of Voucher Holder Population Non-White			
Source of Income Law	-0.363 (0.369)	-0.366 (0.370)	-0.362 (0.387)
Observations	26,240	26,240	26,240
Mean(Outcome)	38.96	38.96	38.96
Panel 3: Fraction of Voucher Holder Population Black			
Source of Income Law	-0.514* (0.298)	-0.202 (0.293)	0.018 (0.297)
Observations	25,482	25,482	25,482
Mean(Outcome)	30.21	30.21	30.21
Panel 4: Fraction of Voucher Holder Population Hispanic			
Source of Income Law	0.173 (0.250)	-0.074 (0.254)	-0.185 (0.263)
Observations	26,234	26,234	26,234
Mean(Outcome)	7.75	7.75	7.75
Panel 5: Fraction of All Voucher Household Members with Disability			
Source of Income Law	0.765** (0.351)	0.542 (0.363)	0.384 (0.355)
Observations	26,234	26,234	26,234
Mean(Outcome)	24.18	24.18	24.18
<i>Controls</i>			
Demographic Shares	.	Y	Y
Economic Controls	.	.	Y

NOTES: Outcome data is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2004 to 2019. Observation counts differ across panels because some measures are not available for all county-year observations. In Panels 2, 3, and 4, demographic shares are defined over the sample of all heads of voucher households; in Panel 5, outcome is defined over all residents in voucher households. All specifications include county and year fixed effects. Demographic shares include a vector of controls for the fractions of the state population that are Black, Hispanic, and female, as well as average age, high school graduation rate, and the fraction of population that is married. Economic controls include state employment-to-population ratio, the log value of average household income, fraction of the population with incomes below the poverty threshold, as well as SSI and SNAP reciprocity rates. All standard errors are clustered at the county level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Appendix Table 5: County-level results for renters are robust to the inclusion of county-level unemployment rates as a control measure

	(1)	(2)	(3)
Panel 1: Log(Months Waiting)			
Source of Income Law	-0.156*** (0.037)	-0.156*** (0.038)	-0.148*** (0.037)
Observations	26,176	26,176	26,176
Mean(Outcome)	2.65	2.65	2.65
Panel 2: Log(Length of Residence)			
Source of Income Law	-0.038*** (0.013)	-0.038*** (0.013)	-0.033*** (0.012)
Observations	26,176	26,176	26,176
Mean(Outcome)	4.12	4.12	4.12
Panel 3: Fraction of Residents Categorized as Overhoused			
Source of Income Law	-1.090** (0.431)	-1.093** (0.429)	0.049 (0.427)
Observations	26,131	26,131	26,131
Mean(Outcome)	23.14	23.14	23.14
Panel 4: Log(Average Rent per Month)			
Source of Income Law	-0.001 (0.007)	-0.001 (0.007)	0.004 (0.007)
Observations	26,170	26,170	26,170
Mean(Outcome)	5.65	5.65	5.65
<i>Controls</i>			
LAU County-Level Unemployment Rate	.	Y	Y
State-Level Demographic + Economic Controls	.	.	Y

NOTES: Outcome data is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2010 to 2019. Sample sizes differ from the corresponding results presented in Tables 3 through 5 because LAU data is not available for all county-year observations in sample. All specifications include county and year fixed effects. Demographic shares include a vector of state-level controls for the fractions of the state population that are Black, Hispanic, and female, as well as average age, high school graduation rate, and the fraction of population that is married. Economic controls include state employment-to-population ratio, the log value of average household income, fraction of the population with incomes below the poverty threshold, as well as SSI and SNAP reciprocity rates. All standard errors are clustered at the county level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Appendix Table 6: *Estimated reductions in average wait times prior to move-in for voucher holders are robust to the inclusion of state-by-year fixed effects*

	(1)	(2)	(3)	(4)
	Log(Months Waiting)	Log(Length of Residence)	Fraction Overhoused	Log(Average Rent per Month)
Source of Income Law	-0.190** (0.074)	0.015 (0.017)	-0.592 (0.471)	0.011 (0.010)
Observations	26,240	26,240	26,195	26,234
Mean(Outcome)	2.65	4.12	23.15	5.65

