The Incidence of Rent Subsidies: Evidence on Rents, Housing Choices and Supply

Essi Eerola (BoF), Teemu Lyytikäinen (VATT)
Tuukka Saarimaa (Aalto), Tuuli Vanhapelto (U Glasgow)

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Motivation: Rent subsidies are a large-scale transfer

Many governments subsidise housing consumption of low-income households

- Rent subsidies / housing allowances (HA) an increasingly popular policy tool
- Rent subsidy budgets around 1% of GDP in France, Finland, UK

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  - Almost full incidence on the tenants (Brewer et al., 2019; Eerola and Lyytikäinen, 2021)

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- Previous results heterogenous
  - Over 50% incidence on landlords (Fack, 2006; Gibbons and Manning 2006)
  - Almost full incidence on the tenants (Brewer et al., 2019; Eerola and Lyytikäinen, 2021)
- Why are rent effects high in some contexts and low in others?
  - Statistical uncertainty?
  - Different economics?

This paper

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- Rents did not increase in units with large HA increases
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Why do we observe such small rent effects?

- Rental demand: Significant but economically small changes immediately after the refom
- Rental supply: No changes in supply immediately after the reform, possibly small changes in the medium-run

Empirical Strategy

Data

HA register from the Social Insurance Institution (Kela)

- Data on all monthly HA payments for 2010–2019
- Recipient characteristics, monthly rent and unit characteristics including address
- Focus on new rental contracts on the unregulated market (exclude students)

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Table 1: Summary statistics, HA register data.

	All payments mean	New contracts mean
Household size	1.6	1.8
Apartment surface	48.1	51.6
Household income	901.6	931.1
Rent	578.5	621.7
Housing allowance received	305.7	327.3
Observations	11188052	219204

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For mechanisms, also population-level administrative data from Statistics Finland (no rents)

HA reform in 2015

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HA before the reform:

$$HA = 0.8 * \left[f\left(\text{unit characteristics}, \text{household size}, \text{rent}\right) - d(\textit{income}) \right]$$

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Reform resulted in variation in HA depending on unit characteristics, especially floor area

Empirical strategy

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Strategy 1: DID with continuous treatment

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- Include unit-level fixed effects

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- 15-25m^2 units: Substantial HA increases
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Strategy 3: Findings robust to estimating average predicted changes given characteristics of *similar units*

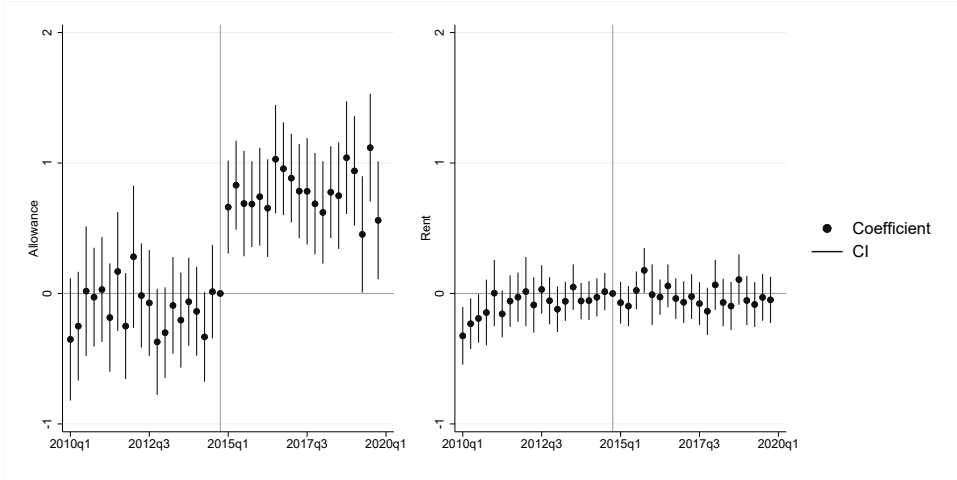
- No need to use unit FEs $\rightarrow$ much larger sample (200 000+ new rental contracts)
- These doses will be used to analyse mechanisms

