Housing Assistance, Family Dynamics and Labor Supply of Men and Women

Work in Progress

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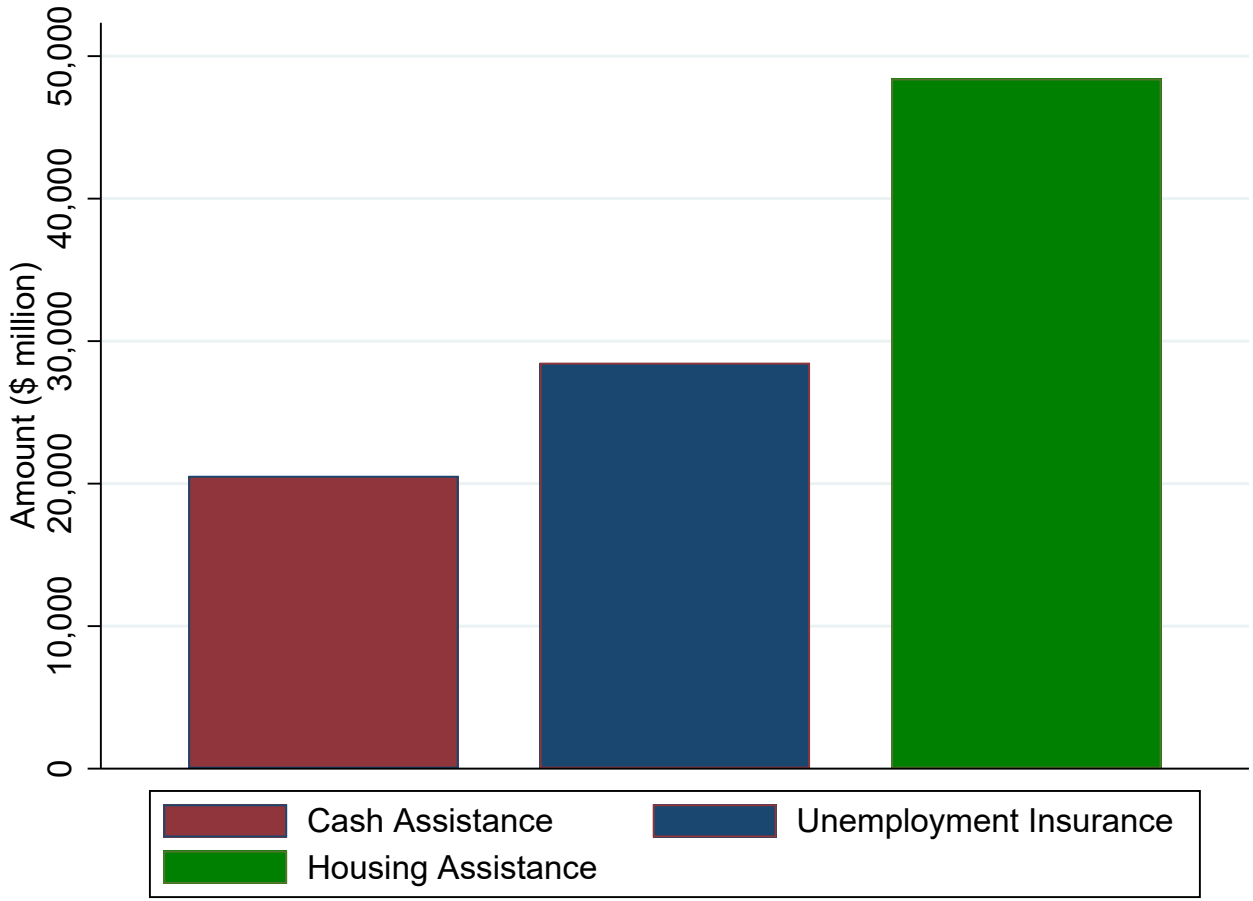
Motivation

- **99 million people (30%)** participated in one of the ten major welfare programs in the U.S. in 2019.
- **Housing assistance** to renters in the U.S. is **Important**

  > cash assistance (UE Insurance, TANF)



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    lock-in exacerbates specialization motives $\rightarrow$ *long run* inequality
    Work through couple's dynamic bargaining

Related Literature and Contribution

- Effects of housing assistance
  - Labor supply:
    Jacob and Ludwig (2012); Zhang (2025)
  - Neighborhood quality and choice:
    Galiani, Murphy and Pantano (2015); Collinson and Ganong (2018); Sieg and Yoon (2020); Davis, Gregory, Hartley and Tan (2021)
- We study family formation/dissolution and long run labor market gender inequality

Related Literature and Contribution

- Public policies and gender inequality
  - Blau and Kahn (2017); Olivetti and Petrongolo (2017); Kleven et al., (2023); Albanesi et al., (2023), Low, Meghir, Pistaferri and Voena (2018)
  - We study how **means-tested transfer programs** interact with earnings and family dynamics to contribute to gender inequality
- Joint taxation and gender inequality
  - Kleven, Kreiner and Saez (2009); Gayle and Shepard (2019); Golosov and Krasikov (2023); Borella, De Nardi and Yang (2023); Bronson, Haanwinckel and Mazzocco (2025)
  - We analyze **household-level means-testing** of in-kind subsidies
    - ⋆ Different **re-distributive** policy tool
    - ⋆ Different **target population:** Means-tested subsides targeted at low-income households
    - ⋆ **Insurance value** $\rightarrow$ crowd out private insurance, i.e., marriage

Outline

1. Institutional Setting
2. Data and Empirical Motivation
3. Model
4. Counterfactual experiments

Institutional Setting: Housing Assistance

Housing Assistance in the U.S.

- Two largest federal housing assistance programs:
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- **Eligibility**:
  - *Household income* below 50% of *local area* median income (AMI)
- **Subsidy**:
  - Max (HCV): Fair market rent (FMR) net of 30% of adj. HH income
  - Recipient households pay 30% of their *household* income in rent

    Ex.: monthly rent $1500, adj. household income $2000, pay 2000*30%=$600 in rent and government covers 1500-600=$900

    budget

Housing Assistance: Family Dynamics

- **Family formation:**
  - Means-tested on total adj. household income
  - Scaled only slightly by household size (adults and children similarly)

Family Size	1	2	3	4	5	6	7	8
Cutoff adjustment	70%	80%	90%	Base	108%	116%	124%	132%

Source: Table from HUD Website on Income Limits for the Public Housing and Section 8 Programs.

  - Family includes cohabiting partners

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  - Family includes cohabiting partners
- **Family dissolution:**
  - With children: Custodial parent
  - Else: Original applicant (head)
  - Some discretion of local PHAs
  - 82% goes to women in our SIPP data

Housing Assistance: Allocation Mechanism

- **Underfunded:** Housing Assistance is not an entitlement
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  - Waiting time 2 years on avg. details
- **Local PHAs**
  - Must allocate 75% of subsidies to HHs with income < 30% of local median income
  - Discretion in allocation mechanism
    - ★ Waiting lists
    - ★ Lottery details
    - ★ Preferences for certain groups details
- **Long term benefits**: Receive benefits as long as remain eligible
  - Lock-in effect

Data and Empirical Motivation

Data

Survey of Income and Program Participation (SIPP)

- Household panels: 2001, 2004, 2008, 2014, 2018
- Info on welfare program take-up and benefits, employment, working hours, income, marital and cohabitation status, children
- **Sample:** working age (18-60), non-college renters

Independent of the housing subsidy application

- Should be less affected by strategic reporting
- SIPP aligns better with register data than other surveys (Meyer, Mok and Sullivan, 2015)

descriptives

Empirical Motivation: Event Study Analysis

- Event study around the time of receiving housing assistance

$$Y_{it} = \sum_{j=-4, j\neq -1}^{5} \delta_j \mathbf{1}(TimeSinceHA_{i,t} = j) + \gamma_i + \gamma_t + \beta \mathbf{x}_{i,t} + \epsilon_{it} \quad (1)$$

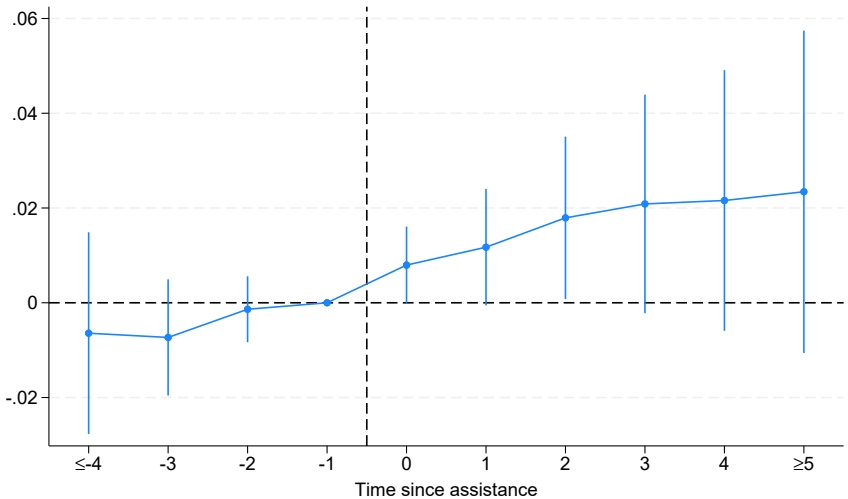
  where
  - Y_{it}: Outcomes of interest
  - $TimeSinceHA_{i,t}$: Time since housing assistance receipt

    δ_j: Coefficients of interest
  - γ_i, γ_t: Individual and year-wave fixed effects
  - $\mathbf{x}_{i,t}$: controls, such as age group, education, metropolitan area.

