Unsticking Permanent Housing Vouchers

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1. ABSTRACT

The U.S. Department of Housing and Urban Development offers more than two million housing vouchers to cover the rent of low-income households. In 1996, HUD received instruction from and funding through Congress to increase the economic outcomes of voucher holders, such as through incentivizing employment and increased income. Today, however, only 25% of people leaving the program do so because they have earned additional income.

HUD's attempts to stimulate work activity so far may be ineffective due to a lack of consideration of behavioral drivers, which may cause holders to value vouchers at much higher rates than their equivalent dollar value. Recent research proposes the existence of a "scarcity mindset" that characterizes differences in how those in poverty make economic decisions. For example, they may experience higher levels of risk aversion. In addition, voucher holders may overvalue their vouchers due to loss aversion and emotional bias.

In this proposal we outline interventions that seek to answer an important question: do behavioral biases cause holders to inflate the value of their vouchers? We propose a survey for measuring behavioral biases as well as an intervention to assess actual valuations of a housing voucher with $0 of monthly payment (i.e., a voucher that provides only insurance against homelessness). We then propose an intervention that takes advantage of this overvaluation through a novel social insurance program that grants truly permanent housing vouchers, which are not subject to removal due to income, but are subject to work requirements. To evaluate this potential intervention, we propose a randomized controlled trial. We close with thoughts on how the intervention is cost-effective and helps HUD realize its aims of increased income among voucher holders.

2. MOTIVATION

Overview: Permanent Housing Voucher Program. Since 1969, the U.S. Department of Housing and Urban Development (HUD) has worked to reduce homelessness in the United States through a laudably direct solution: by covering the rent of the most vulnerable households.

Today, permanent housing vouchers are offered through multiple programs for different targeted populations. As of 2020, the department offered at least two million housing units (*National and State* 2019). For example, Housing Choice Vouchers (also known as "Section 8") are offered to extremely low-income and chronically homeless households; VASH Vouchers help formerly homeless veterans; HOPWA (Housing of People With HIV/AIDS) Vouchers extend critical assistance to those living with HIV/AIDS.

In general, these programs operate by covering the portion of rent that households are deemed unable to afford. Typically, subsidized households direct 30% of their gross, pre-tax income (earned income or entitlement benefits like Social Security) towards rent, and the government covers the remaining portion. Programs allow residents to choose their own apartments, provided they meet habitability standards and accord with fair market rent. Moreover, the payment structure of the program ensures a steady decrease in subsidies as a household gains additional income. This structure ostensibly avoids the disincentive of a fiscal "welfare cliff," where a gain in income may be subsumed by a greater loss in government dollars (Senate Budget Committee 2012).

HUD relies on a network of hundreds of Public Housing Authorities (PHAs) to allocate these vouchers throughout the country. PHAs may also offer vouchers backed by states themselves. While these entities do have some say in who is awarded vouchers (e.g., by setting income requirements and setting priority criteria), 75% of vouchers must be extended to households earning less than 30% of the Area Median Income (AMI), as defined by HUD. Households served are and remain in great economic distress. Importantly, vouchers never elapse, though a household may be exited from the program once they begin earning sufficient income, such that their 30% contribution to their housing covers rent. Once a voucher is released, PHAs designate it to another eligible household.

Challenge: Economic Immobility. Today, the voucher program has gained enormously wide appeal--indeed, too much appeal. The largest programs have wait lists between 6,000 and 12,000

people and wait times between 4 and 7 years (Aurand 2016). While it varies, many people exit the program after a median of about 5 years (Smith 2014). Research into outcomes is surprisingly sparse, but only 25% of those who exit the permanent voucher program (commonly called "leavers") do so because they are earning more income. Most recipients leave the program for negative reasons, such as eviction (Smith 2014). A recent meta-analysis demonstrates that permanent voucher programs worldwide do not reliably increase participants' earned income (Aubry 2020).

HUD is already aware of the economic immobility among the population. In 1996, Congress directed HUD through the Omnibus Consolidated Rescissions and Appropriations Act to "give incentives to families with children where the head of household is working, seeking work, or is preparing for work." As discussed below, efforts to achieve this goal, now 25 years old, are of limited success.

