To Rent or Not To Rent?

Supply-Side Constraints and Matching Frictions in the Housing Choice Voucher Program

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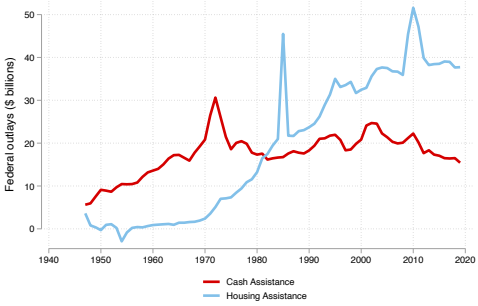
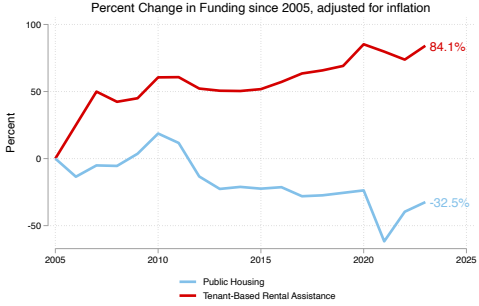
Motivation

The shift from Public Housing to Housing Voucher

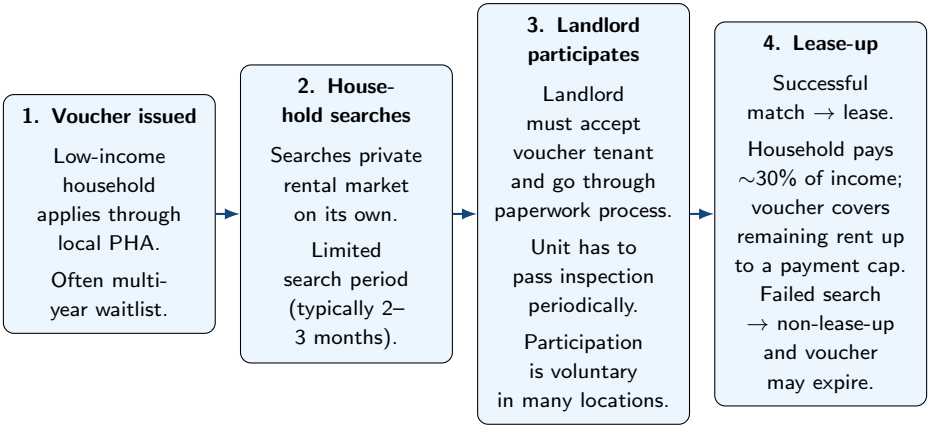


(a) Federal Outlay: Cash Assistance vs Housing Assistance



(b) Breakdown of HUD budget

Background: How Does a Housing Voucher Work?



⇒ **Voucher receipt ≠ guaranteed lease:** lease-up depends on both household preferences/search and landlord participation.

But Housing Vouchers Face Serious Frictions

The New York Times

Low-Income Renters Can't Get the Housing Vouchers They Need

A fraction of rent-burdened households receive Section 8 vouchers — and they may not even be able to use them.

HOUSING AND HOMELESSNESS

NYC Issues Thousands of Federal Housing Vouchers, But Finding an Apartment Remains Tough

By David Brand. Published October 5, 2022

by Stephanie Wykstra
Dec 10, 2018, 8:30 AM EST

FUTURE PERFECT

Vouchers can help the poor find homes. But landlords often won't accept them.

Why discrimination against voucher holders is a big problem.

A lot of audit studies show that landlords are less likely to respond to voucher holders than to otherwise identical applicants (Cunnningham et al, 2018, Moore, 2018)

Why Is Finding Housing with a Voucher Difficult?

Trend: Lease-up fell from 66% to 57%, while search time rose from 59 to 78 days (2018–2022).

Potential explanations

1. **Rental-market tightness**
   Low vacancy / high rents
2. **Household-side frictions**
   Information + Search costs (Bergman et al. (2024), Bergman, Chan, Kapor (2020))
3. **Landlord-side frictions**
   Hassle costs + discrimination

	Success Rate (1 Year)		Median Search Duration	
	(1)	(2)	(3)	(4)
R^2	0.325	0.373	0.475	0.628
Adjusted R^2	0.307	0.355	0.462	0.618
Market Tightness Controls	Y	Y	Y	Y
Demographic Controls	N	Y	N	Y
State FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y

Market tightness explains only part of the variation.

Research question

What limits landlord participation in the voucher market, and what are the consequences for voucher holders?

Outcomes of interest:

Landlord participation $\Rightarrow$ Lease-up success and Neighborhood access

Distinction: More voucher unit supply need not improve both outcomes equally - **where supply enters under different policies matters.**

Empirical Challenges

1. Measurement

No direct measure of units effectively available to voucher holders even in admin data.

$\Rightarrow$ Combine aggregate administrative HUD data with voucher and private-market listings data.

2. Recover demand

Observed placements combine:

$$\text{Preference} \times \text{Matching}$$

$\Rightarrow$ Develope a framework to separate latent demand from matching frictions generated by market tightness.