Average predicted changes

Rent Effects

Descriptive evidence - housing allowances & rents by floor area

Event Study - continuous treatment design, unit FEs



click for estimation equation

Event Study - continuous treatment design, unit FEs

	DID		IV
	(1) Allowance	(2) Rent	(3) Rent
Predicted HA change	0.899	0.0243	
	(0.0339)	(0.0161)	
Allowance			0.0270
			(0.0177)
Month × year FEs	✓	✓	✓
Unit FEs	✓	✓	✓
Outcome mean	314.1	577.3	577.3
N	22346	22346	22346
SE clustered by	Unit	Unit	Unit
First-stage F			705.1

click for estimation equation

Robustness

2 by 2 -comparisons:

Zip FE | Unit FE

Rent effects using alternative treatment definitions

Average dose 1 | Average dose 2 | Using average dose 1 | Using average dose 2

1st stage in the population of all renters, not just recipients:

HA among all renters

Did other parts of social security mitigate the effects of the HA reform?

SA changes | HA+SA changes | Averages by income | Event study by income

Mechanisms

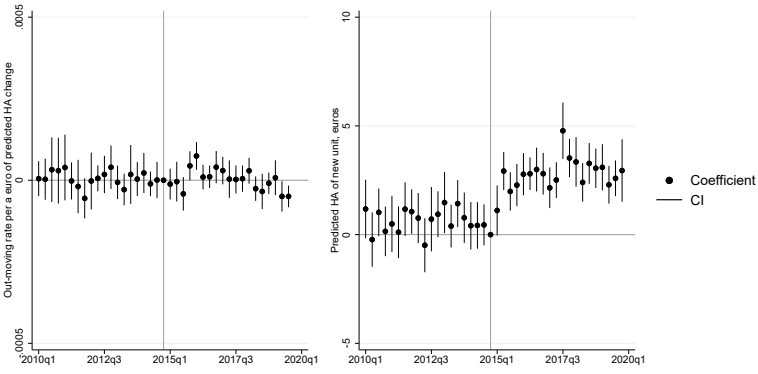
Housing subsidies in a competitive rental market

$$\frac{dr}{ds} = -\frac{\frac{D^R}{q}\epsilon_D^R}{[\frac{S^C}{q}\epsilon_S^C + \frac{S^I}{q}\epsilon_S^I] - [\frac{D^R}{q}\epsilon_D^R + \frac{D^N}{q}\epsilon_D^N]}$$

Stylized conceptual framework: Rent effects of rent subsidies can be small if

- Demand response is small - depends on:
  1. Price elasticity of demand
  2. Share of recipients in the rental market
- ... or supply response is big - depends on:
  1. New construction: Elasticity and importance relative to existing stock
  2. Conversion of existing units from owner-occupied to rentals

Inelastic recipient demand?

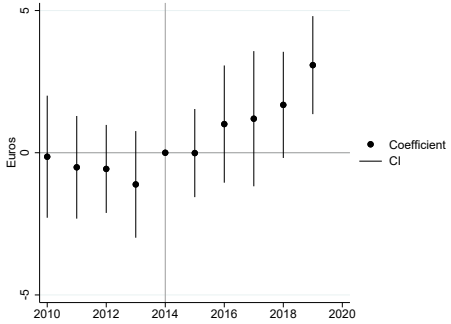


(a) Moving out: Do recipients start moving out of their current unit less frequently if predicted HA increase was larger?

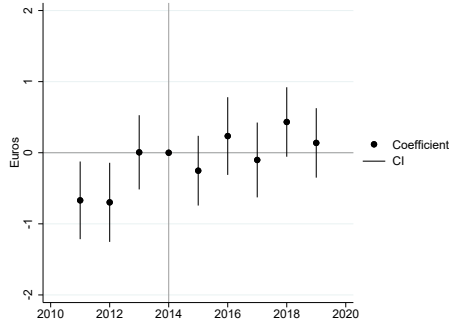
(b) Moving in: Conditional on moving, do recipients start choosing units where predicted HA increase was larger?

Estimation equation

Supply of units to the rental sector?