Criticisms of the program are not rare. Both the right and left have criticized the voucher program, and have offered related but divergent theories of why poor households remain in poverty despite the stability of housing. On the right, the issue is framed as dependence (Husock 2017). Households are disincentivized from earning additional income, as that will increase their share of rent. The program increases the effective tax rates of recipients endeavoring to earn more money, by earmarking 30 cents of every earned dollar towards housing. This argument follows a fairly traditional argument against welfare, and proposals to promote job growth and savings, such as work requirements and forced savings accounts, have largely focused on reducing the disincentive of this effective tax rate. Such programs, unfortunately, have had minimal impact, as described below.

Meanwhile, on the left, vouchers are more likely to be criticized as promoting poverty traps. Originally, the voucher program replaced "place-based" housing solutions, through which the federal government purchased or constructed housing units and then rented at rates well below market rent. Unfortunately, these "high rises" tended to promote drug trafficking, concentrate poverty, and reduce an area's economic opportunity, especially as wealthier neighbors moved away (Semuels 2015). Today, critics argue that the strict rent caps of housing vouchers create similar clusters of poverty and promote economic immobility. Proposed solutions, however, typically recommend increasing caps on voucher holders' maximum rent so recipients may move into more economically diverse regions. Such a solution, however, would

either require new external funding or a reallocation within PHAs. Promoting economic growth within communities seems like a more cost effective solution.

Solution: A Behavioral Frame. Thus, many proposed solutions based on popular logic are untenable: traditionally-conceived programs have been largely unsuccessful and the exorbitant demand makes a solution based on external funding impossible. HUD should consider reframing the problem to one which considers the behavioral effects of *losing* a permanent housing voucher. Understanding the precise psychological mechanisms and biases leading to behavior, or in this case non-behavior, have proven to yield cost effective solutions in various political arenas, from Medicare adoption, tax compliance, and retirement savings (Thaler 2009).

As described above, the financial model underpinning vouchers--i.e., a steady 30% of income--avoids a financial cliff effect. It is our opinion, however, that the model misses a behavioral barrier, in essence a *psychological cliff effect*. In reality, *recipients fear losing their vouchers, and as a result, avoid taking steps that would lead to higher incomes*. This is an issue anecdotally understood among PHAs--the Substance Abuse and Mental Health Services Administration even notes on its public review of HUD employment programs that fear of gaining income prevents households from pursuing higher paying careers or seeking greater education--but as we are aware, no research deals with the exaggerated value of housing vouchers (Soar Works 2016).

The remainder of this proposal discusses evidence for, methods of measuring, and an intervention for capitalizing on these behavioral biases to help HUD pursue its goal of increasing economic mobility. As many behavioral interventions, our solution is cost-effective, with actual incentives being essentially *costless*, though there may be significant expenses in administration.

3. BACKGROUND

Existing literature demonstrates 1) that other proposed solutions have had at best mixed results in promoting economic mobility and 2) that populations are likely overly attached to housing vouchers, overweighting their value.

Moving to Work Demonstration Program. HUD itself has attempted numerous methods for increasing economic mobility, particularly within the Moving to Work program. A recent review

from the University of North Carolina at Chapel Hill reviewed dozens of interventions promoted through federal dollars (Webb 2015). Unfortunately, as the reviewers report, programs are often not comparable as they may have poor tracking procedures to adequately demonstrate efficacy of their interventions. Among those that do track data, no program intervention to date is celebrated as an obvious success. Nevertheless, programs that are noteworthy for this proposal include:

- *Work Requirements:* Perhaps an obvious method for increasing employment among recipients is by mandate. Rohe, Webb, and Frescoln (2016) conducted a review of the Charlotte Housing Authority's work requirement policy in 2015. The program mandated that all work-able recipients of housing vouchers must complete 30 hours of work each week. The program suffered due to inconsistent implementation of the work requirement rules (e.g., eviction and defining who was work-able). The review does show modest effects on employment, but little impact on overall income. The Urban Institute in a review of similar programs theorize that recipients avoided higher paying opportunities to avoid losing their voucher. (Edmonds 2018).

- *Family Self-Sufficiency (FSS):* Aiming to increase resident savings, the FSS model has been widely used among PHAs. The model allows recipients to pay a flat entry-level rent for their entire tenure. As they gain more money PHAs continue to collect 30% of resident's increasing income, but instead of allocating it for rent, they deposit additional funds in an escrow, which can only be accessed when successful households achieve sufficient income to exit the program. In the preliminary finding of an RCT (Verma 2019), 35% of recipients had savings in their escrow accounts, at an average of $1,500. The program did not, however, lead to statistically significant increases in savings or employment behavior. In our estimation, it is possible that $1,500 may have been too small, given behavioral barriers.