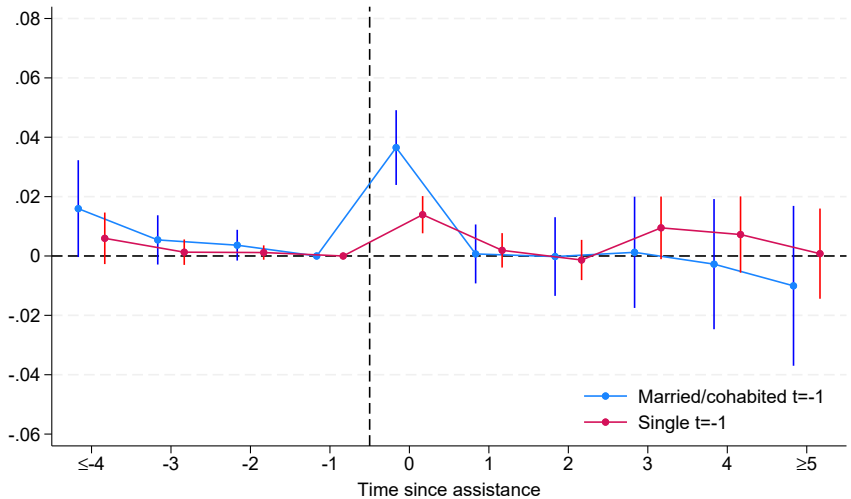
- *Use only HA recipients*
  - $t = 0$ is defined as first time we observe them receiving HA.
  - Compare HA recipients to “not-yet" recipients
  - Identifying assumption: random timing of receipt

Empirical Motivation: Family Dynamics

(a) Share single



(b) Conditional on Pre-Status



- Both marriage market margins are active
- "Empowerment" seems to dominate

Family Dynamics: By Household Head Type

- If "empowerment" is the driver:

  individuals who stand to gain a lot from HA should react more
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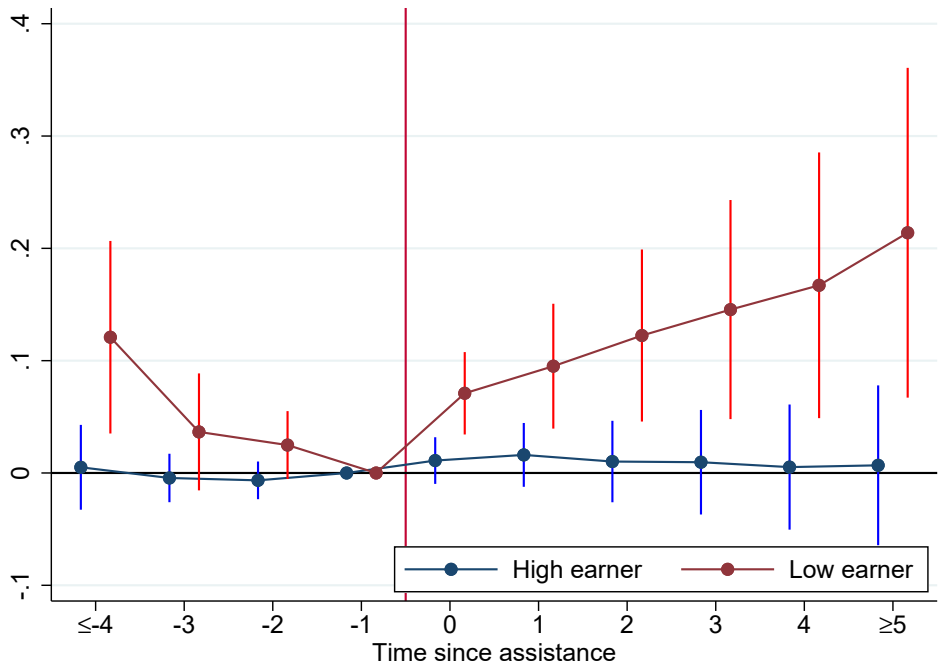
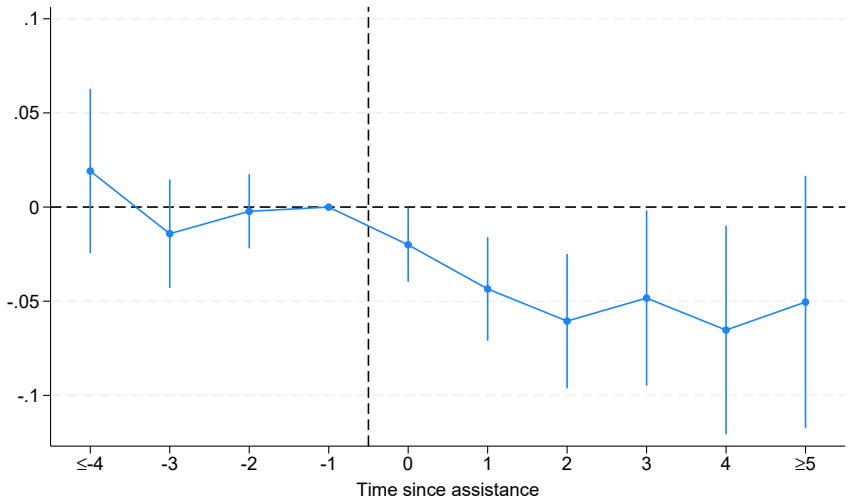
Figure 1: Share Single by Household Head Type



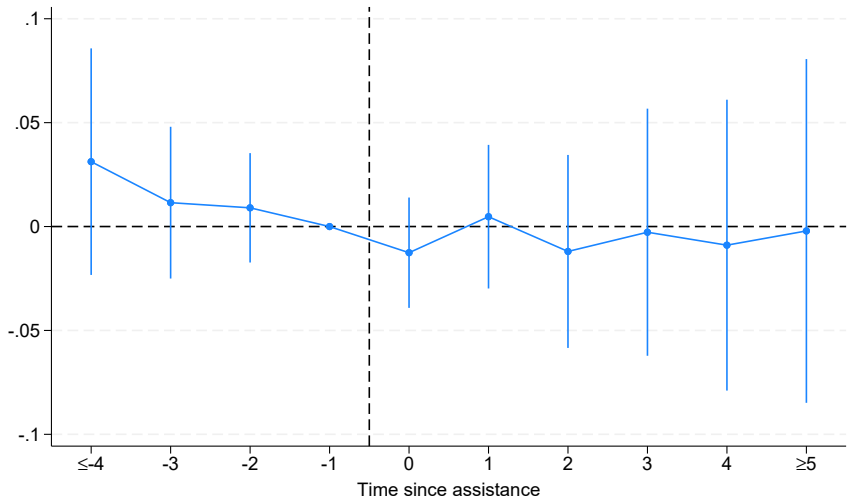
head: head in SIPP if no child, else woman

Empirical Motivation: Labor Supply

(a) Women



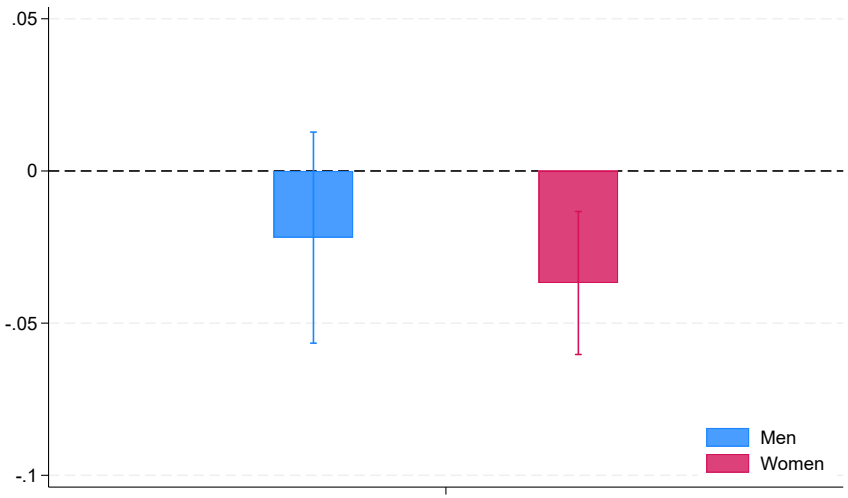
(b) Men



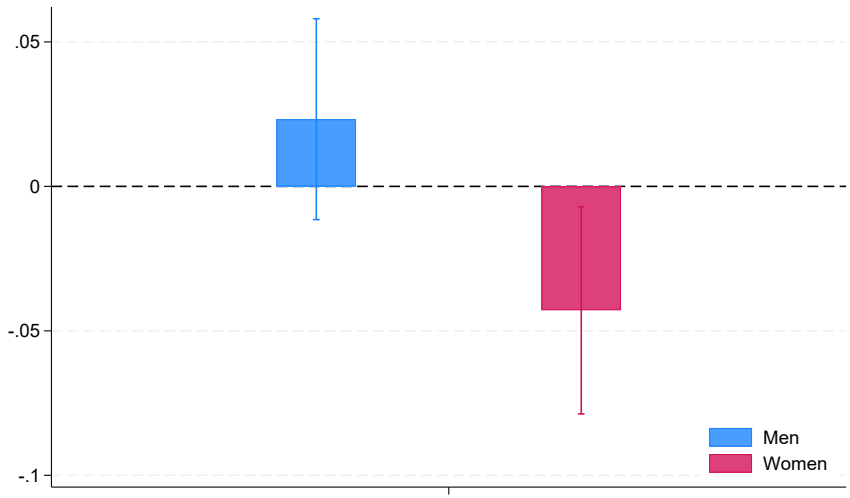
- HA affect labor specialization
  - 5 pp. drop for women. Consistent with Jacob and Ludwig (2012).
  - No significant impact on men.