3. Identify barriers

Different barriers may limit landlord participation:

- Discrimination
- Administrative hassle
- Financial risk

$\Rightarrow$ Use policy variation to distinguish their relative importance.

Roadmap

1. **Introduction**

2. **Motivating Reduced-form evidence**
   Source-of-income (SOI) laws expand voucher supply and placements — but neighborhood access barely improves.

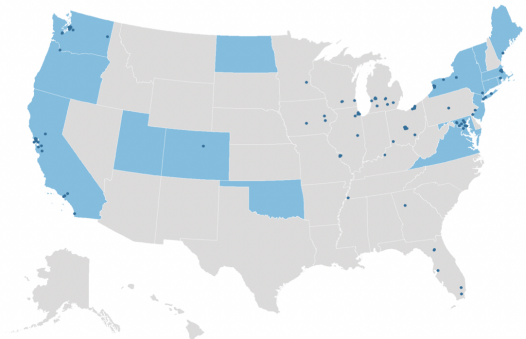
3. **Model**
   A structural model of household demand, landlord participation, and matching frictions in the voucher market.

4. **Counterfactuals**
   Quantify how supply-side and demand-side policies affect lease-up and neighborhood reallocation, separately and jointly.

Motivating reduced-form evidence

Supply-Side Policy: Source-of-Income Protections

Source of Income Protections in the United States as of July 2021



Source: "State and Local Voucher Protection Laws," Urban Institute Data Catalog, accessed September 22, 2021, https://datacatalog.urban.org/dataset/state-and-local-voucher-protection-laws.
Notes: State laws are shaded in blue. County and city laws are represented with dots.

Source-of-Income (SOI) laws

- Prohibit rejection *because* an applicant uses a housing voucher.
- Do **not** mandate participation: other screening criteria (credit score, criminal history,...) remain permissible.
  $\Rightarrow$ Reduce, but do not eliminate, discrimination-related barriers.
- Adoption varies across locations and over time.

Variation in Law Features and Enforcement

SOI laws vary substantially in enforcement strength and exemptions across jurisdictions.

Feature	Number of laws with feature
Explicitness	
Included HCV (Housing Choice Voucher)	68
Enforcement	
Administrative complaint	80
Private right of action	55
Injunctive relief	78
Civil penalties	83
Civil damages	72
Attorney fees	66
Criminal penalties	21
Exemptions	
Applicant background	13
Good faith business decision	3
Minimum income	10
Owner-occupied	65
Property size	53
Religious or nonprofit owner	62
Incentives	
Landlord mitigation fund	5
Tax abatement	5

Source: Authors' analysis of state and local laws that prohibit housing voucher discrimination.

Note: This table shows tallies for the 99 state and local voucher protection laws passed between 1971 and the end of 2019.

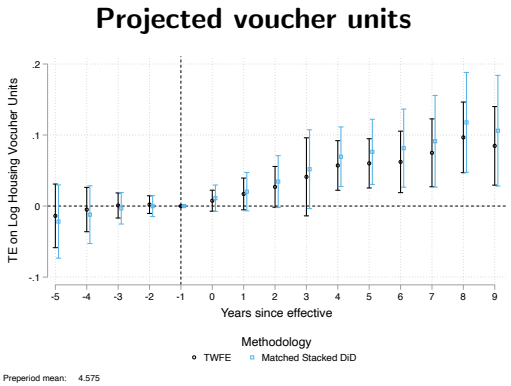
Staggered adoption of SOI laws

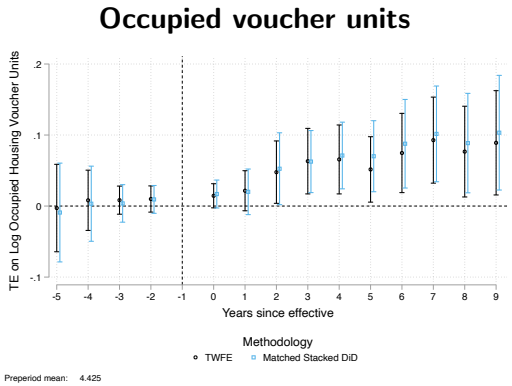
$$Y_{ct} = \sum_{k \neq -1} \beta_k \mathbf{1}\{t - T_c = k\} + X_{ct}'\alpha + \lambda_c + \delta_t + \varepsilon_{ct}$$

- County-year panel; compare counties before and after SOI adoption.
- TWFE + matched stacked DiD using "clean" untreated controls.
- Outcomes:
  - log(Projected voucher units) — feasible program capacity
  - log(Occupied voucher units) — realized placements
  - Neighborhood poverty / minority shares

Projected units = units PHAs expect to support given funding, rents, and leasing conditions; not a direct count of participating landlords.