NOTES: Outcome data is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2004 to 2019. These records are aggregated to the county-by-year level and include 1,640 counties; see footnotes to Table 2 for a discussion of inclusion criteria. Each specification includes county, year, and state-by-year fixed effects; state-level, time-varying controls are omitted because they are collinear with state-by-year fixed effects. All standard errors are clustered at the county level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Appendix Table 7: The complete-sample restriction imposed on the county-level regression sample does not materially change estimates relative to incomplete sample results

	(1)	(2)	(3)
Panel 1: Log(Months Waiting)			
Source of Income Law	-0.154*** (0.037)	-0.156*** (0.037)	-0.129*** (0.037)
Observations	37,403	37,403	37,403
Mean(Outcome)	2.6	2.6	2.6
Panel 2: Log(Length of Residence)			
Source of Income Law	-0.046*** (0.013)	-0.057*** (0.014)	-0.050*** (0.014)
Observations	37,403	37,403	37,403
Mean(Outcome)	4.1	4.1	4.1
Panel 3: Fraction of Residents Categorized as Overhoused			
Source of Income Law	-1.489*** (0.449)	-1.054** (0.455)	-0.661 (0.457)
Observations	37,284	37,284	37,284
Mean(Outcome)	24.43	24.43	24.43
Panel 4: Log(Average Rent per Month)			
Source of Income Law	0.004 (0.007)	0.007 (0.007)	0.011 (0.007)
Observations	37,395	37,395	37,395
Mean(Outcome)	5.64	5.64	5.64
<i>Controls</i>			
Demographic Shares	.	Y	Y
Economic Controls	.	.	Y

NOTES: Outcome data is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2004 to 2019. In contrast to the main results presented in Tables 3 through 6, here there is no balanced or complete-sample restriction; for more discussion of this restriction, see Notes to Table 2. The sample of counties above is the set of all county-year observations that report non-missing values for the outcome listed in each panel title. All specifications include county and year fixed effects. Demographic shares include a vector of controls for the fractions of the state population that are Black, Hispanic, and female, as well as average age, high school graduation rate, and the fraction of population that is married. Economic controls include state employment-to-population ratio, the log value of average household income, fraction of the population with incomes below the poverty threshold, as well as SSI and SNAP reciprocity rates. All standard errors are clustered at the county level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Appendix Table 8: PSH county results using robust imputation-based estimator

	Log(Months Waiting)	Log(Months Since Move-in)
Panel 1: ATT Estimate of δ from Robust Estimation of Equation (1)		
Source of Income Law	-0.155*** (0.038)	-0.029** (0.013)
Observations	24,416	24,416
Mean(Outcome)	2.64	4.11
Panel 2: Robust Event-Study Estimates		
3 years pre-policy	0.021 (0.042)	0.003 (0.011)
2 years pre-policy	0.038 (0.039)	0.005 (0.011)
1 year pre-policy	0.064 (0.044)	-0.005 (0.011)
1 year post-policy	-0.040 (0.074)	-0.019 (0.016)
2 years post-policy	-0.086 (0.105)	-0.046** (0.019)
3 years post-policy	-0.169** (0.076)	-0.042** (0.018)
4 years post-policy	-0.346*** (0.080)	-0.031 (0.020)
5 years post-policy	-0.309*** (0.073)	-0.036 (0.026)
P-Value from Test of Pre-Policy Joint Significance	0.54	0.48
Observations	24,179	24,236
Mean(Outcome)	2.63	4.10

NOTES: Outcome data is from the Department of Housing and Urban Development's (HUD) Picture of Subsidized Households county-level records from 2004 to 2019. These records are aggregated to the county-by-year level and include 1,640 counties; see footnotes to Table 2 for a discussion of inclusion criteria. All specifications include county and year fixed effects. Estimates reported above are calculated using the imputation-based estimator from Borusyak et al. (2021); in Panel 2, sample of counties identifying post-treatment coefficients has been restricted to only those counties with sufficient data available post-policy implementation to identify all five years of coefficients. All standard errors are clustered at the county level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Appendix Table 9: VMS housing-agency results using robust imputation-based estimator