Empirical Motivation: Employment by Relationship Status

(c) Single in $t = -1$



(d) Couple in $t = -1$



- Single men and women look similar
- Employment effect is asymmetric for husbands and wives. Specialization is operative

Robustness and Sensitivity

- Similar across HCV and public housing by ha type
- Unlikely driven by moving to lenient MSA moving
- Not due to heterogeneity in treatment timing Staggered DiD

Model

Model Overview

- **Individuals** go through life potentially in and out of relationships

  Endogenous separations + match quality shocks

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  Housing quality, $h_t \in \{0.5, 0.75, 1, 1.25\}$

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- **While in a couple**, individuals bargain over choices to maximize
$$\mu V_w + (1 - \mu) V_m$$
  where μ is *endogenously determined* by outside options
  Limited commitment framework (Mazzocco, 2007)

Outside Option and Dynamic Incentives in the Model

- **Outside Option** (threat-point): Determines the bargaining power
  - **Affordability of public good**

    $\rightarrow$ Reduces marital surplus in couples (**empower)**

    $\rightarrow$ Increases **value** in marriage market for singles

    $\rightarrow$ can affect behavior of men and women differentially (**specialization**)

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- **Earnings potential** (private)

  $\rightarrow$ Human capital investments

  $\rightarrow$ Labor market behavior in the couple can have **long run** consequences for intra-household inequality

Key Model Elements

- Preferences
- Income Process
- Fertility
- Housing

Key Model Elements: Preferences

- Preferences are

$$U_j(c_t, h_t, l_t, B_t, n_t, s_t, \psi_t) = \frac{Q_t^{1-\rho}}{1-\rho} - \omega_j(s_t)B_t + (1-s_t)\psi_t \qquad (2)$$
$$- \mathbf{1}(l_{j,t} > 0)\chi_j(s_t, n_t) - \mathbf{1}(l_{j,t} > 0.5)\eta_j(s_t, n_t)$$

  with composite good, $Q_t = C_t^{\alpha} h_t^{1-\alpha}$.
- Dis-utility of labor supply depend on the family status through

$$\chi_j(s_t, n_t) = \chi_{0,j} + \chi_{s,j} s_t + \chi_{n,j} \mathbf{1}(n_t > 0)$$
$$\eta_j(s_t, n_t) = \eta_{0,j} + \eta_{s,j} s_t + \eta_{n,j} \mathbf{1}(n_t > 0).$$

- Stigma of applying for housing assistance

$$\omega_j(s_t) = \omega_0 + \chi_{s,j} s_t$$

Key Model Elements: Income Process

- Wages are endogenous,

$$\log w_{j,t} = \gamma_{0,j} + \gamma_{K,j} K_{j,t} \tag{3}$$

- Human capital evolves according to

$$K_{j,t+1} = [(1-\delta)K_{j,t} + I_{j,t} K_{j,t}^{\delta_K}]\epsilon_{j,t+1} \tag{4}$$

  with $\log \epsilon_{j,t} \sim iid\ \mathcal{N}(-0.5\sigma^2_{j,\epsilon}, \sigma^2_{j,\epsilon})$

- Household earnings are

$$Y_t = w_{w,t} I_{w,t} + w_{m,t} I_{m,t}$$

Key Model Elements: Fertility

- In each period, a child might arrive and/or move out.
- The number of children evolves as

$$n_{t+1} = n_t + b_{t+1} - x_{t+1} \tag{5}$$

where

$$b_{t+1} = \begin{cases} 1 & \text{with probability } p_b(t, s_t, n_t) \\ 0 & \text{with probability } 1 - p_b(t, s_t, n_t) \end{cases} \tag{6}$$

and

$$x_{t+1} = \begin{cases} 1 & \text{with probability } p_x(t, n_t) \\ 0 & \text{with probability } 1 - p_x(t, n_t) \end{cases} \tag{7}$$

- Childcare costs: $CC \cdot \mathbf{1}(l_{w,t} > 0) \cdot n_t$

Key Model Elements: Housing Assistance

- Likelihood of receiving housing assistance next period, ha_{t+1} is

$$\begin{cases} 0 & \text{if } \tilde{Y}_t > \overline{Y}_{N_t} \\ 0 & \text{if } ha_t = 0 \text{ and } B_t = 0 \\ 1 & \text{if } ha_t = 1 \text{ and } \tilde{Y}_t \leq \overline{Y}_{N_t} \\ p_{ha,\tilde{Y}_t} & \text{if } ha_t = 0, B_t = 1 \text{ and } \tilde{Y}_t \leq \overline{Y}_{N_t} \end{cases} \tag{8}$$

- $\tilde{Y}_t = Y_t + TANF_t - (480 + CC \cdot \mathbf{1}(l_{w,t} > 0)) \cdot n_t$ is total adj. household income including TANF
- $\overline{Y}_{N_t}$ is the income cut-off

Key Model Elements: Housing Assistance

- The *amount* of housing assistance, a_t, is

$$a_t = \begin{cases} \min\{P_{N_t}, P_{N_t} h_t - 0.3\tilde{Y}_t\} & \text{if } ha_t = 1 \ \& \ \tilde{Y}_t \leq 0.5\overline{Y}_{N_t} \\ 0 & \text{else} \end{cases} \tag{9}$$

- In turn, the housing costs are

$$H_t = P_{N_t} h_t - a_t \tag{10}$$

Key Model Elements: Budget

Choices have to satisfy the intertemporal budget constraint

$$c_t + H_t = Y_t + TANF_t + FS_t - CC \cdot \mathbf{1}(l_{w,t} > 0) n_t - \mathcal{T}_t(Y_t) \tag{11}$$

where

- CC is a childcare cost incurred if the mother works.
- TANF and food-stamps are:
  - $TANF_t = f(n_t, Y_t)$
  - $FS_t = g(n_t, Y_t, s_t)$
- $\mathcal{T}_t(Y_t)$ is taxes

Estimation: 2 steps (PRELIMINARY)

- Calibrate some parameters, γ, from the literature

  Investigate sensitivity to these (Jørgensen, 2023)

  "How would estimates and counterfactuals change if γ was changed?"

- Estimate remaining parameters using simulated method of moments,

$$\hat{\theta} = \arg\min_{\theta} g(\theta|\gamma)' W g(\theta|\gamma)$$

  Investigate informativeness of moments (Honoré, Jørgensen and de Paula, 2020)

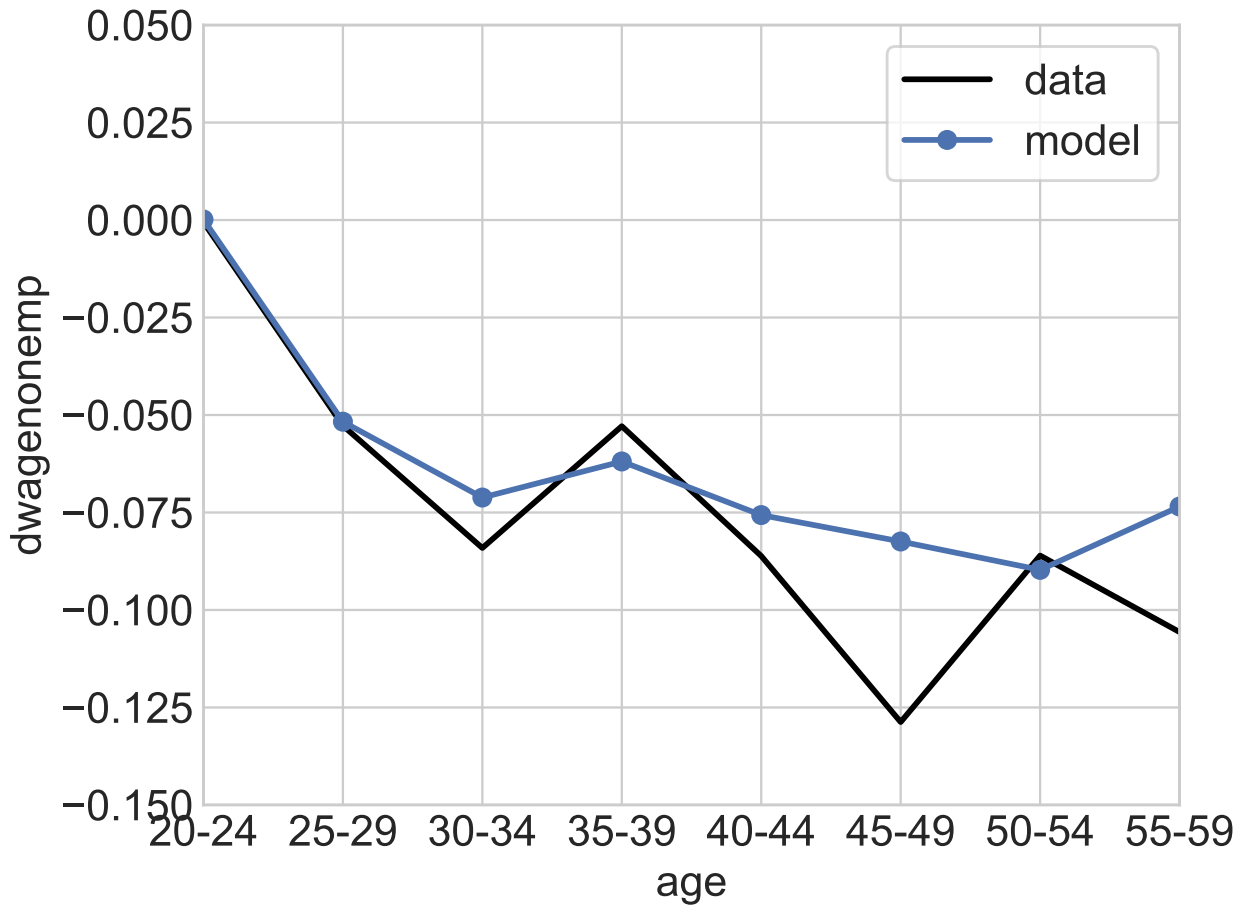
  "How would the variance of estimates change if we were to leave out groups of moments?"

Estimation and Validation

- We match on
  - The event study estimates from our empirical exercise
  - Other moments: application rates, Life cycle patterns, etc
- Human capital process is key for long-run effects
  - Use change in hourly wage rate before and after an non-employment spell
- Use the estimated effect of local government housing assistance budget on family formation to validate our model

Some Human Capital Moments

Figure 2: Model Fit: Human Capital Process (wage moments).



Counterfactual experiments

Analyze revenue-neutral policy experiments:

- **Secondary-earner deduction**
  First $1000 monthly income of lowest income deducted from household income
- **Work requirement**
  Mitigate the impact of housing assistance on human capital and long-run gender difference
- **Universal entitlement**
  Lower subsidy to all who apply
- **Fixed subsidy**
  Break the link to income (adverse labor supply motives)

Thanks!