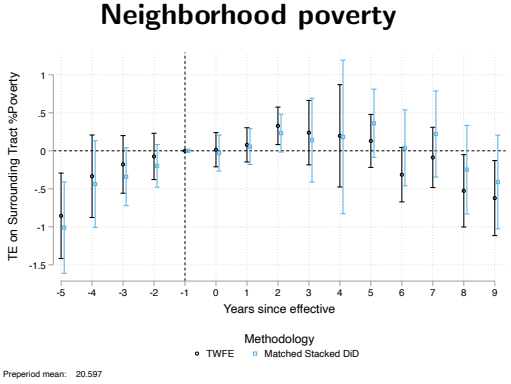
SOI Expands Voucher Capacity and Realized Placements

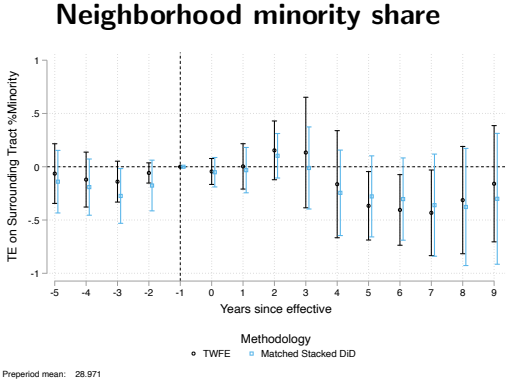




⇒ SOI appears to relax constraints on translating voucher funding into feasible leases.

But Neighborhood Access Improves Little





⇒ More feasible voucher supply does not translate into clear improvements in neighborhood access.

What Do We Learn from the Reduced Form?

What we learn

- Discrimination-related barriers matter for landlord participation.
- SOI protections expand projected capacity and occupied voucher units.
- But the additional supply generates little improvement in neighborhood access.

What remains unclear

- Why does greater supply translate into little neighborhood reallocation?
- How important are other participation barriers relative to discrimination?
- How do household demand and matching frictions shape realized placements?
- How would supply- and demand-side policies interact?

$\Rightarrow$ **Need a model of landlord participation, household demand, and matching.**

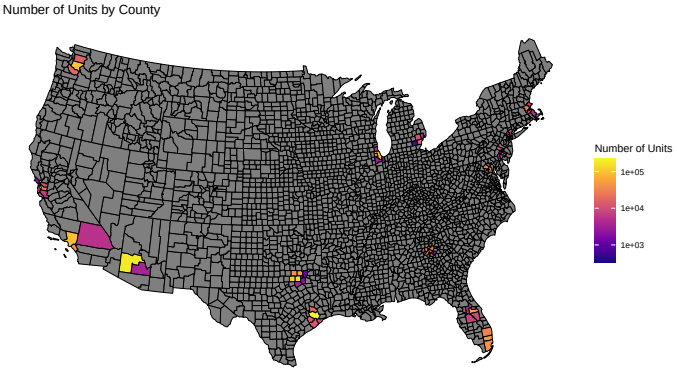
Data and measurement

Measuring unobserved market objects

Market object	Data source	Role
Effective supply S_h	HUD projected units	Feasible capacity
Realized matches M_h	HUD occupied units	Lease placements
Non-lease-up rate q_m^{NL}	Ellen et al. (2023)	Tenant outside option
Voucher-targeted listings	AffordableHousing.com	Unit-level supply
Private listings	Altos Rental Intel	Landlord outside option
Policy variations	SOI, inspections, incentives	Participation shifters

Data: Spatial Distribution of Listings

Listings data come from large metro areas: contains about 2.1m observations of rental units (including 120k voucher units), spanning across 20 states, 199 counties, and 3056 zip codes.



Supply-Side Data: Entry Behavior and Selection

	(1) Voucher Unit	(2) Market Unit	(3) Mean Diff.	(4) All Sample	(5) Overlapped Sample
Max Voucher Rent	835.012	1144.002	-308.989***	1133.869	1096.667
	(380.802)	(459.501)	(60.547)	(460.436)	(478.230)
Predicted Rent	2313.433	2136.861	176.572	2142.390	1813.014
	(722.977)	(774.193)	(116.698)	(773.252)	(783.884)
College Share	0.283	0.494	-0.211***	0.487	0.399
	(0.154)	(0.198)	(0.023)	(0.200)	(0.199)
URM Share	0.664	0.387	0.277***	0.396	0.511
	(0.259)	(0.223)	(0.037)	(0.229)	(0.275)
Poverty Share	0.188	0.114	0.073***	0.117	0.147
	(0.091)	(0.060)	(0.014)	(0.063)	(0.076)
No of Bedrooms	2.657	1.550	1.107***	1.584	1.660
	(1.124)	(0.839)	(0.073)	(0.871)	(0.918)
No of Bathrooms	1.542	1.446	0.096	1.449	1.355
	(0.697)	(0.593)	(0.059)	(0.597)	(0.527)
In-unit Laundry	0.288	0.813	-0.525***	0.796	0.822
	(0.453)	(0.390)	(0.027)	(0.403)	(0.383)
Pets Allowed	0.412	0.935	-0.523***	0.918	0.895
	(0.492)	(0.247)	(0.021)	(0.274)	(0.306)
Number of Units	67,351	2083811		2151162	5,760

Notes: This table reports some descriptive statistics of different sub-samples in our data. Column 1 restricts the sample to voucher units, whereas Column 2 restricts the sample to market units. Column 3 reports the mean differences in characteristics between the two samples by regressing the outcomes on a voucher indicator. Column 4 reports descriptive statistics

Supply-Side Data: Entry Behavior and Selection

Voucher listings are selected along observable dimensions

- **Property type:** private listings skew toward apartments, while voucher listings skew toward single-family houses.