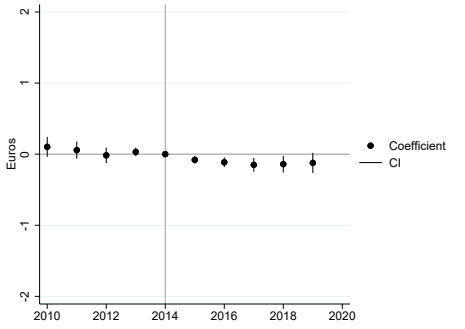
(a) Composition of newly-built units: Is new construction shifting towards unit types where predicted HA increase was larger?



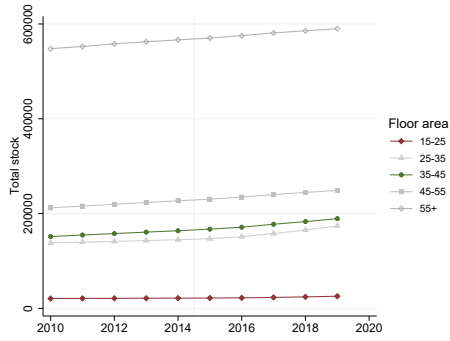
(b) Composition of converted units: Is conversion shifting towards unit types where predicted HA increase was larger?

Estimation equation

Overall rental stock



(a) Composition of total rental stock.



(b) Total housing stock.

Estimation equation

Why do we find zero or small rent effects?

Recipient households do not seem to respond very strongly to increased incentives to choose certain types of units

- Conditional on moving, recipients choose different units than before, but a small effect

Housing supply responses are modest, especially in the short-run

- Neither construction or conversion shift towards units with higher treatments

Unlikely that an elastic supply response would be the main driver of the small rent effects

- Seems more likely that small effects are due to relatively unresponsive recipient demand

Conclusions

We study a reform that resulted in large variation in HA for different housing units

- Large increases in housing allowances for small units have little or no effect on their rents relative to larger units
- Thus, the incidence of the reform is largely on recipients and not on their landlords

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Interpreting rent effect estimates: Context matters!

- Providing evidence on supply and demand responses helps put external validity on estimates

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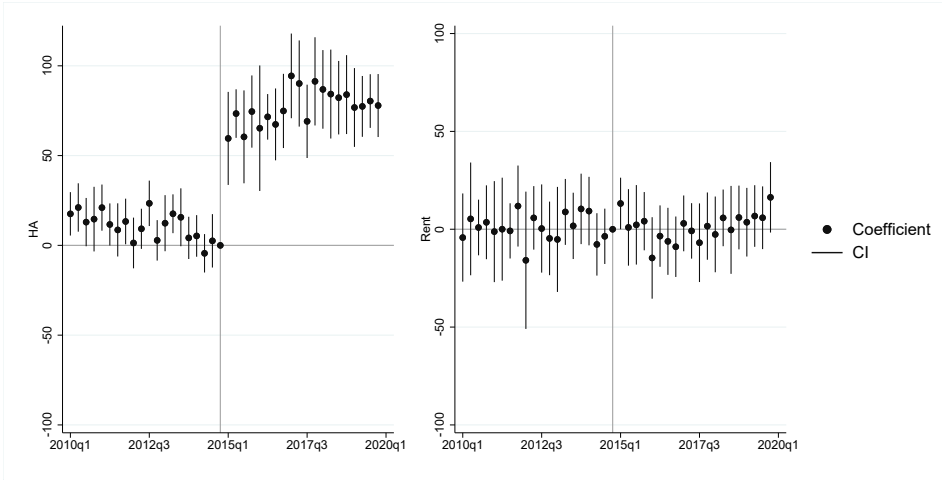
- Providing evidence on supply and demand responses helps put external validity on estimates

Small rent effects likely due to unresponsive household choices

- Policy relevance: HA can work well, if the policy is designed in a way that household willingness to pay for specific types of units is not very affected