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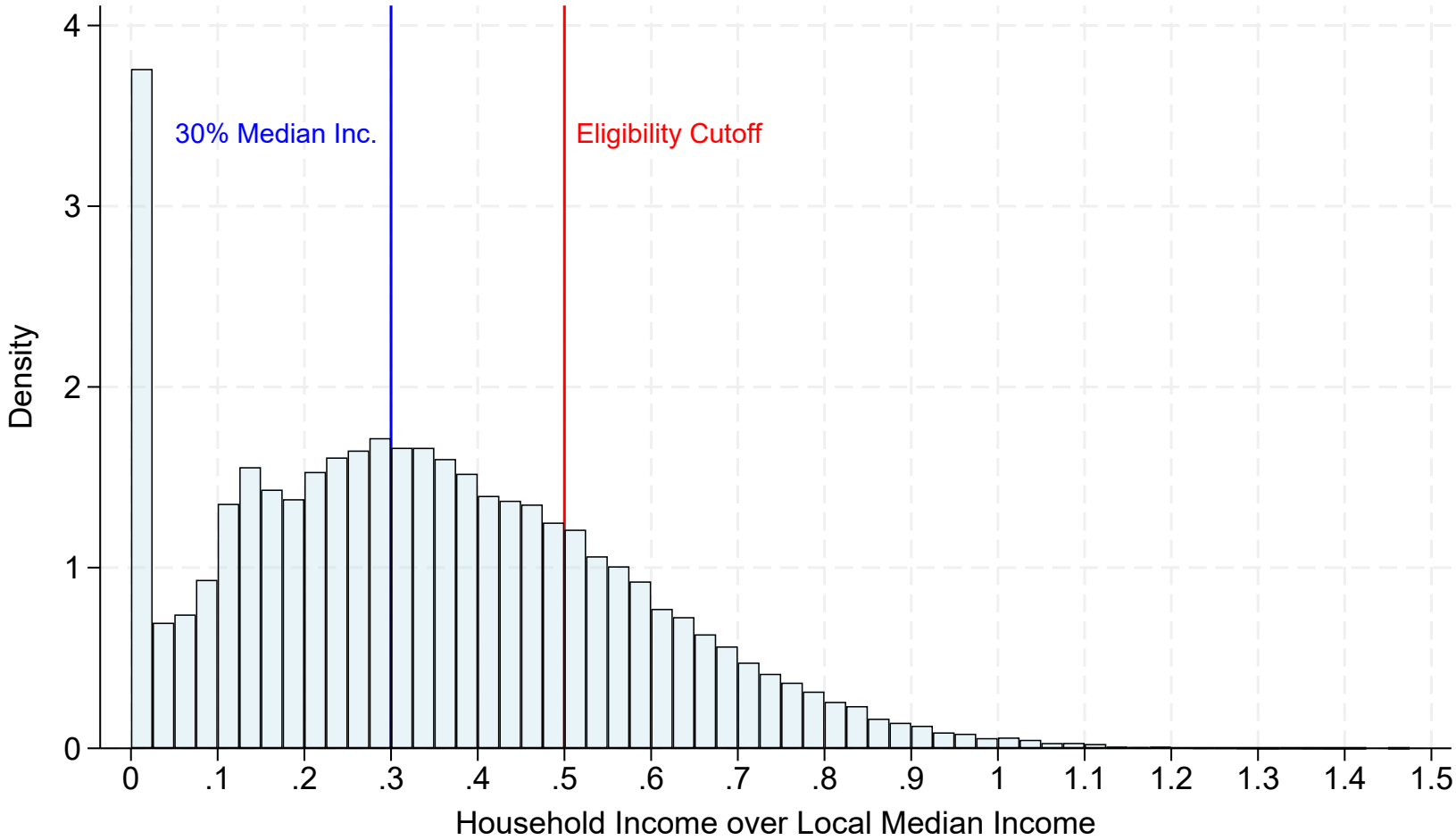
Income Distribution around Cut-off.



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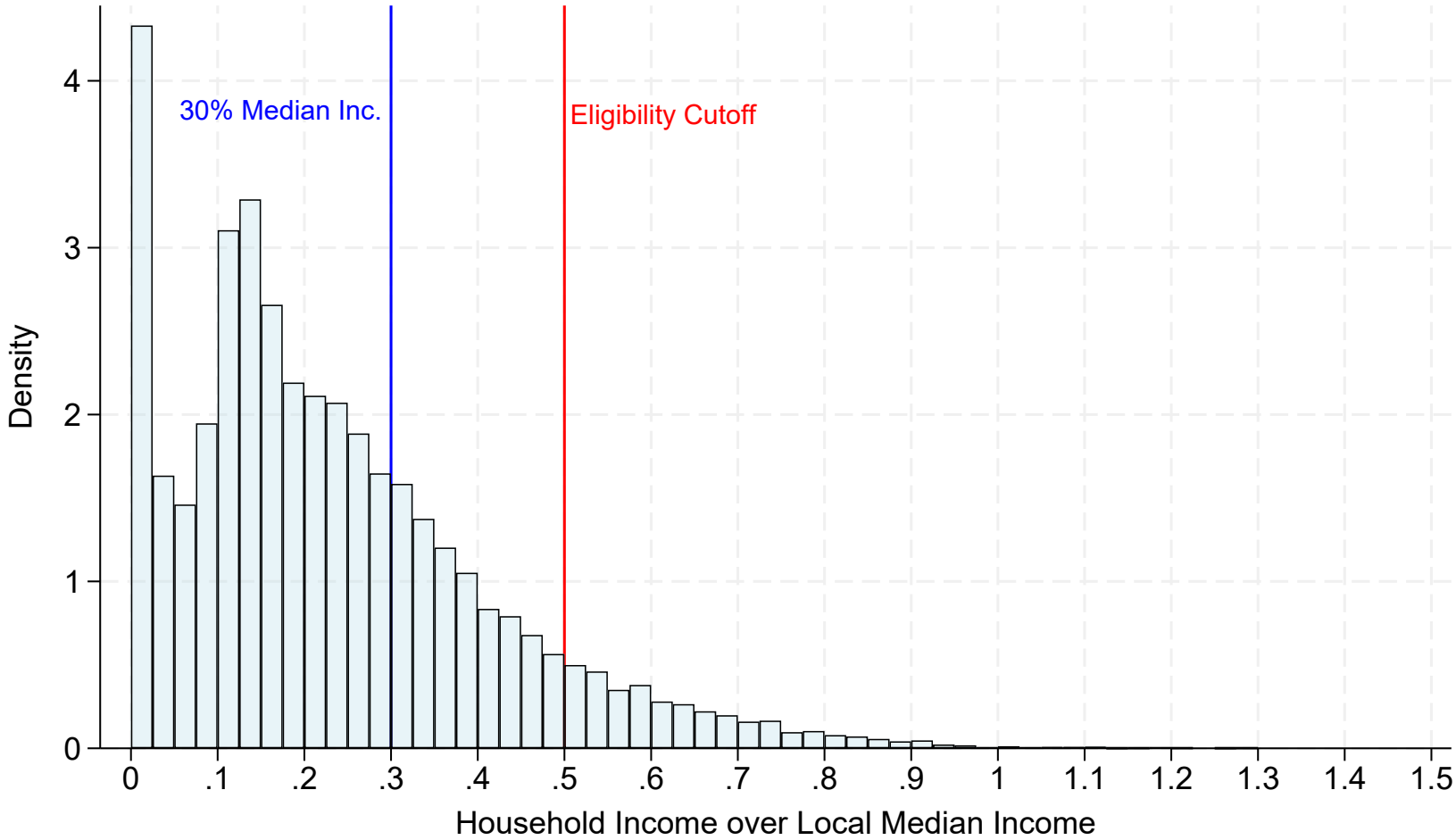
Income Distribution around Cut-off. Recipients.



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HCV: More rules.

- There is also a *minimum* quality requirement
- A *maximum* allowed top-op upon initial assistance: Rent must not exceed 40% of household income when renting more than FMR.

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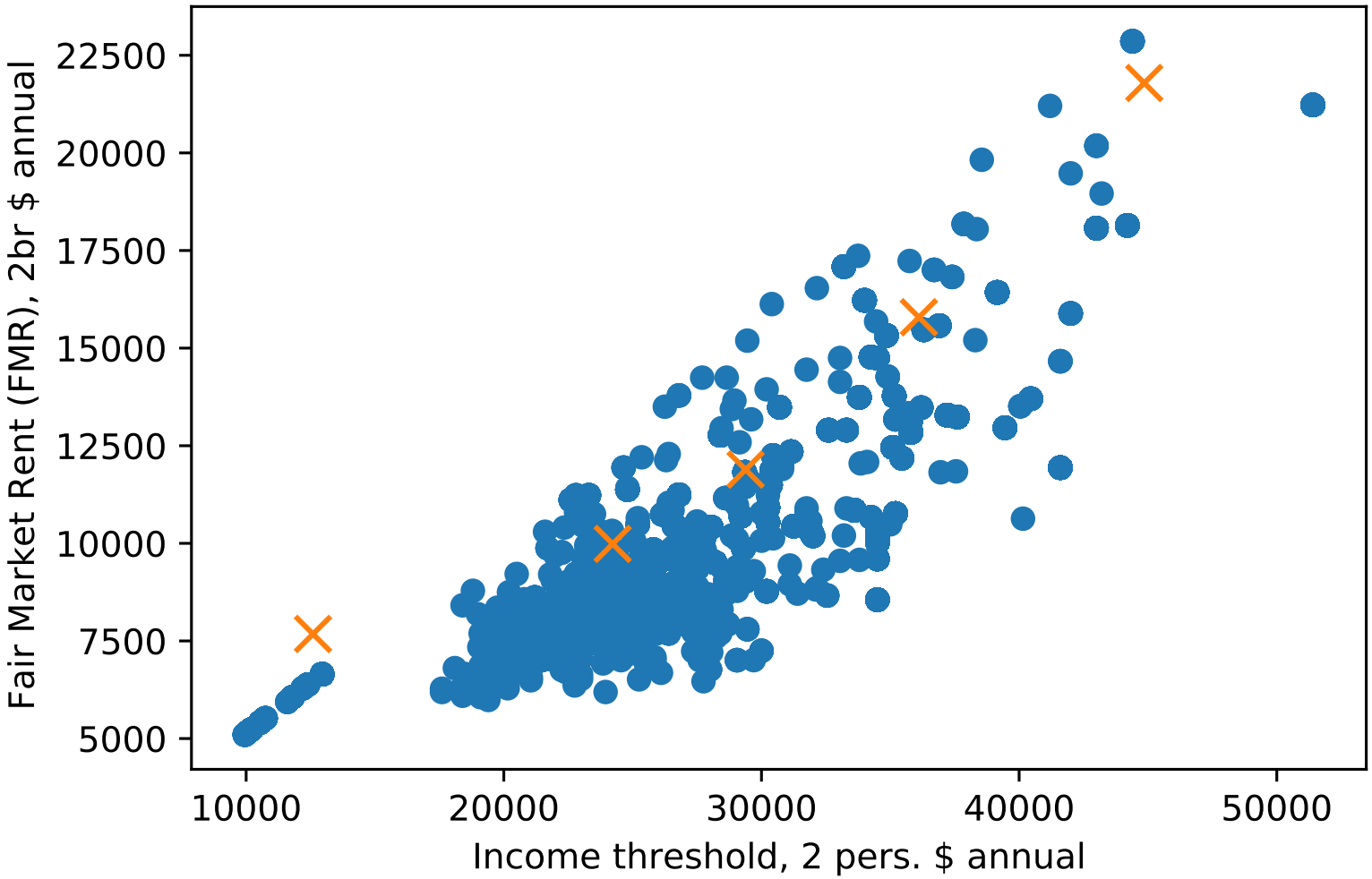
Metropolitan Areas: FMR and Income limits