  $\Rightarrow$ Estimate supply separately for houses and apartments.

- **Unit and neighborhood characteristics:** voucher and private units differ in rents, amenities, and neighborhood composition.

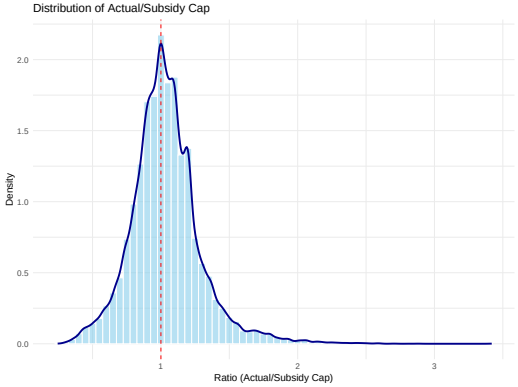
  $\Rightarrow$ Allow selection into voucher participation on unobservables that jointly govern entry and potential rents

- **Sample shares:** listings do not necessarily match population voucher shares.

  $\Rightarrow$ Reweight observations to match county-level voucher-unit shares.

Supply-Side Data: Rent-Setting Behavior

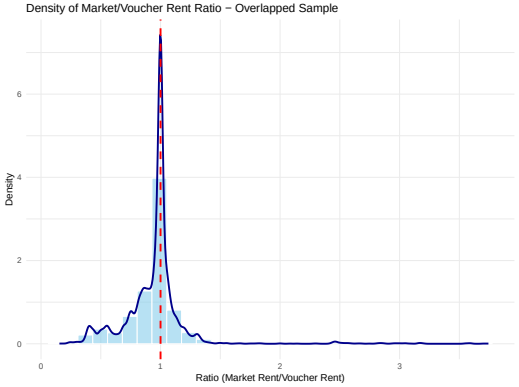
Voucher rent vs. subsidy ceiling



Most voucher rents are near the subsidy ceiling.

Median rent-to-cap ratio ≈ 1.02.

Voucher vs. private rent

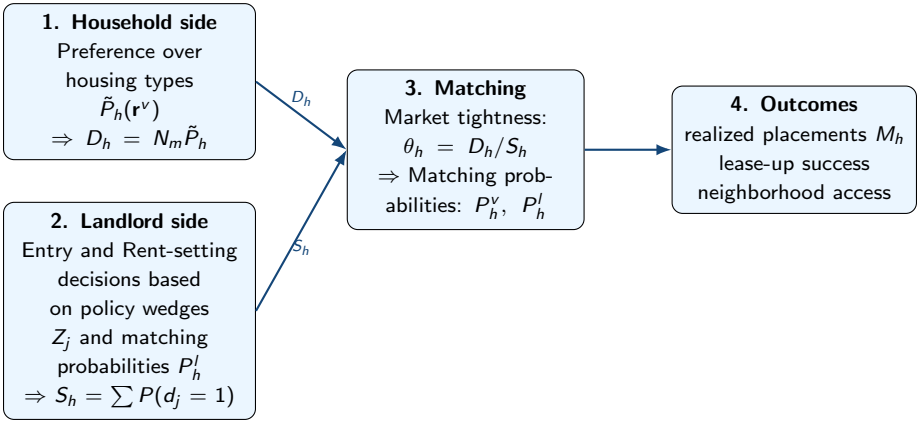


For overlapping units, voucher rents are somewhat higher than private-market rents.

$\Rightarrow$ Rent-setting differs systematically across the two markets.

Model

Model Overview



Equilibrium feedback: voucher rents r_h^v affect demand D_h; together, (D_h, S_h) determine market tightness θ_h and matching probabilities (P_h^v, P_h^l), which feed back into landlord rent-setting and participation (r_h^v, S_h).

Demand timing: preference first, matching second

Stage 1: Latent preference

Household's utility over housing types (empirically defined as number of bedrooms $\times$ census tract income decile) is:

$$U_{ih} = \alpha p_h + \beta X_h + \xi_h + \epsilon_{ih}, \qquad \tilde{P}_h = \frac{\exp(\nu_h)}{1 + \sum_{k \in \mathcal{O}} \exp(\nu_k)}$$

where p_h: out-of-pocket rent, X_h: unit/neighborhood characteristics, ξ_h: unobserved type quality, and ϵ_{ih}: idiosyncratic T1EV shocks

Stage 2: Matching

Observed market shares s_h^{obs} (and non-lease-up share q^{NL}) comprise of both preferences $\tilde{P}_h$ and voucher-holder matching probabilities P_h^v.