	Log(Total Rental Payments)	Voucher Utilization Rate
Panel 1: ATT Estimate of δ from Robust Estimation of Equation (3)		
Source of Income Law	0.029** (0.014)	0.010*** (0.004)
Observations	17,920	16,040
Mean(Outcome)	13.59	.98
Panel 2: Robust Event-Study Estimates		
3 years pre-policy	0.014* (0.007)	0.006 (0.005)
2 years pre-policy	0.019** (0.009)	0.001 (0.006)
1 year pre-policy	0.026*** (0.010)	0.006 (0.005)
1 year post-policy	0.020 (0.023)	-0.005 (0.007)
2 years post-policy	0.024 (0.021)	0.015** (0.007)
3 years post-policy	0.021 (0.022)	0.015*** (0.006)
P-Value from Test of Pre-Policy Joint Significance	0.05	0.40
Observations	17,566	15,856
Mean(Outcome)	13.6	0.98

NOTES: Outcome data is from the Department of Housing and Urban Development (HUD) Voucher Management System's public housing agency-level records from 2010 to 2019. These records are aggregated to the agency-by-year level and include 2,076 public housing agencies. All specifications include county and year fixed effects. Estimates reported above are calculated using the imputation-based estimator from Borusyak et al. (2021); in Panel 2, sample of housing agencies identifying post-treatment coefficients has been restricted to only those agencies with sufficient data available post-policy implementation to identify all three years of coefficients. To reflect the parameter of interest in the second column – the effect of voucher utilization rates for below-median utilization rate agencies as reported in Table 8 – the sample is restricted to housing agencies that either (1) are never treated with SOI policies or (2) had below-median voucher utilization rates prior to the implementation of an SOI policy. All standard errors are clustered at the agency level.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

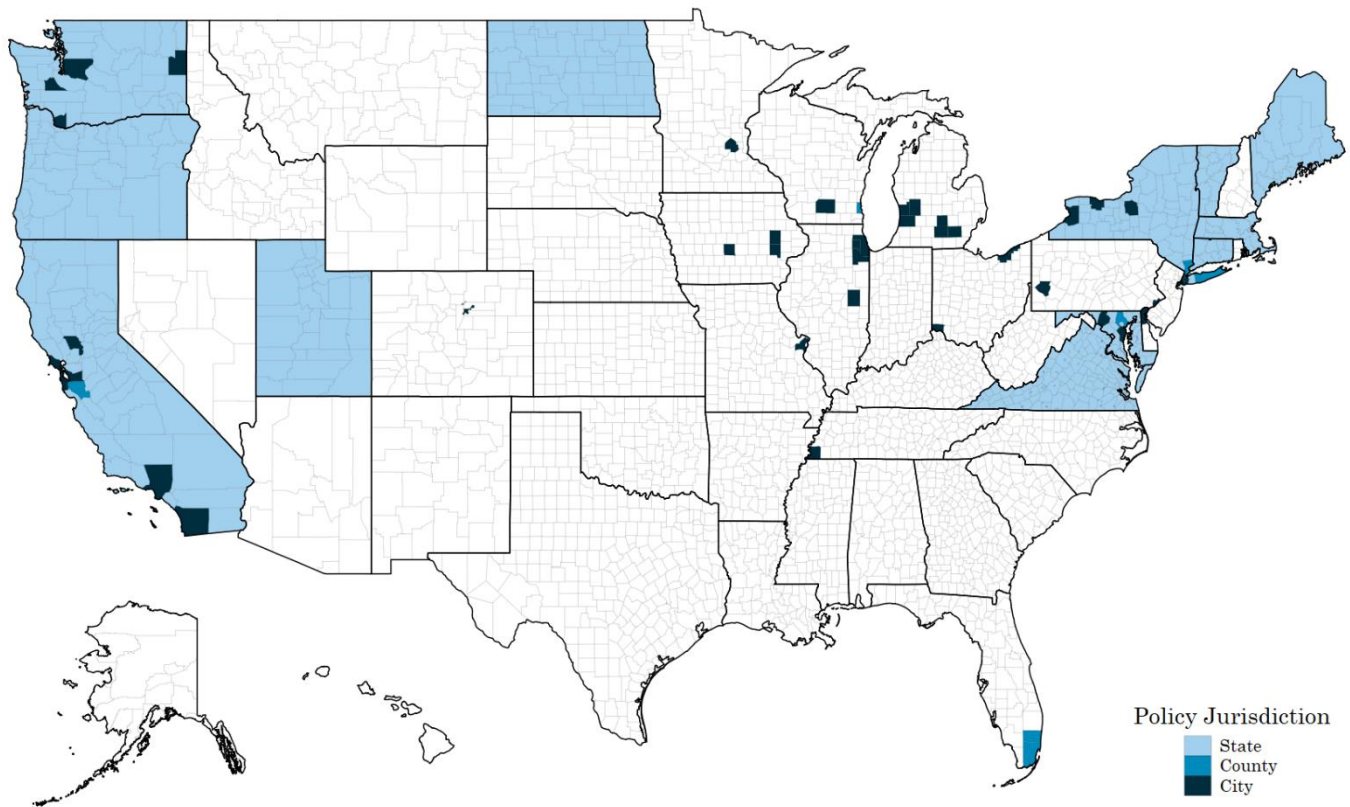
Appendix Table 10: VMS housing-agency results with state-year fixed effects