- *Voucher Loss Delay:* The intervention most related to this proposal involves delaying the time between when recipients achieve income and when recipients exit the program. While federal regulations permit only 6 months, four PHAs have extended the period of time between one and two years (Webb 2015). The PHA of Oakland, California extended the delay for up to two years, in hopes of limiting the fear that comes with more immediate voucher loss. Data on the program is limited, but in 2020, OPHA had 94 participants in "$0 HAP" status, i.e., with a voucher but receiving $0 in monthly housing

assistance payments. Unfortunately, during that time only 9 households left the program successfully. Rather than increase their comfort with losing the housing voucher, participants reported giving up their employment to remain in the voucher program. As of 2021, the PHA has decided to reduce the delay from one year to two, reportedly to make vouchers available to families "in a more timely manner." (Christiansen 2020; Christiansen 2021)

Behavioral Biases & the Scarcity Mindset. It is our opinion that these interventions all underestimate recipient's attachment to and valuation of their voucher. While research is still forthcoming, behavioral economists have developed compelling theories that can shed light on the decisions of households facing extremely constrained resources.

In a phrase, researchers have begun sketching a "scarcity mindset." In essence, they identify the reasons why the rich and the poor individuals might make different financial decisions. Haushofer and Fehr (2014) provide an excellent review of research of how stress and income shocks increase risk aversion. Their review and mixed methods experiments--including games, field studies, cortisol injections, and RCTs--provide solid evidence that in the face of scarce resources, people are more likely to be risk averse and by extension to be prone to hyperbolic discounting (i.e. valuing what is at hand today much more than what is in the future). The proposed mechanism is that chronic stress and fear narrow focus and cognitive resources onto only the most pressing needs. While their approach is global, Lawrence (1991) demonstrates that risk aversion is also higher among America's poor. Evidence also exists to suggest that those in poverty are more likely to be mentally focused on issues of essential need (e.g., food, housing, etc.) and even minor upfront costs are likely to disincentivize (Bryan 2017).

Beyond the scarcity mindset, behavioral economists and psychologists have established important biases that may also systematically promote higher valuations of vouchers. These include loss aversion, wherein loss of an item is more painful than its gain (Kahneman 1979), as well as omission bias, wherein people avoid regret particularly as the product of conscious decisions and actions (Ritov 1992). Strong negative emotions have also been linked to increased risk aversion (Angie 2011). Perceived scarcity is also likely to increase value (Mathur 1991).

Given this evidence, recipient holders seem very likely to place very high values on their vouchers. Living in poverty, they are subject to higher risk aversion (scarcity mindset) and thus

very unwilling to *actively choose* (omission bias) to *lose a voucher* (loss aversion) that protects against a highly salient and emotional threat of homelessness (emotional bias), especially given how hard vouchers are to come by (scarcity bias). A quote from a qualitative survey at Urban Institute seems particularly relevant to the mindset we outline: "You have to go through hell and high water to get housing. And I thought, what if I can't afford full rent? Where will my kids be, in a shelter? So you get scared because it takes so long to get housing... It's like a trap. It's hard to get in, and because of that, you're scared to get out" (Smith 2014).

4. INTERVENTION DESIGNS

Thus, there is good reason to suspect that permanent housing recipients may be overvaluing their vouchers. As such, we recommend that HUD conduct two preliminary research studies to 1) demonstrate that vouchers retain value due to behavioral biases, through an experiment that sells one year of retention rights to current voucher holders after achieving sufficient income (and are in process of losing their $0 voucher), and 2) run a Randomized Controlled Trial (RCT), wherein treated subjects are incentivized to make income gains with the promise of truly permanent housing vouchers, which will never be rescinded due to income gains. In both cases, we also conduct a preliminary survey to capture the extent of behavioral biases so we may approximate the strength of biases within the population and correlate them with our primary outcomes measures (willingness-to-pay and willingness-to-earn, respectively). These experiments will demonstrate the existence and efficacy of a "costless carrot" at HUD's disposal to motivate economic growth among vulnerable populations.

Survey Design: Behavioral Bias. In order to measure the relative effects of the behavioral biases, we will first administer a survey with the following question sets, prior to both interventions.

- *Loss Aversion:* We will pose participants a hypothetical scenario in which they retain their voucher or a scenario in which they lose their voucher but gain identical insurance. We will ask respondents to indicate on a likert scale their preference (one side being the current voucher, the other being the insurance). Of equivalent value, respondents should have no preference for either, with preference for the voucher taken as an indicator of loss

aversion. The question was adapted from concepts and questions proposed by Kahneman & Tverskey (1979).