$$s_h^{obs} = \tilde{P}_h P_h^v, \qquad q^{NL} = \tilde{P}_0 + \sum_h \tilde{P}_h (1 - P_h^v)$$

Assumption: random matching within each housing type

For housing type h, latent demand D_h meets participating supply S_h:

$$M_h = S_h \left(1 - \exp\left(-\frac{D_h}{S_h}\right)\right)$$

Define market tightness $\theta_h = \frac{D_h}{S_h}$

Then the two sides face different matching probabilities:

$$P_h^v = \frac{M_h}{D_h} = \frac{1}{\theta_h}\left(1 - e^{-\theta_h}\right), \qquad P_h^l = \frac{M_h}{S_h} = 1 - e^{-\theta_h}$$

Tighter voucher markets $\Rightarrow$ lower household match probability, higher landlord fill probability.

Supply Side: What Do Landlords Decide?

Landlords make two linked decisions when considering the voucher market:

1. **Entry / participation**
   Should the landlord make the unit available to voucher holders?

2. **Rent-setting**
   If participating, what voucher rent should the landlord charge?

3. **Link between the two decisions**
   The rent determines expected voucher premium, and there will be an unobserved term determining both participation costs and potential rents.

$$r_j^v \Rightarrow Premium_j \Rightarrow d_j \qquad \text{and} \qquad \varepsilon_j \Rightarrow \{d_j,\ r_j^v,\ r_j^m\}$$

$\Rightarrow$ This creates Roy-style selection into voucher participation.

Landlord Entry Decision

A landlord participates if the expected voucher premium exceeds observed and unobserved participation costs:

$$d_j = 1\{\lambda Premium_j - \gamma_0 - Z_j\gamma - \varepsilon_j \geq 0\}$$

$$Premium_j = r_j^v P_{h(j)}^l - (1 - p_j^{default}) r_j^m \bar{P}^m$$

where $P_{h(j)}^l$: probability the voucher unit is filled, Z_j: policy variations shifting participation costs (SOI laws presence, inspection flexibilities program presence, incentive programs presence), $\varepsilon_j \sim N(0, \sigma^2)$: unobserved participation cost.

Due to the normality assumption on ε_j,

$$P(d_j = 1 \mid X_j, Z_j) = \Phi(\lambda Premium_j - \gamma_0 - Z_j\gamma)$$

Landlord Rent-Setting Decision

Voucher-market rent-setting problem

$$\max_{r_j^v} \quad \pi_j^v = (r_j^v - mc_j^v)\, P_{h(j)}^l(r_h^v)$$

Landlord j chooses voucher rent, taking into account that type-level rent affects demand and the probability the unit is filled.

First-order condition: $r_j^v = mc_j^v + \mathcal{M}_{h(j)}^v, \qquad \mathcal{M}_h^v = -\frac{P_h^l}{\partial P_h^l / \partial r_h^v}$

Marginal cost parameterization: $mc_j^v = f(X_j; \beta^v) + \gamma^v \varepsilon_j$

Private-market rent: We do not model private-market equilibrium; instead, we use a flexible hedonic equation:

$$r_j^m = f(X_j; \beta^m) + \gamma^m \varepsilon_j.$$

Equilibrium in the Voucher Market

Equilibrium in the **voucher market** is characterized by a set $\{\mathbf{r}^v, D_h, S_h, \theta_h, M_h\}$ satisfying the following, taking private-market rents and fill probabilities **as given**:

- **Rent-setting** $r_h^v = mc_h^v + \mathcal{M}_h^v(\theta_h)$ — landlords price optimally given fill probability
- **Supply** $S_h = \sum_{j \in h} P(d_j = 1 \mid \mathbf{r}^v)$ — landlords enter given expected fill and rents
- **Demand** $D_h = N_m \tilde{P}_h(\mathbf{r}^v)$ — households choose types given voucher rents
- **Tightness** $\theta_h = \dfrac{D_h}{S_h}$ — consistent with D_h and S_h
- **Matching** $M_h = D_h P_h^v(\theta_h) = S_h P_h^l(\theta_h)$ — same matches rationalize both sides

Identification and Estimation

Identification: What Variation Identifies What?

- **Demand preferences**
  Variation in latent housing-type shares across PHA-years identifies how voucher holders value rent and characteristics.

- **Matching correction**
  Observed placements are not preferences; they combine latent demand and match probabilities.

- **Price sensitivity**
  Out-of-pocket rent may be correlated with unobserved type quality, so we use a BLP-style IV.

- **Supply selection and participation costs**
  Joint variation in rents, voucher participation, and policy exposure identifies selection and policy-relevant participation wedges.

Demand Identification: From Placements to Preferences

Observed placement shares of housing type h combine two objects:

$$s_{hm}^{obs} = \tilde{P}_{hm} P_{hm}^{v}.$$

where $\tilde{P}_{hm}$: latent preference share for housing type h and P_{hm}^{v}: probability a voucher holder successfully matches there.