	Log(Total Rental Payments)	Voucher Utilization Rates
Panel 1: Baseline Specification from Equation (3)		
Source of Income Law	0.024 (0.019)	0.002 (0.003)
Observations	20,750	20,750
Mean(Outcome)	13.61	0.98
Panel 2: Interaction Specification for Lower-Utilization Agencies		
Source of Income Law	0.017 (0.020)	-0.010*** (0.003)
SOI Polices X Indicator for Below-Median Utilization Rate	0.016 (0.028)	0.028*** (0.003)
Observations	20,750	20,750
Mean(Outcome)	13.61	0.98

NOTES: Outcome data is from the Department of Housing and Urban Development (HUD) Voucher Management System's public housing agency-level records from 2010 to 2019. These records are aggregated to the agency-by-year level and include 2,076 public housing agencies. Each specification includes county, year, and state-by-year fixed effects; state-level, time-varying controls are omitted because they are collinear with state-by-year fixed effects. All standard errors are clustered at the housing-agency level.

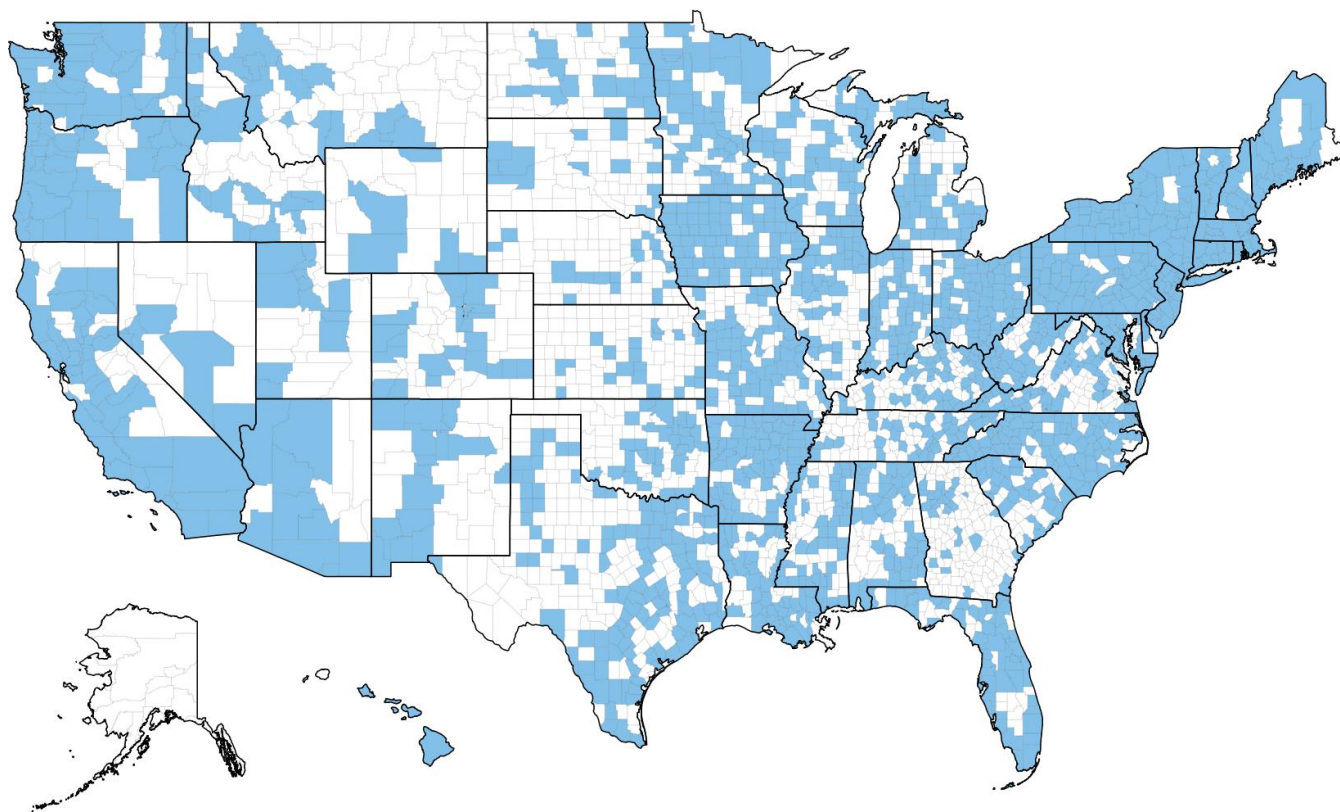
* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Appendix Figure 1: All SOI policies implemented as of December 2020