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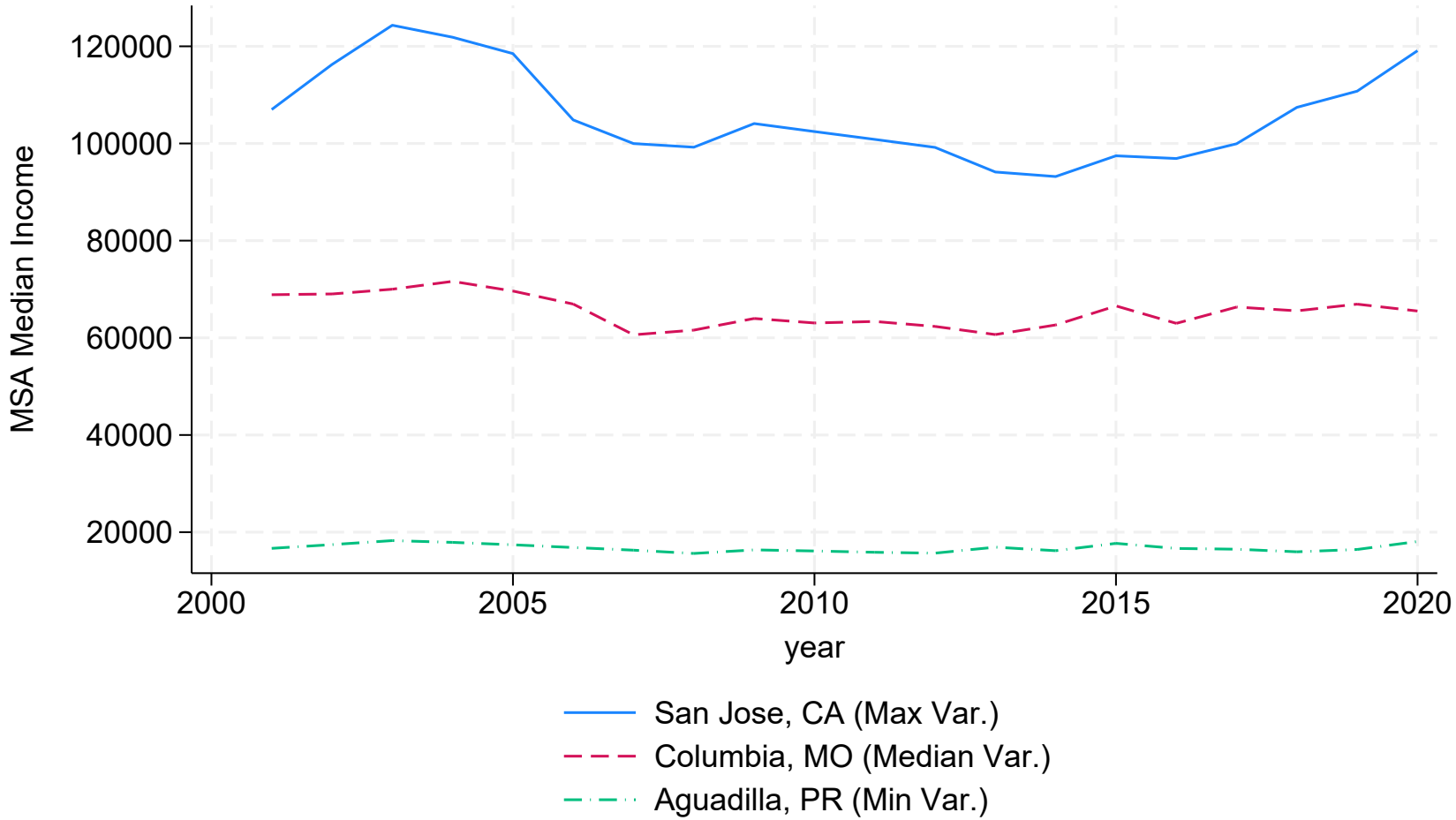
Metropolitan Areas: Income limits over time



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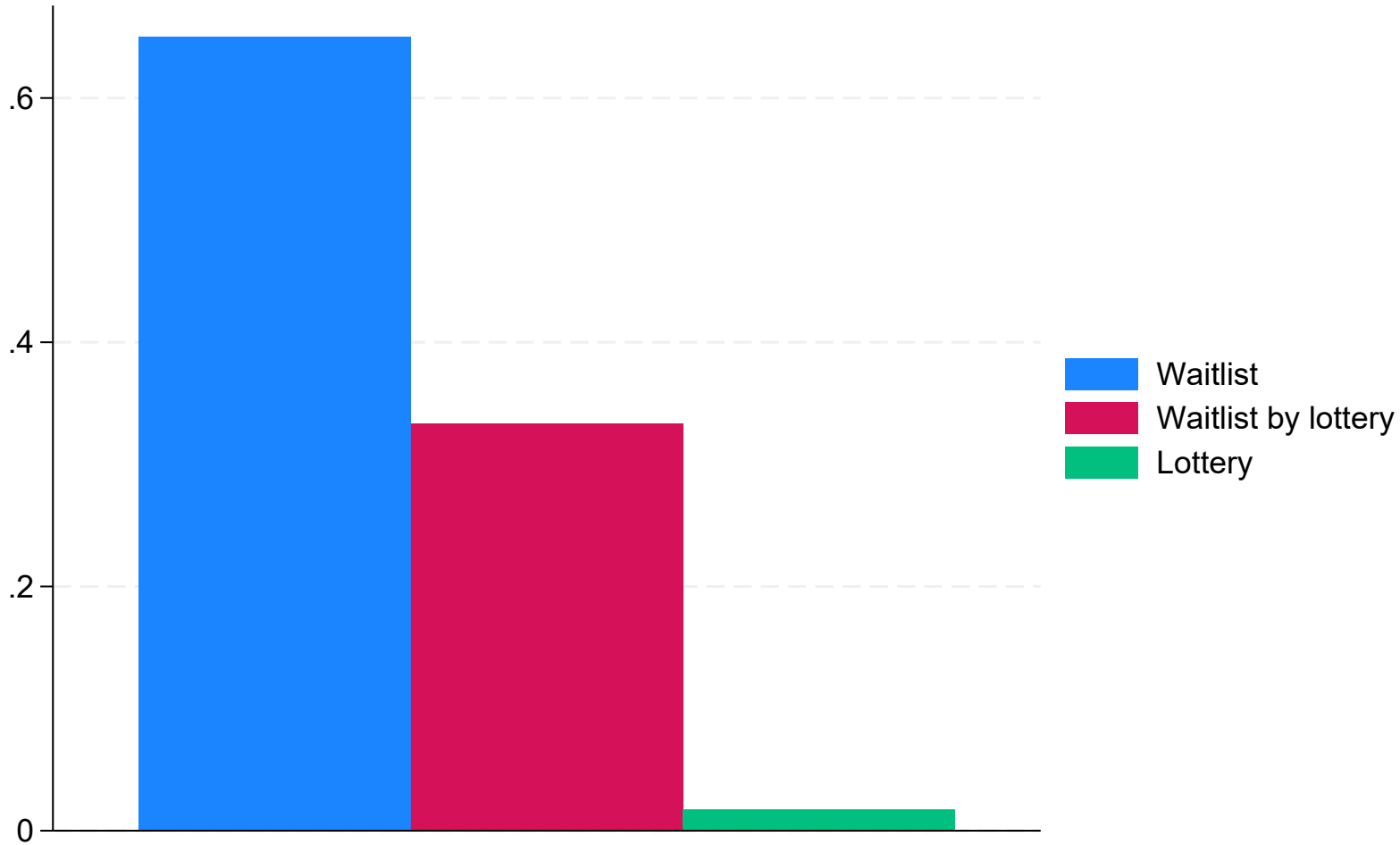
PHA Allocation Mechanism