Using observed supply and occupied units, recover demand and matching probabilities:

$$M_{hm} = S_{hm}\left(1 - e^{-D_{hm}/S_{hm}}\right) \Rightarrow \widehat{D}_{hm}, \qquad P_{hm}^{v} = \frac{M_{hm}}{\widehat{D}_{hm}}.$$

Then estimate demand using matching-corrected shares:

$$\tilde{s}_{hm} = \frac{s_{hm}^{obs}}{P_{hm}^{v}}, \qquad \log \tilde{s}_{hm} - \log \tilde{s}_{0m} = \alpha p_{hm} + \beta X_{hm} + \xi_{hm}.$$

Demand Estimation: Price Endogeneity

Problem Out-of-pocket rent may be correlated with unobserved housing-type quality:

$$p_{hm} \not\perp \xi_{hm}.$$

Instrument Construct a BLP-style price IV using the scarcity of physical housing characteristics (Bayer et al., 2007):

$$p_{hm}^{IV} = \text{implied price when } \xi_{hm} = 0.$$

- Uses physical / predetermined characteristics: floor size, laundry, pets, commute, transit.
- Excludes neighborhood demographics likely correlated with ξ_{hm}.
- Identifying idea: rare housing types command higher prices for supply-side reasons, not because of unobserved demand shocks.

Supply Identification: Selection and Policy Wedges

Selection on unobservables

Rent residuals identify the shared latent component: $mc_j^k = f(X_j; \beta^k) + \gamma^k \varepsilon_j, \qquad k \in \{v, m\}$.

- Rent dispersion, after observables and markups, identifies the scale of ε_j.
- Comparing voucher and private rent equations identifies how ε_j loads across markets: γ^v vs. γ^m.
- Participation choices link this latent component to selection into the voucher market.

Policy participation wedges

$$d_j = 1\{\lambda Premium_j - \gamma_0 - Z_j\gamma - \varepsilon_j \geq 0\}.$$

Variation in the strength/timing of SOI laws, inspection flexibilities, and landlord incentives programs across PHAs and time disciplines how policy-related barriers affect participation.

Supply Estimation: Joint MLE

Observed rents imply the latent component:

$$\hat{\varepsilon}_j = \begin{cases} \dfrac{r_j^v - f(X_j;\beta^v) - \mathcal{M}^v_{h(j)}}{\gamma^v}, & d_j = 1 \\ \dfrac{r_j^m - f(X_j;\beta^m)}{\gamma^m}, & d_j = 0. \end{cases}$$

Predicted participation index $\mu_j = \lambda \widehat{Premium}_j - \gamma_0 - Z_j\gamma$.

Likelihood combines participation and rent density:

$$L_j(\Theta) = \begin{cases} \Phi(\mu_j)\dfrac{1}{|\gamma^v|}\phi(\hat{\varepsilon}_j), & d_j = 1 \\ [1-\Phi(\mu_j)]\dfrac{1}{|\gamma^m|}\phi(\hat{\varepsilon}_j), & d_j = 0. \end{cases}$$

Estimates

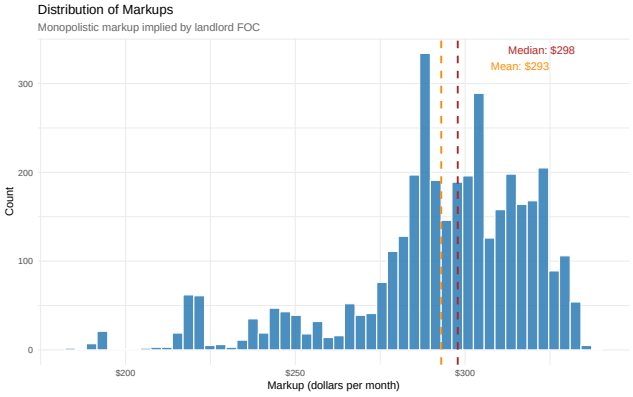
Demand Estimates

Dependent Variables Model:	Log odds (1)	Out-of-pocket rent (2)	Log odds (3)
Variables			
Constant	-3.444	-0.9309	-13.61
	(2.879)	(1.118)	(16.41)
Out-of-pocket rent	-0.5862***		-14.69***
	(0.1045)		(3.777)
Floor size	-0.0113	0.4133***	5.609***
	(0.0862)	(0.0424)	(1.588)
Laundry in unit	0.9109***	0.4047***	6.911***
	(0.2308)	(0.0829)	(1.901)
Pets allowed	-0.3372	-0.1181	-2.385
	(0.2912)	(0.1036)	(1.553)
URM share	1.542***	0.1925	4.300**
	(0.4130)	(0.1471)	(1.976)
College share	-0.9191*	1.056***	14.35***
	(0.4896)	(0.1967)	(4.732)
Employment rate	1.275	0.7187	8.353
	(2.862)	(1.145)	(16.72)
Public transit share	3.575***	1.999***	32.46***
	(1.080)	(0.3527)	(9.266)
Long commute share	-2.181**	-0.8989***	-15.70***
	(0.9228)	(0.2691)	(5.092)
Poverty rate	2.260	-0.4130	-3.916
	(1.790)	(0.4705)	(6.946)
Instrument		0.0254***	
		(0.0070)	
Fit statistics			
Observations	3,771	3,771	3,771

Main takeaways

- Out-of-pocket rent significantly reduces latent demand.
- IV estimate is larger in magnitude than OLS, consistent with upward bias from unobserved housing quality.
- Voucher holders value both unit amenities and neighborhood characteristics.