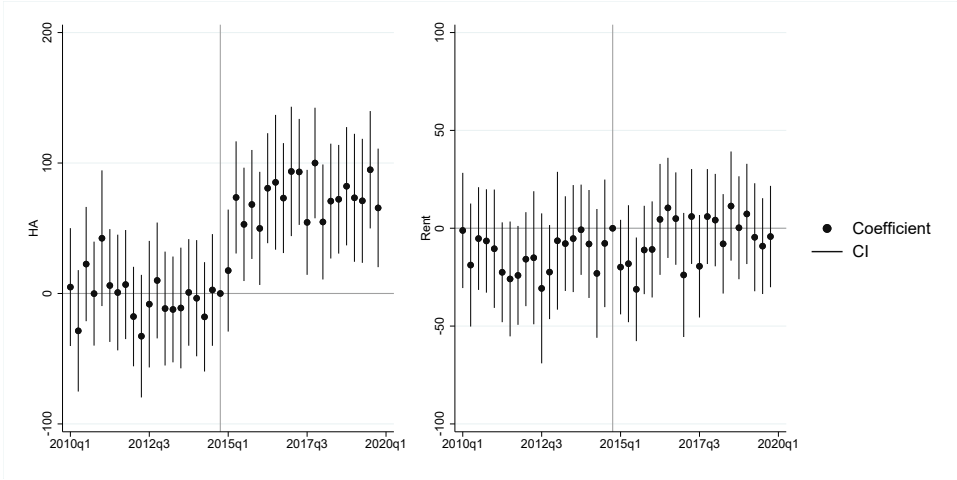
Appendix

Event Study - 15-25m^2 vs. 35-45m^2, zipcode FEs



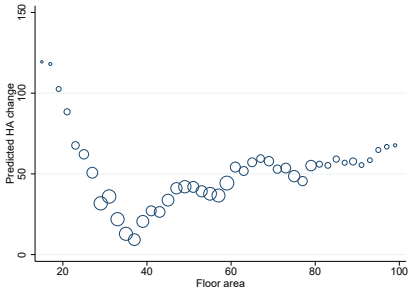
Back to robustness

Event Study - 15-25m^2 vs. 35-45m^2, unit FEs



Back to robustness

Predicted HA change

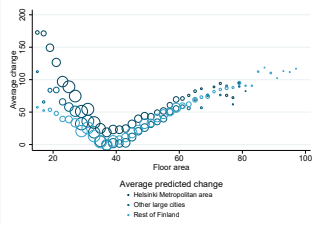


For each unit in the FE sample, we compute the predicted change given the changes in policy parameters, holding constant pre-reform unit and household characteristics.
$\rightarrow$ get $\Delta pred\_HA_j$ (j indexes unit)

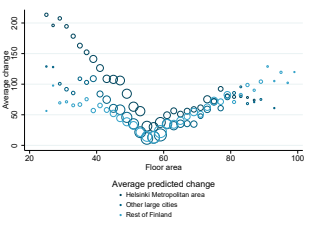
Figure: Shows average $\Delta pred\_HA_j$ by floor area

Back to empirical strategy Back to robustness

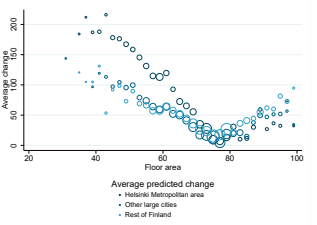
Average treatment dose by household type, floor area and municipality group $\overline{\Delta pred\_HA_1}$



(a) Average predicted HA change ($\overline{\Delta pred\_HA_1}$) for single-member households.



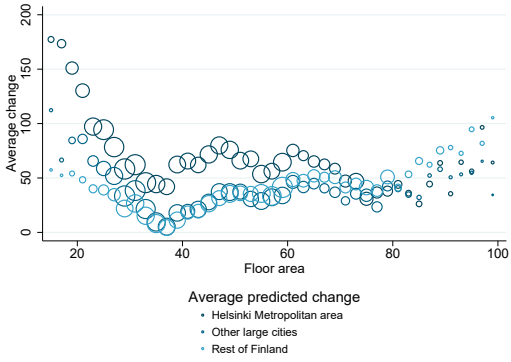
(b) Average predicted HA change ($\overline{\Delta pred\_HA_1}$) for 2-member households.



(c) Average predicted HA change ($\overline{\Delta pred\_HA_1}$) for 3-member households.