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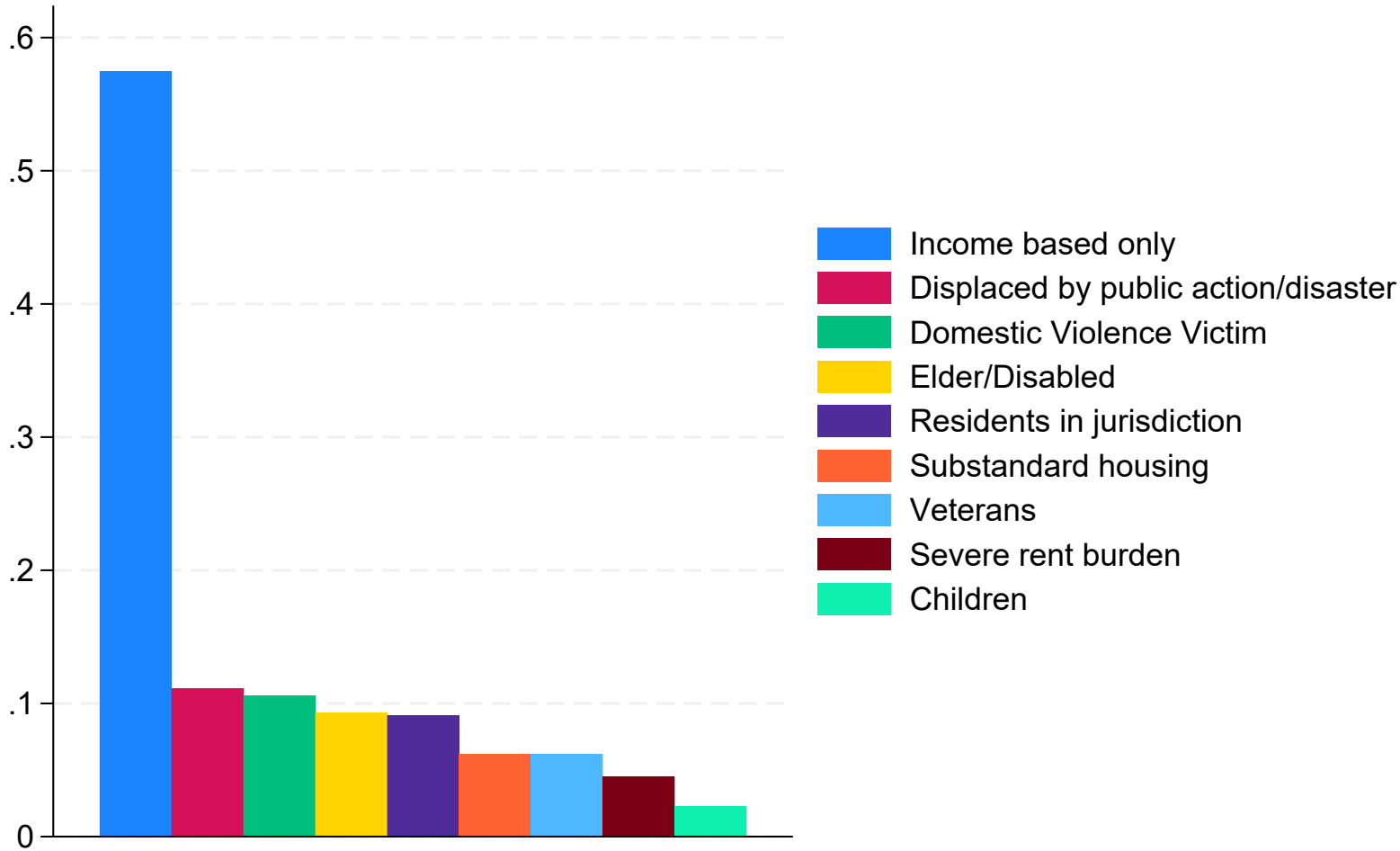
PHA Preferences



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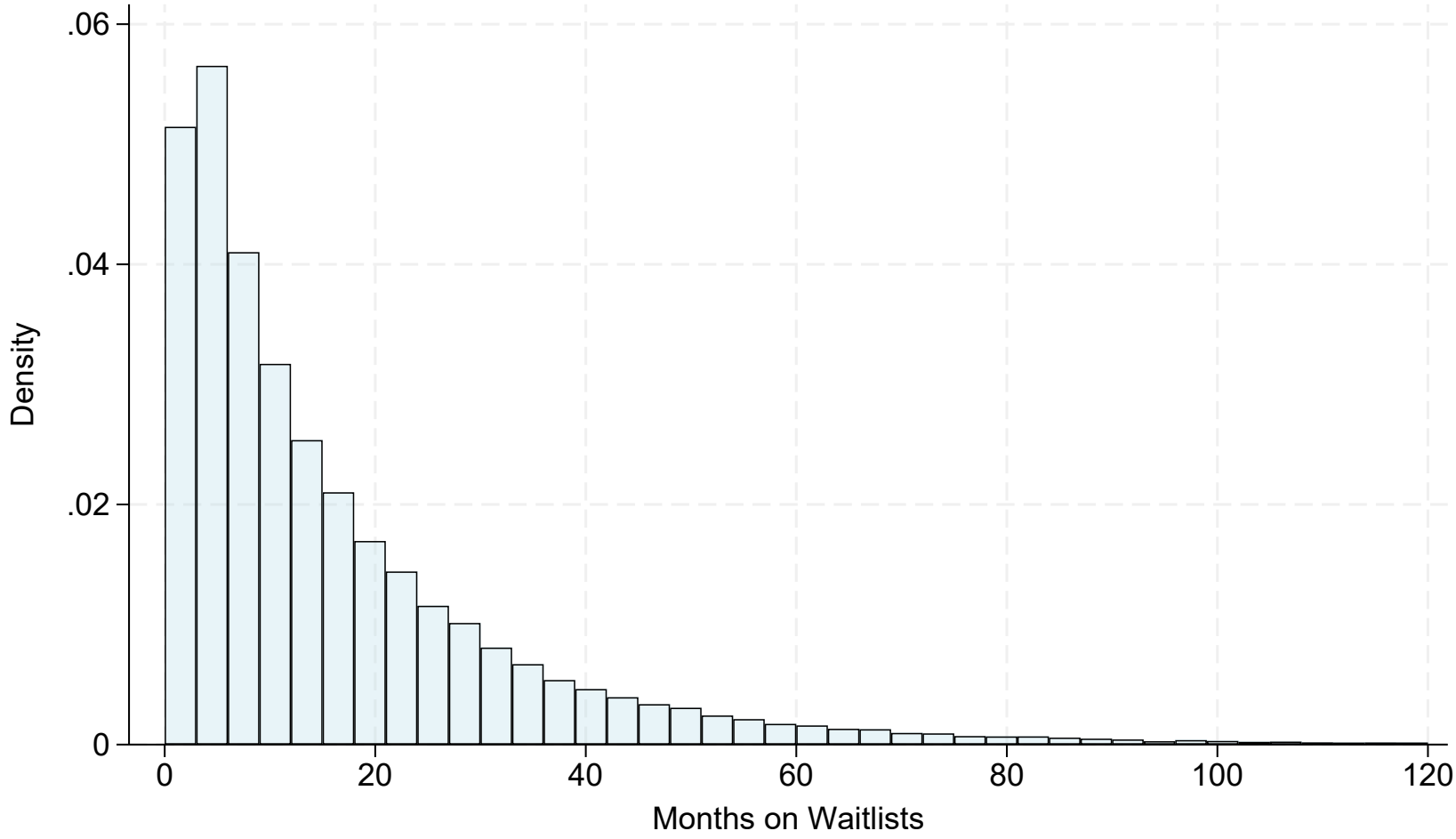
Waiting Times



- MSA-by-year average waiting time.

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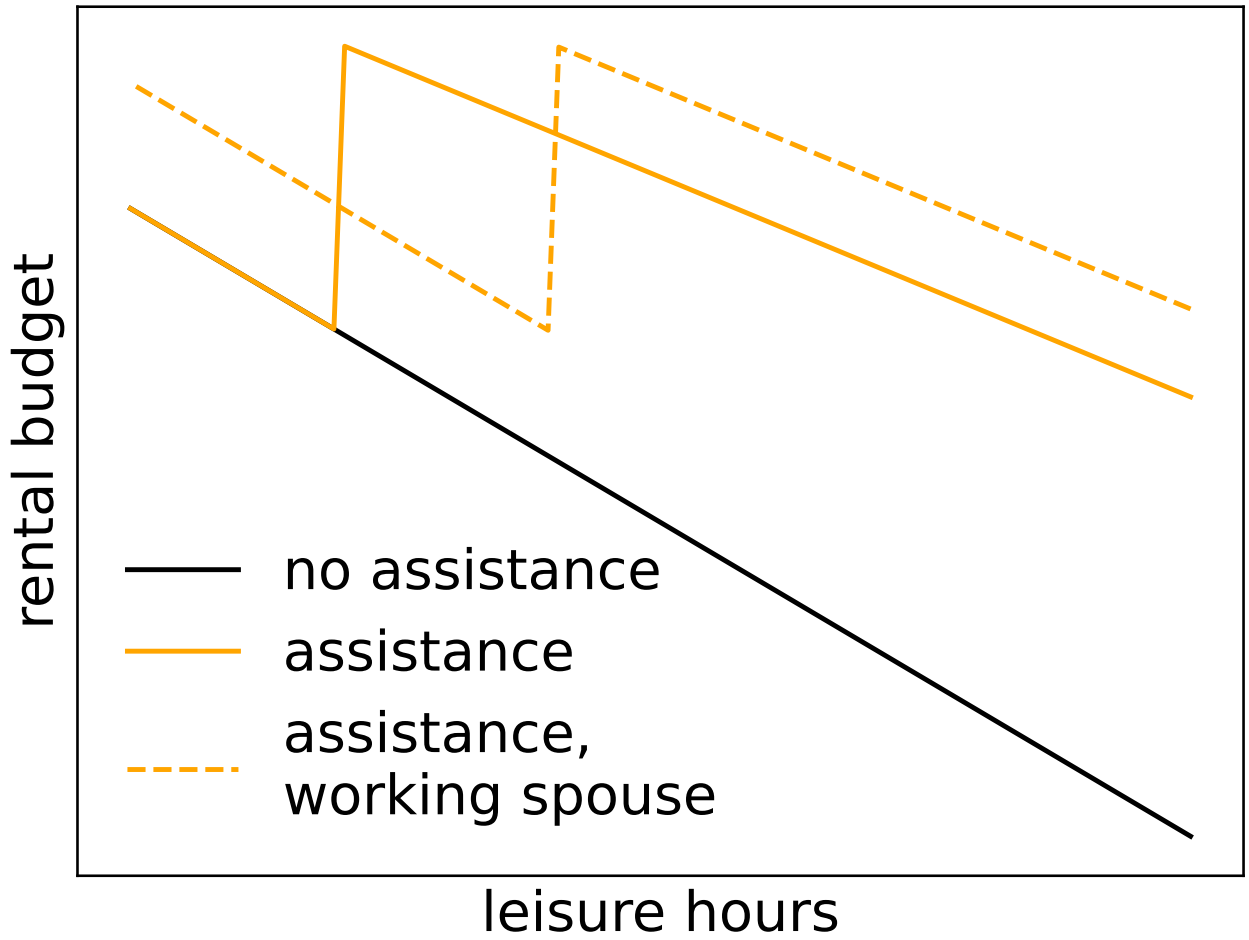
Budget


rental budget
leisure hours
no assistance
assistance
assistance,
working spouse

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Summary Statistics

	Overall mean	Housing Assistance mean	No Housing Assistance mean
Age	38.59	40.72	38.25
Female	0.56	0.74	0.53
White	0.71	0.49	0.74
Married	0.42	0.21	0.45
Cohabitation	0.11	0.06	0.12
Divorce	0.17	0.20	0.17
Split	0.04	0.03	0.04
Single	0.47	0.73	0.42
No. of children	0.92	1.09	0.90
Employed	0.65	0.38	0.69
Hours worked per week	30.23	17.60	32.11
Female employed	0.56	0.38	0.61
Female hours	25.65	16.95	27.52
Male employed	0.75	0.39	0.79
Male hours	35.70	19.51	36.97
Monthly earnings	1694.63	714.77	1840.38
Monthly Wages	2374.47	1544.28	2450.58
Eligible	0.62		
Housing Vouchers	0.04		
Public Housing	0.10		
N	342056	47732	294324