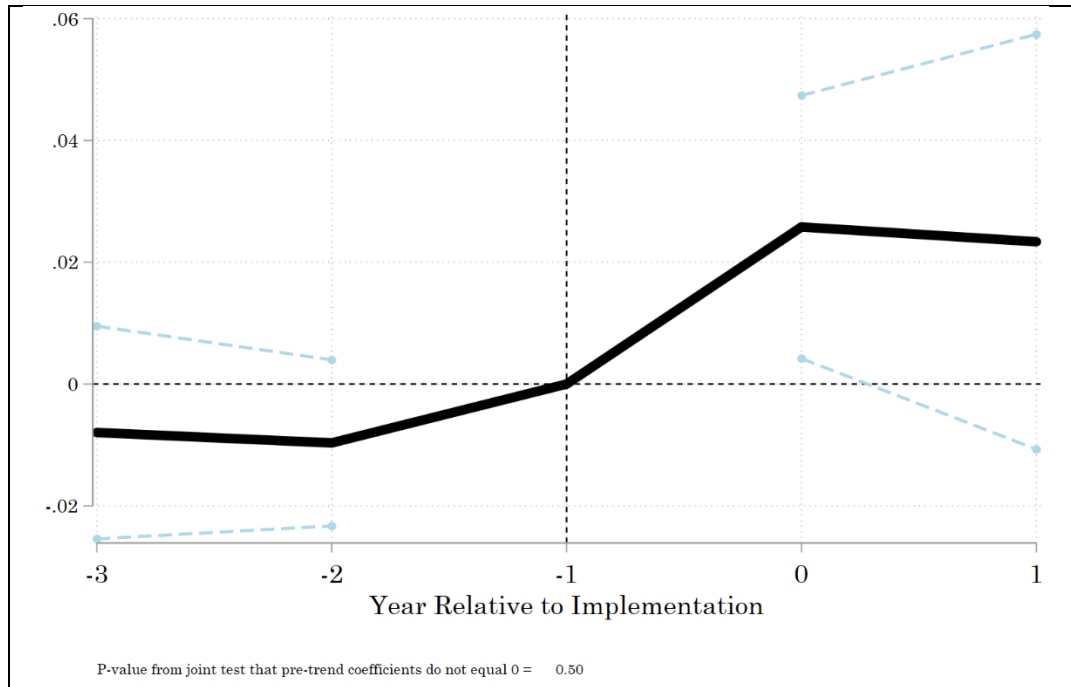
NOTE: All source of income (SOI) policies in effect as of the end of 2020 are plotted above. Policies are plotted across counties; “Policy Jurisdiction” denotes whether the first SOI policy affecting a given county was implemented at the state, county, or city level. Cities which implement SOI policies are matched to all counties which intersect with that city’s boundaries and each intersecting county is counted as having an SOI policy. State policy implementation and effective dates are reported in Table 1; a list of counties and cities with SOI policies is provided in Appendix Tables 1 and 2, respectively.

Appendix Figure 2: Counties contributing to complete sample



NOTE: The 1,640 counties that comprise the analysis sample for the county-level results presented in Tables 3 through 6 are shaded in blue. Data from 2004 and 2019; for a description of sample-inclusion criteria, see Notes to Table 2 above.

Appendix Figure 3: OLS event study for total payments made by housing agencies to rental unit owners



NOTE: Outcome data is from the Department of Housing and Urban Development (HUD) Voucher Management System's public housing agency-level records from 2010 to 2019. These records are aggregated to the agency-by-year level and include 2,076 public housing agencies. Results plotted above are estimated via OLS. Dashed lines denote 95 percent confidence intervals. Standard errors are clustered at the housing-agency level. The p-value from a test of the joint significance of the pre-treatment event time coefficients is reported at the bottom of the figure.