Back to empirical strategy
Back to robustness

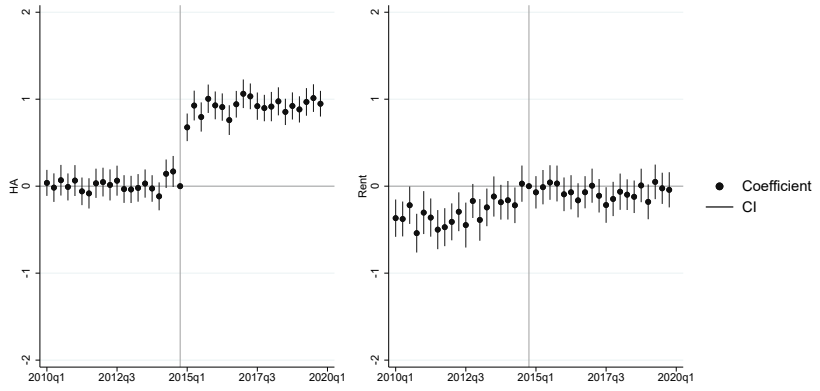
Average treatment dose by floor area and municipality group $\overline{\Delta pred\_HA}_2$



Average predicted HA change ($\overline{\Delta pred\_HA}_2$).

Back to empirical strategy
Back to robustness

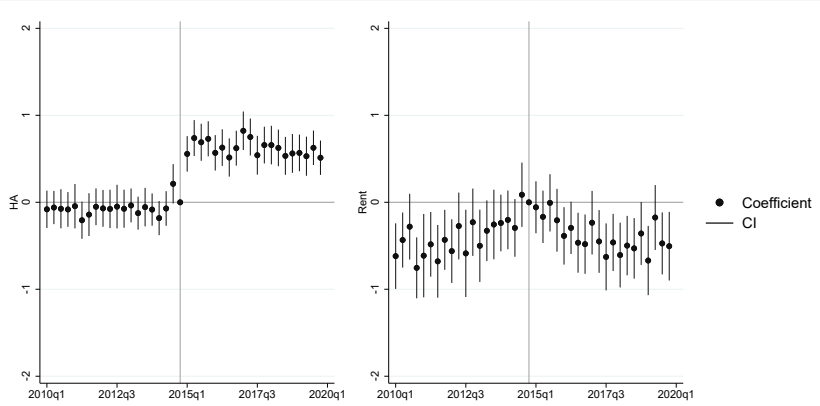
Alternative treatment definition: Average predicted change in HA given household characteristics *after* the reform, $\overline{\Delta pred\_HA}_1$



Larger sample: 200 000+ new rental contracts!

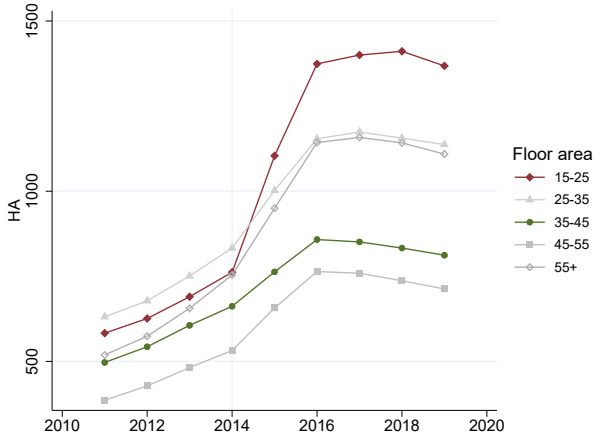
Estimation equation | Back to robustness

Alternative treatment definition: Average predicted change in HA given only unit characteristics, $\overline{\Delta pred\_HA}_2$



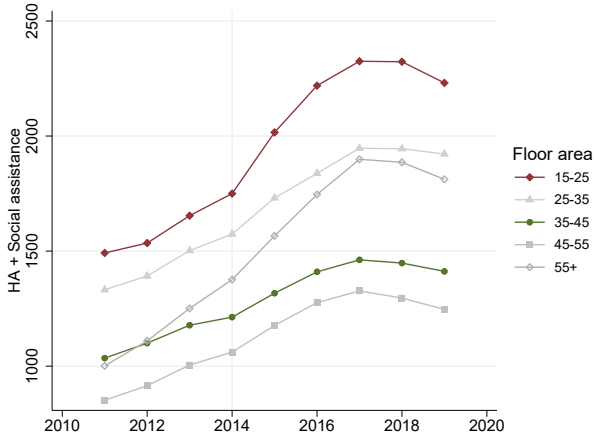
Estimation equation
Back to robustness

HA in the population of renters (including non-recipients)