- *Scarcity:* We will ask participants to report the length of time they waited for a voucher.
- *Risk Aversion:* We will ask participants at what probability they would be willing to bet $10 for a gamble to win $50. Respondents may choose 10%, 20%, 40%, 80% and 100%. Since a 20% probability of loss would yield an equivalent expected value, anything above that value would signify an individual as risk averse, with higher values signifying extreme risk aversion. This question is adapted from Voors et al. (2012).
- *Emotional Bias/Fear of Homelessness:* We will ask participants to rank a list of common fears from most to least worrisome. The list will include: homelessness (for myself/family member), unemployment (for myself/family member), illness/injury (of myself or a family member), lack of opportunity (for myself/family member), loss of income (of myself or a family member), and death (of myself/family member). We expect those who fear homelessness most will rank it more highly.
- *Demographics:* We will also collect key demographic information from participants, particularly, family size and composition, age, race, income, employment, and current entitlements recieved.

Intervention A) Measuring Nominal Housing Vouchers Valuations

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Hypothesis 1: Recipients value a nominal housing voucher with no monthly payments.

    Hypothesis 1a: Recipients value a lost voucher more than a gained voucher.

    Hypothesis 1b: Recipients value a voucher more if they are scarce.

    Hypothesis 1c: Recipients value vouchers more if they are more risk averse.

    Hypothesis 1d: Recipients value vouchers in relation to their fear of homelessness.

Measuring holder's true valuation is difficult. Voucher holders do not directly pay for vouchers, and it would be exceptionally difficult to measure the value of the "roads not taken" through field research, i.e., income forgone to maintain a voucher. Moreover, surveys that merely request value estimates through hypothetical questions may be invalid. Instead, we propose a more direct tactic for discovering true value developed by Seip & Strand (1992). In their research, they allow individuals to bid on an item (within a defined range) and then randomly select a price within

that range. If the selected price is below the bid, consumers get the item at the selected price. If not, they do not receive the item. This methodology encourages consumers to bid their true valuation.

To extend this method to our research, we will gather a random sample of work-able (i.e., those able to work) participants currently in the voucher program but who have recently crossed the income threshold and are in danger of losing their vouchers. By utilizing recipients at a moment of saliency, the method minimizes the issue of recipients prioritizing immediate income over long-term gains, since individuals in poverty may engage in hyperbolic discounting. For additional information please see the sampling procedures and limitations below.

Once selected, participants would be given $500 and asked if they would like to purchase an additional year of voucher protection. Participants would then bid with their *actual* valuation for a full year of maintaining the voucher. (To remain ethical, we recommend providing the additional year of a nominal voucher even if the randomly selected price is above the chosen amount.) Ultimately, this portion of the intervention demonstrates that consumers value nominal vouchers--items with no monthly value and no cost to HUD. This difference in valuation affords HUD an interesting asset--a potential carrot that may coax behavior, but which does not cost monthly payments.

Intervention B) Randomized Control Trial of Truly Permanent Housing Vouchers

> *Hypothesis 2: The risk of losing a "truly permanent" voucher motivates income gains.*
> > *Hypothesis 1a: Loss aversion will correlate with greater income attainment.*
> > *Hypothesis 1b: Scarcity bias will correlate with greater income attainment.*
> > *Hypothesis 1c: Risk aversion will correlate with greater income attainment.*
> > *Hypothesis 1d: Fear of homelessness will correlate with greater income attainment.*

With the knowledge of the existence of a "costless carrot" (and its relation to behavioral drivers as discussed in the analysis), a second intervention would demonstrate how HUD may use a nominal voucher to incentivize economic mobility among voucher recipients. For the experiment, we propose an RCT with *new* voucher recipients. HUD has used similar randomized trials to test other interventions, such as those discussed above. Again, see the sampling procedures for more information.

All participants would take the same survey test of their behavioral drivers, and then be randomly placed in a control or treatment group. The control group would receive a standard permanent housing voucher, without changes to the rules of the program. The treatment group would be admitted to the program under a "truly permanent" housing voucher, which they would retain even if they rose above the income threshold (and when the HUD is no longer paying for any portion of their rent). Importantly, to retain the truly permanent voucher, participants would need to meet benchmarks towards increased economic mobility. Participants would be required to demonstrate ongoing employment, education/training, job search, or volunteering (e.g., quarterly) to maintain eligibility for their truly permanent housing vouchers. If they do not, participants would lose the "truly permanent" portion of the vouchers, and instead revert to the traditional permanent housing voucher program. Note work reporting rules only affect those below the income threshold; monitoring would not occur if voucher holders require no housing assistance. In no case would participants lose their housing for a lack of economic achievement.