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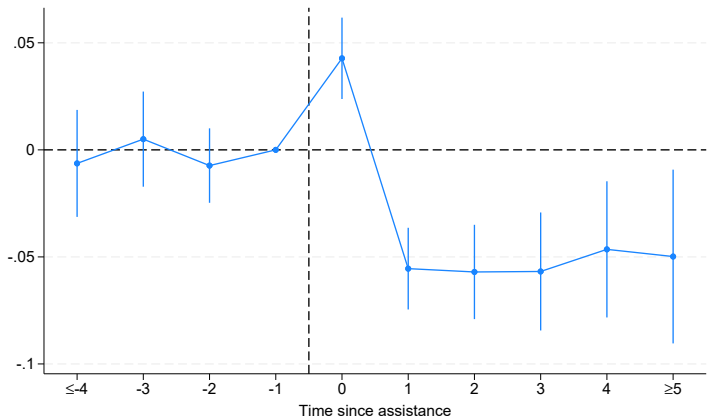
movers transitions

Moving Patterns

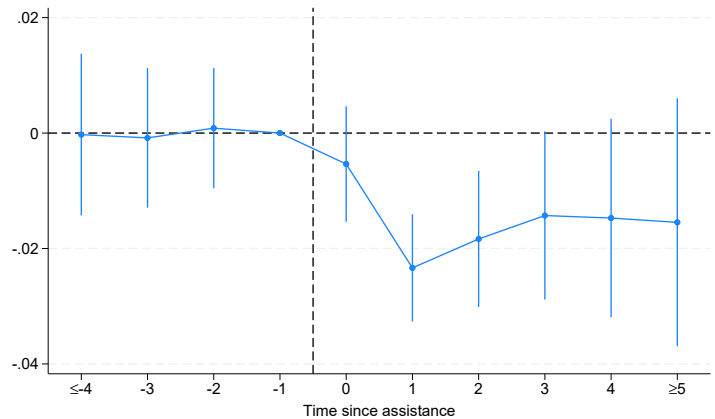
- Each 4 months, 8% of the observations in our SIPP-sample move.
- Among those who move, 70% move within their county
  $\rightarrow$ MSA and thus local area median income/FMR unchanged.
- Moving probability higher around receiving housing assistance.

Figure 3: Effects of Housing Assistance on Moving

(a) Any Move



(b) Cross County Move



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Housing Assistance Transition Patterns

- 14% of our SIPP-sample is observed stopping receiving HA
- Each 4 month, 1.9% of recipients stop receiving HA
  $\rightarrow\sim$ 6% annually transition out of HA
- Most exits from the program are due to family dissolution

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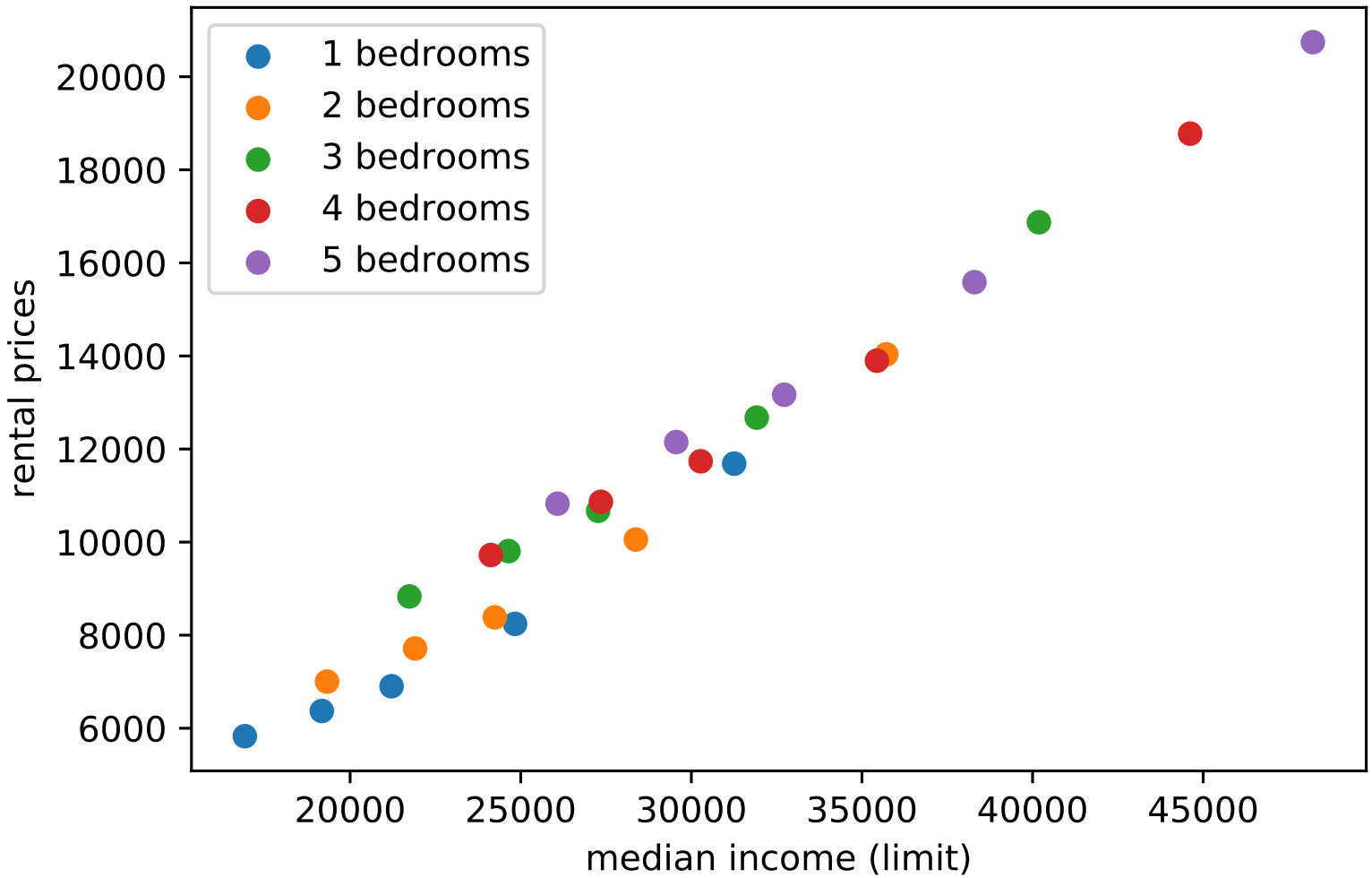
Local Areas: K-Means clustering



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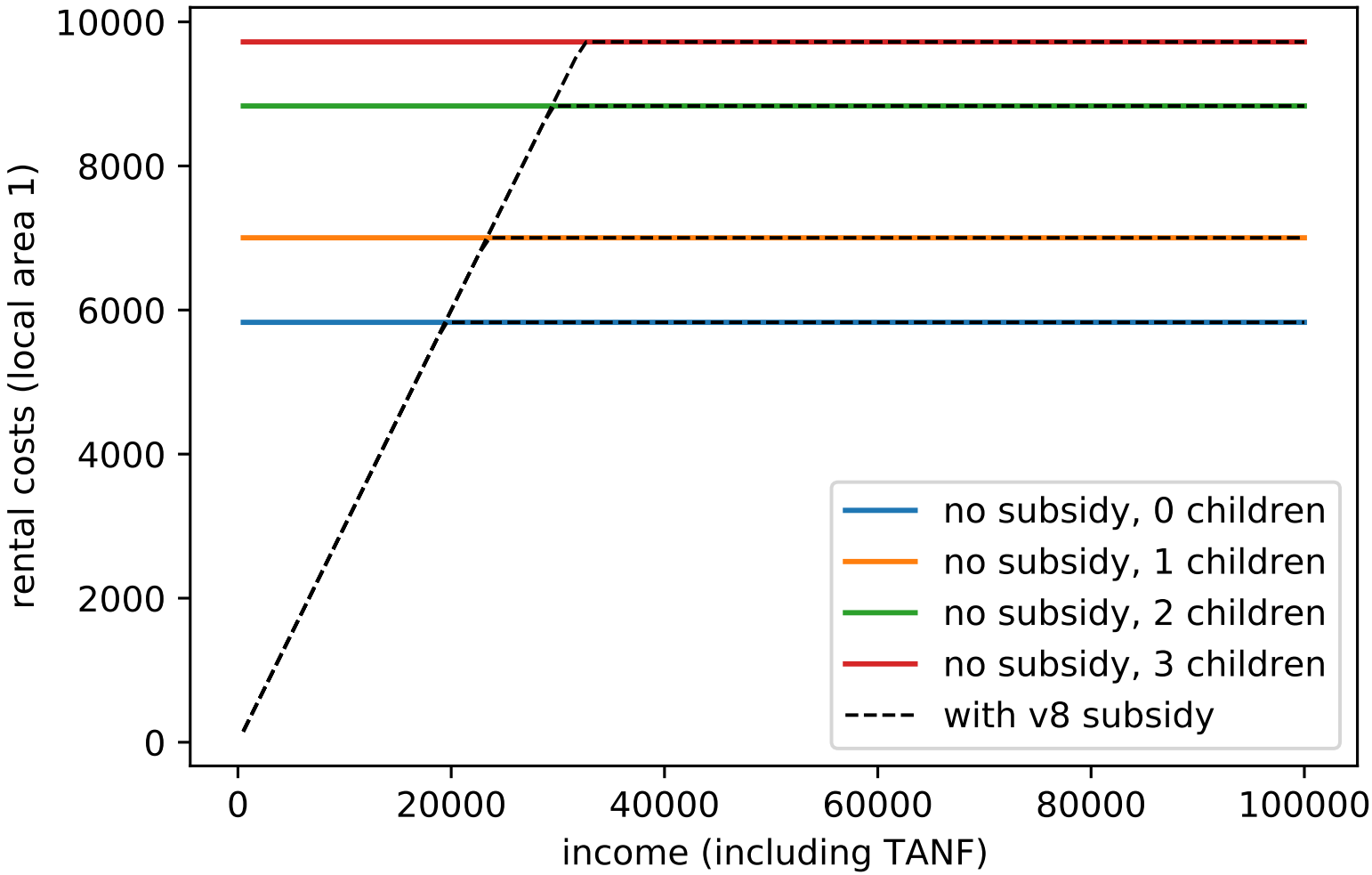
Housing Costs