Voucher Rent Markups



Recovered from demand side:

$$\mathcal{M}_h^v = -\frac{P_h^l}{\partial P_h^l / \partial r_h^v}$$

- Landlords internalize how rent affects demand and fill probability.
- Monthly markups vary across housing types and markets from \$180–\$350.

Supply Estimates: Participation Margins

	Houses		Apartments	
	Estimates	WTP ($1000)	Estimates	WTP ($1000)
Panel A: Entry Equation Parameters				
λ: Voucher Premium	0.776		0.802	
	(0.030)		(0.010)	
γ_0: Average Costs	1.693	-2.180	1.548	-1.931
	(0.013)	(0.081)	(0.021)	(0.032)
γ_1: SOI Score (0-4)	-0.114	0.147	-0.071	0.089
	(0.006)	(0.008)	(0.007)	(0.009)
γ_2: Inspections (0-2)	0.058	-0.074	-0.106	0.132
	(0.013)	(0.017)	(0.020)	(0.024)
γ_3: Incentives (0-3)	-0.078	0.101	-0.082	0.102
	(0.009)	(0.012)	(0.011)	(0.014)
Panel B: Rent Equations Parameters				
γ^v: Voucher Selection	-0.573		-0.484	
	(0.005)		(0.010)	
γ^m: Market Selection	-0.891		-0.776	
	(0.005)		(0.001)	
N	108,401	108,401	1,862,660	1,862,660

- SOI protections and landlord incentives are consistently associated with higher participation.
- Inspection flexibilities have mixed effects across property types.
- $\gamma^v, \gamma^m < 0$: landlords with lower unobserved participation costs also have higher potential rents in both markets $\Rightarrow$ Participating voucher landlords are positively selected on unobservables.

Counterfactuals

Counterfactual Design

Two sets of counterfactual outcomes

- **Partial equilibrium:** hold household demand and matching conditions fixed; ask how policy shifts directly change landlord participation and where new supply enters.
- **Matching equilibrium:** allow supply, demand, and matching probabilities to adjust jointly; evaluate lease-up and neighborhood reallocation.

Policy experiments

- **Supply:** expand SOI protections, inspection flexibility, and landlord incentives.
- **Demand:** reduce out-of-pocket rent by 10% in the top five neighborhood-income deciles.
- **Joint:** implement supply and targeted demand policies together.

Computing the Matching Equilibrium

Starting from the observed equilibrium, iterate the following steps:

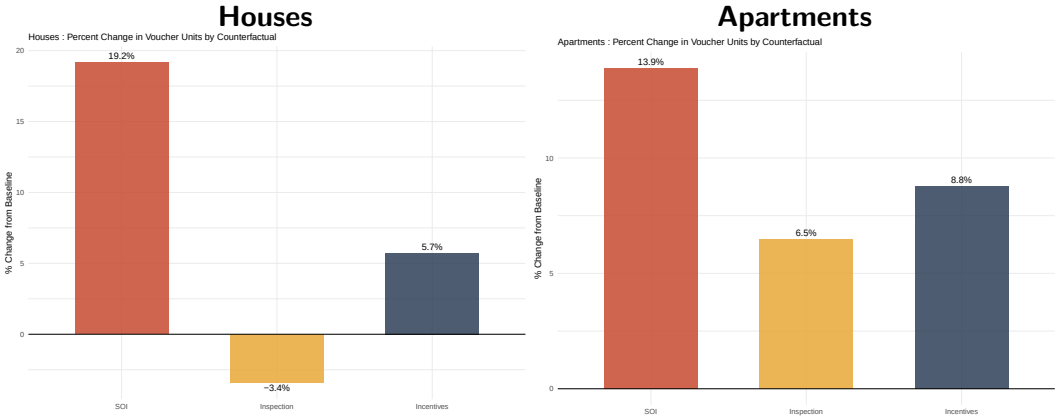
1. **Update landlord participation**
   Given current fill probabilities, apply the policy shift and predict each landlord's participation probability $\rho_j^{(t)}$.

2. **Update supply and demand**
   Aggregate $\rho_j^{(t)}$ into expected supply $S_h^{(t)}$ and type availability; recompute latent demand $D_h^{(t)}$.