We thus take advantage of recipients' overvaluation of nominal vouchers as a costless incentive and in a way that puts nobody in jeopardy of homelessness. As a primary outcome measure, we would track monthly earnings from all participants. As secondary measures, we will also track engagement in work, volunteerism, and education/training programs. As other RCT analyses of the voucher program, we recommend a trial period of 5 years. We hypothesize that those with greater motivators for the voucher (i.e., those who value it most) will be most likely to increase their income.

Implementation & Cost-Effectiveness. The costs of implementing these interventions would not be insubstantial. Monitoring participants and collecting data would require administrative costs. In addition, endowments of the first would equal a maximum of $100,000 (given 200 participants, as described below), although this could be reduced depending on the price participants bid for their extension.

Nevertheless, these interventions were developed with ultimate cost savings in mind. We use the phrase "costless carrot" to reinforce that households are incentivized to work up to the point of $0 in housing assistance payments. These incentives are essentially free to the federal government while households retain higher income. Because incentives work on individuals eager to increase their earnings and proven themselves capable, reversion to homelessness may

not be substantial, although further analysis would be required. Moreover, as described below, the benefits of this research will be significant and provide data in an under-researched topic.

5. ANALYSIS

Environment & Sampling procedures. For both interventions, we will work with PHAs. All participants will have vouchers; in the first intervention, they will have surpassed the income threshold and in the second, they will have just received their voucher. Balancing cost, statistical power, and high risks of attrition, we propose 200 participants in each intervention, with the requirement that all individuals be work-able.

To provide a sufficient range of individuals, and to account for heterogeneity, we recommend stratified sampling in both portions of the intervention. Since scarcity of housing is likely to be an important factor, strata should include PHAs in four different markets, one for each of the potential combinations of two variables: housing scarcity (i.e., hot and cold housing markets) and waiting lists (i.e., long and short). If possible, groups should also be further stratified to ensure representation of various household sizes, marital status, and income. To the extent possible, the interventions should be implemented in areas of limited social immobility, with high Gini indexes. The rationale for this is related to structural barriers to poverty and explained in the limitations section.

Hypothesis 1 Analysis: Recipients value a nominal housing voucher (and sub-hypotheses). As a primary measure, we will take an average across all participants' valuations of their vouchers, adjusted in relation to the cost of a one-bedroom apartment in each region. This metric alone will demonstrate how participants place value even on housing vouchers worth $0.

To test the sub-hypotheses, we intend to use multiple regression analysis to understand the relative effects of each of the behavioral drivers on voucher valuation. For each sub-hypothesis, we will evaluate if the results from each question are correlated to greater valuation of the voucher. Given the way questions are phrased, we hypothesize positive correlations in all cases. In the model we will also examine the impact of demographics (such as family size) and market factors (heat of housing markets, length of waiting lists), on valuations to provide a better snapshot of who values housing vouchers and in what circumstances they may be most valued.

In addition to examining how variables affect valuations of vouchers, we will also examine interactional correlations of demographics and market factors on behavioral biases, to get a better understanding of who is most likely to have a certain bias (e.g., risk aversion among families) and in what conditions that bias manifests (e.g., those in hot markets may be more susceptible to the scarcity of vouchers). While we cannot infer causality from these models, they can provide correlational evidence between demographic groups, behavioral biases, and voucher valuation. This analysis may provide recommendations to HUD for targeting this intervention at specific populations.

Hypothesis 2 Analysis: The risk of losing a nominal voucher can motivate increased economic activity (and sub-hypotheses). We will use a Mann-Whitney nonparametric test to evaluate the differences between the two primary groups (truly permanent voucher versus standard voucher) for income gains. As a secondary measure, we will use a similar nonparametric test to assess the probability of one group or the other being employed at the close of the experiment. Because this is a randomized control trial, we will be able to infer causality, i.e., that the intervention itself has encouraged income and employment gains, rather than vice versa.