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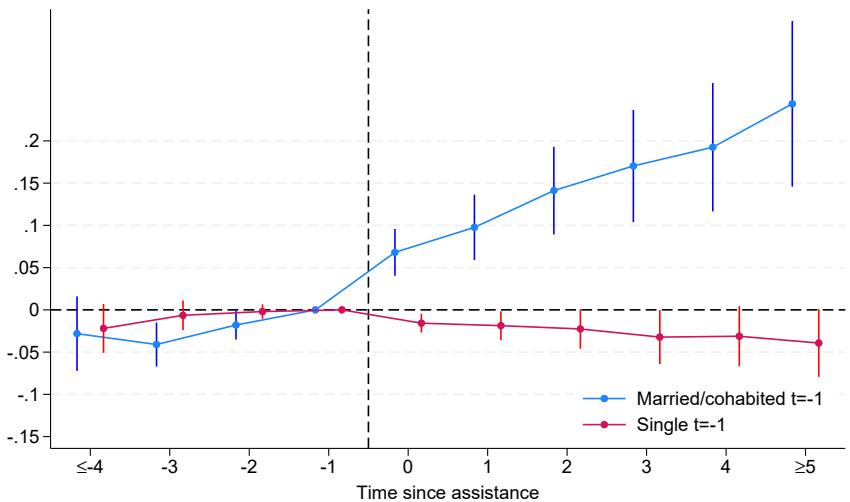
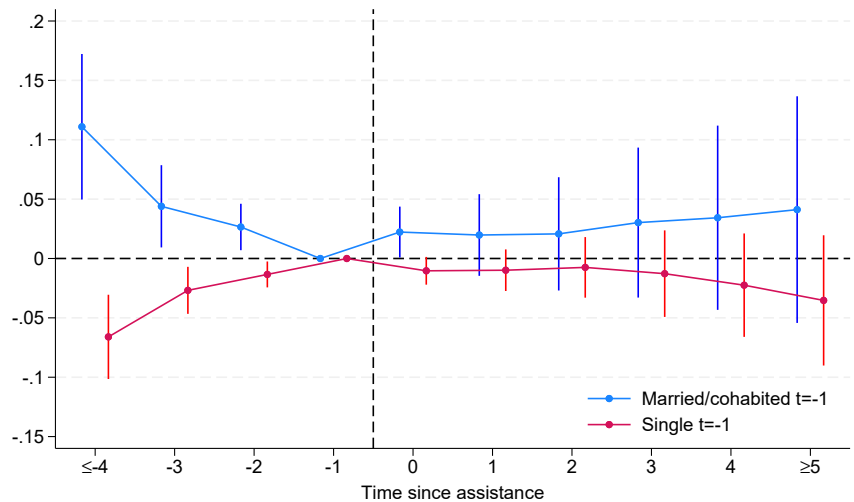
By HA Type

Figure 4: Family Dynamics: Housing Voucher vs. Public Housing

(a) Housing Voucher



(b) Public Housing



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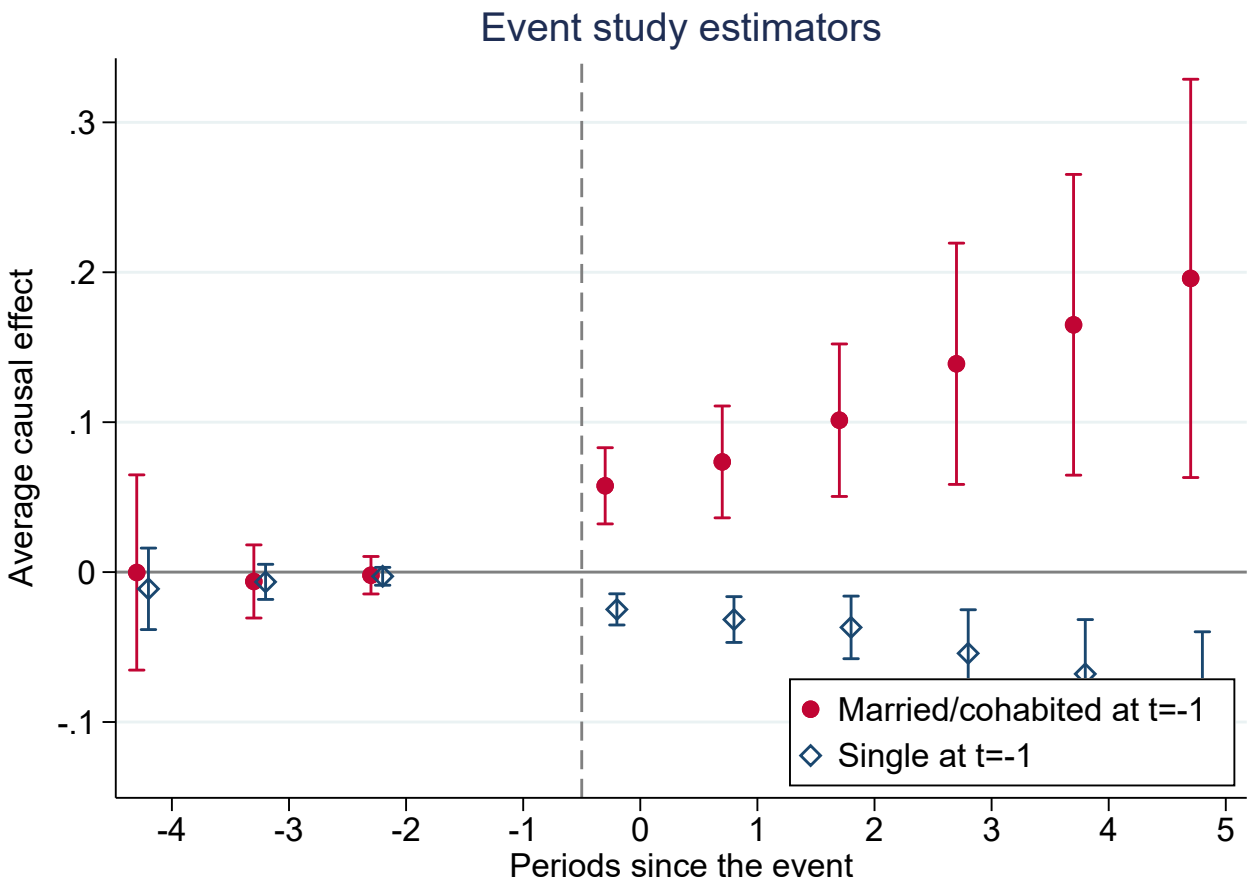
Share Single

Figure 5: Sun and Abraham (2021)



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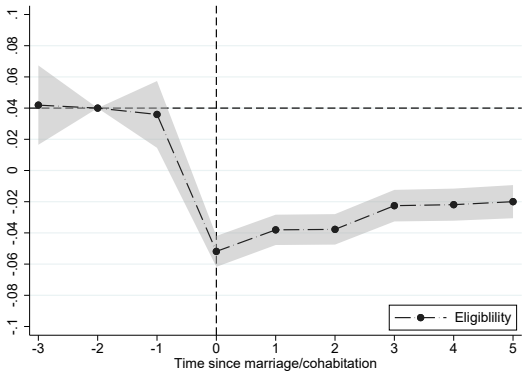
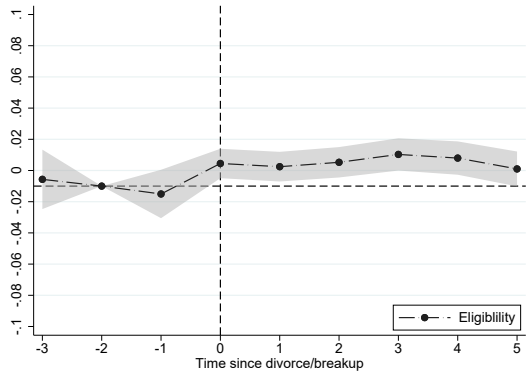
Eligibility Status

Figure 6: Eligibility Status

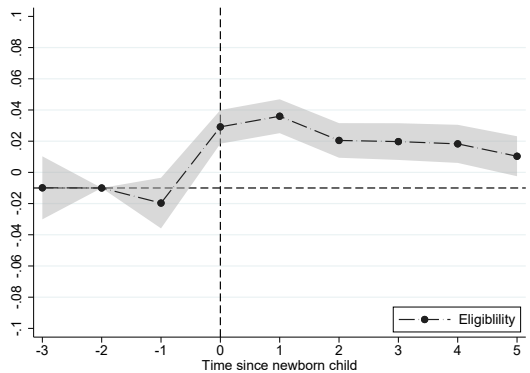
(a) Marriage or Cohabitation



(b) Divorce or Split



(c) Newborns



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