3. **Update matching** $\theta_h^{(t)} = \frac{D_h^{(t)}}{S_h^{(t)}} \quad \Rightarrow \quad P_h^{v,(t+1)},\ P_h^{l,(t+1)}$

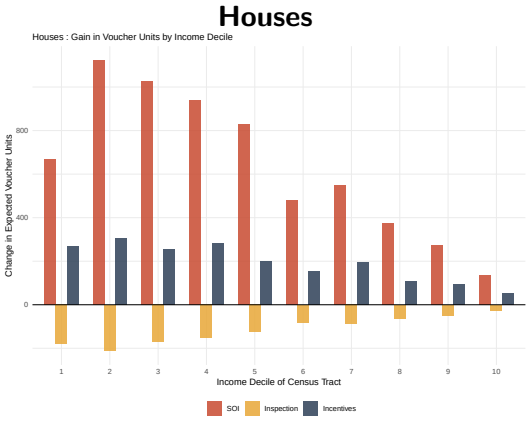
4. **Iterate to convergence**
   Repeat until landlord fill probabilities P_h^l stop changing; then compute lease-up and residential shares.

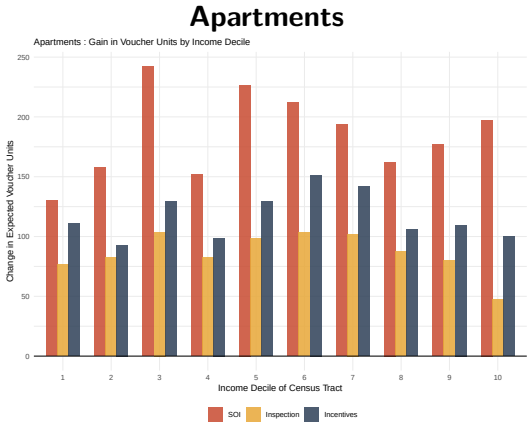
Partial Equilibrium: How Much Does Supply Respond?



- All three supply-side interventions increase predicted voucher participation.
- SOI generates the most consistent supply response across property types; inspection flexibility is more heterogeneous.

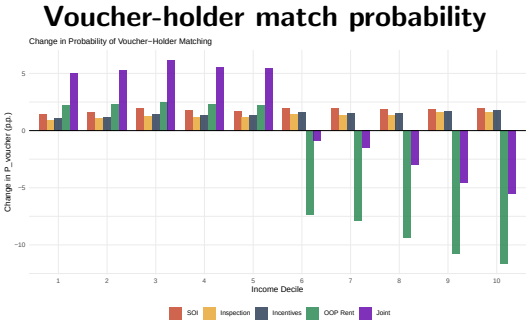
Partial Equilibrium: Where Does New Supply Enter?

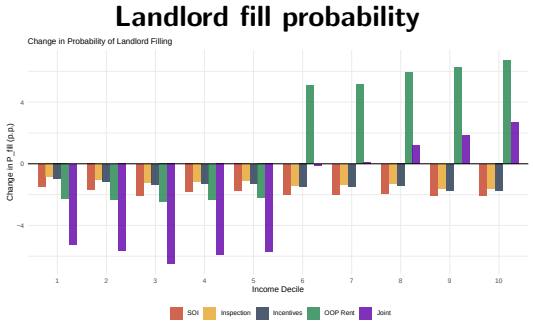




- Supply expands across the income distribution, but the response is concentrated in **lower-income neighborhoods** $\Rightarrow$ Supply-side policies improve availability without strongly redirecting supply toward higher-income areas.

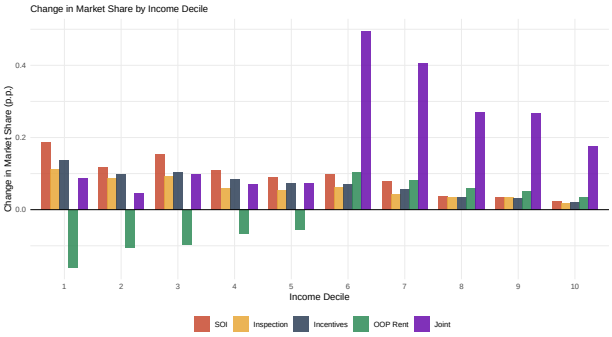
Matching Equilibrium: Supply Expansion vs. Demand Congestion





- **Supply policies:** $S_h \uparrow \Rightarrow \theta_h \downarrow \Rightarrow P_h^v \uparrow,\ P_h^l \downarrow$. SOI produces the largest change (≈ 2.2 p.p.).
- **Targeted demand policy:** demand shifts toward high-income types $\Rightarrow$ congestion: P_h^v falls by about 4.2 p.p. while P_h^l rises by 2.1 p.p.

Matching Equilibrium: Lease-Up and Reallocation



Counterfactual results

- **Supply only:** lease-up improves, but gains mostly enter lower-income neighborhoods.
- **Demand only:** shifts placements upward, but congestion raises non-lease-up by 0.45 p.p.
- **Joint policy:** combines both margins; non-lease-up falls by about 5.9 p.p.

Conclusion

Conclusion

1. **Measurement contribution:** combine HUD, listings, and policy data to recover latent demand, effective supply, and matches.
2. **Modeling contribution:** embed matching frictions into residential discrete-choice demand and landlord endogenous participation.
3. **Policy implications:** discrimination-related supply barriers are central; targeted demand policies work best when supply also responds.

Bottom line

Improving neighborhood access requires moving both margins: **expand participating supply** and **redirect demand**.