Furthermore, as above, we intend to use both a linear and logistic regression model to examine the impact of variables on income gains as well as odds that a recipient increased their income. In both models, we will examine the effect of demographic, behavioral biases, market price, and voucher competition on income and the odds of gaining income in the treatment and control conditions. These models will allow us to test our sub-hypotheses related to behavioral biases, and assess for changes among demographic groups and markets. While we cannot infer causality, these models can provide further correlational evidence between demographic groups, behavioral biases, and income and employment gains. As above, this analysis may provide recommendations to HUD for targeting this intervention at specific populations.

Run for five years, the intervention will also provide data to examine the magnitude and persistence (i.e., changes in magnitude over time) of the effect of the program, with employment and income data collected monthly. For example, we will be able to assess for declines or gains in employment or income rates over time.

6. DISCUSSION

By relying on the latest research in the field (i.e., the scarcity mindset) and other documented behavioral insights, we have developed two complementary interventions that may help HUD understand not only why previous employment incentive programs have failed, but also to "flip the equation" and capitalize on the behavioral biases that had barricaded success. Through this intervention and analysis, we will determine that recipients value a $0 per month voucher at an amount above that of the federal government, and test if HUD may exploit that difference as a costless incentive to increase job growth among its voucher recipients. Such a gain is not only required by Congress, but it could spur economic activity among poorer regions and make funding available to provide for other households, i.e. "unclog" the voucher program.

While we hope for an overwhelming success, in which all work-able voucher holders are incentivized to work, even a partial success could generate ideas for cost-effective programming. By examining the effects across demographic groups and populations, we may recommend a targeted approach of work-contingent, truly permanent housing vouchers, such as to particular demographic groups (e.g., young single mothers) or regions facing particularly high-cost housing markets. Noted differences in the effects of behavioral biases could generate novel ideas for responding to behavioral biases among the target population.

Our interventions also reach beyond HUD and may offer benefits to the federal government overall. In traditional economic conceptions of welfare, recipients are imagined to be incentivized based on the dollar value of their distributions and the quantity of their leisure time. Instead, we propose to measure a purely behavioral cliff effect, the value of which is not commensurate between supplier and the consumer. By establishing the financial value of a behavioral cliff effect on the consumer side, we will add to the literature on cliff effects, which largely focuses on unexpected price changes as income rises. Such a behavioral effect will give federal agencies a different lens with which to interpret welfare allocation and recipient behavior.

Our second intervention is also relevant to the insurance marketplace. In effect, this intervention tests the impact of a novel form of social insurance--homelessness protection insurance--that is paid for through evidence of work. However, because the government is already committed to subsidizing the housing of those prone to not working (i.e., those at risk of moral hazard) and permanent housing insurance is only offered to households who have demonstrated their capacity to sustain work, the program could act as a filter for a new marketplace. This intervention might indicate the presence of a previously overlooked market

opportunity and the potential for a public-private insurance option for those escaping homelessness. Of course, much more research, including an analysis of return on investment and rates of reversion back below a voucher's income threshold, would be required before developing such ideas further. Yet, this proposal would provide baseline evidence.

Limitations. We have also identified a few limitations to our research:

- *Structural barriers to economic mobility.* Structural factors will limit economic development, and results of this study do not capture the effort exerted by households to work or achieve income, merely the successes. Great care must be taken in selecting regions with comparable and high rates of economic mobility to avoid these constraints as much as possible and to assess the intervention with sufficient statistical power. With that observation in mind, choosing such regions may limit the externalizability of the intervention in areas with greater structural barriers to escaping poverty.

- *Attrition.* The homeless population is typically transient, which has posed challenging to data collection in the past. In addition, eviction for just causes may also leave to subjects exiting during the intervention time window (of five years).

- *Political Friction.* Any change in policy requires significant coalition building and support, and politics could produce unexpected implementation barriers.

- *Negative consequences of voucher loss.* While they may be least likely to work, those who lose their "truly permanent" vouchers could be further disincentivized to work. Following this demonstration, protocols could be established for regaining "truly permanent voucher," such as an extended period of reported work.

- *Externalizability of intervention one*. Research into the scarcity mindset indicates that individuals are likely to discount future values, at times to their great detriment. It is for this reason, in our first intervention we exclude subjects for whom a year extension of their voucher is not immediately pressing. This procedure is more likely to generate a result, but may not be externalizable to the entire population of voucher holders. It does come with the risk of overstating the worth of an additional year of a nominal voucher.

- *Heterogeneity.* Our analysis endeavors to be robust, but many factors impact employment decisions, and it is possible that other behavioral drivers or disincentives were overlooked in development of this proposal.

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