APPENDIX MATERIALS

A1. Informal Survey of Rental Housing Listings

In this section, I use housing listings posted to Craigslist to provide examples of source of income discrimination. The discussion here is not intended to support any definitive or quantitative claims regarding SOI policies, but instead is designed to provide examples of SOI discrimination in practice. I consider two states – Virginia, which implemented an SOI policy in 2020, and North Carolina, which has no statewide SOI policy. I search Craigslist apartment listings for cities along the corridor between Blacksburg and Roanoke, VA and Winston-Salem and Greensboro, NC¹⁹. For each city, I enter the search term “no section 8” with no additional search restrictions imposed on the type of rental listing, size of unit, etc. As of late-September 2021, no rental listings in Roanoke, Blacksburg, or Southwest Virginia include listings specifically stating “no Section 8” or similar search terms such as “no vouchers” – extending this search north to communities including Lynchburg yields similar results. In contrast, the same search yields 8 separate listings in the Greensboro, High Point, and Winston-Salem metro areas in North Carolina. I have provided examples from two of these listings below, in which landlords specifically state that rental offers will not be extended to applicants with housing choice vouchers. SOI policies prohibit landlords from making such statements in rental housing listings and from categorically rejecting applications from voucher holders.

¹⁹ I select this region given the relative proximity of comparable metro areas to a border between states with differences in SOI policies as well as the relative cultural similarities between communities on both sides of the border (having spent years driving through Southwest Virginia into the Winston-Salem area, it’s easy to lose track of where Virginia ends and North Carolina begins).

Sample rental apartment listings from Greensboro, NC that specifically state landlord will not rent to applicants with housing choice vouchers

\$925 / 3br - 986ft² - COMING SOON! 3 BED/1 BATH HOME! (Greensboro, NC)

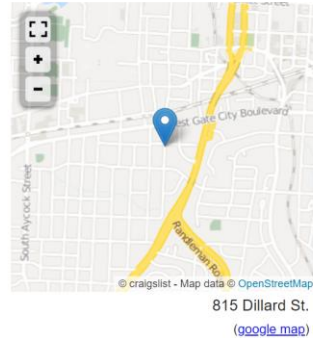
image 1 of 16



Super cute 3bed/1bath home in Glenwood! Laminate hardwood floors throughout living area and kitchen! Updated kitchen, appliances and cabinets! Spacious bedrooms! Close to everything...UNCG, 29/40/85, downtown, and coliseum. A must see!! Washer/Dryer Included. Gas Heat, Central Air. Pets CBC No aggressive breeds.

No Section 8

View Qualifications at [RENTtrc.com](https://www.renttrc.com)- RESIDENT BENEFIT PACKAGE- An additional \$27 Monthly Fee will be assessed monthly. For detailed information visit: <https://www.renttrc.com/uploads/screeningcriteriaanddisclosure.pdf>



3BR / 1Ba 986ft² available oct 8

air conditioning

application fee details: **\$50.00 18 and older, NO SECTION 8 OR AGGRESSIVE BREEDS**

cats are OK - purrr

dogs are OK - woof

house

w/d in unit

no smoking

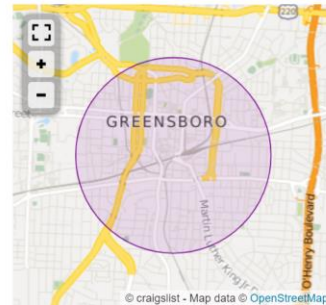
off-street parking

\$850 / 3br - 988ft² - Nice 3Bd 1.5Ba Home! (Greensboro)

image 1 of 10



Super cute renovated 3 bed, 1.5 bath ranch! Located within walking distance to UNCG, GSO College and downtown. Features white cabinets in kitchen and bath, updated laminate wood flooring! Washer/dryer connections and off street parking. Electric Heat, window unit AC. Tenant pays all utilities. **No Section 8**. Pets allowed with \$250 non-refundable pet fee



3BR / 1.5Ba 988ft² available now

friday 2021-08-27

application fee details: **\$15**

flooring: **wood**

house

w/d hookups

attached garage

rent period: **monthly**