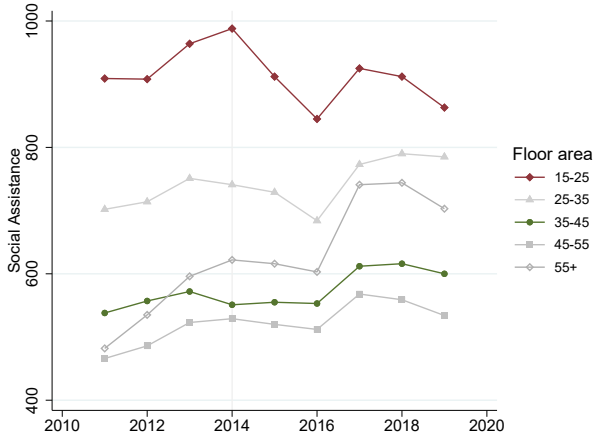
Back to robustness

HA + social assistance in the population of renters



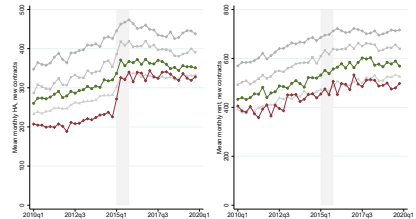
Back to robustness

Social assistance in the population of renters

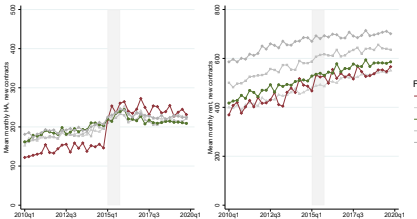


Back to robustness

Average changes by household income



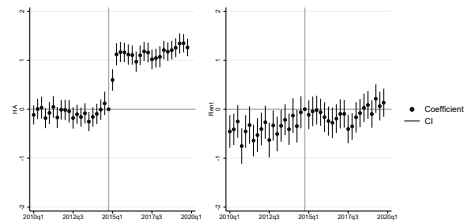
(a) New constracts of households with below-median incomes.



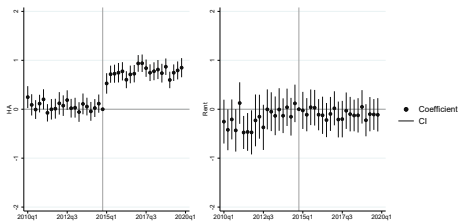
(b) New constracts of households with above-median incomes.

Back to robustness

Event study, splitting sample by household income



(a) Households with below-median incomes



(b) Households with above-median incomes

Estimation equations
Back to robustness

Estimation equations: Rent effects

Event study with continuous treatment (graphs)

$$y_{it} = \sum_{\substack{s=2010q1 \\ s \neq 2014q4}}^{2019q4} \theta_s \, \Delta pred\_HA_j \; + \gamma_t + \omega_j + u_{it}, \tag{1}$$

DID with continuous treatment (table)

$$y_{it} = \beta \times \Delta pred\_HA_j \times post_t + \gamma_t + \omega_j + u_{it}, \tag{2}$$

DID-IV with continuous treatment (table)

$$Rent_{it} = \beta HA_{it} + \gamma_t + \omega_j + \epsilon_{it}, \tag{3}$$

where we instrument HA with the treatment exposure interacted with a post-reform indicator ($\Delta pred\_HA_j \times post_t$)

Back to main results

Estimation equations: Alternative treatment definition (no unit FEs)

$$y_{it} = \theta \, \overline{\Delta pred\_HA}_{kc} + \sum_{\substack{s=2010q1 \\ s \neq 2014q4}}^{2019q4} \theta_s \overline{\Delta pred\_HA}_{kc} + \delta_q + \gamma_z + \epsilon_{it} \tag{4}$$

using $k \in (1, 2)$ for

- $\overline{\Delta pred\_HA}_1$ (average predicted change given the characteristics in the unit type-household type-cell)
- $\overline{\Delta pred\_HA}_2$ (average predicted change given the characteristics in the unit type-cell)

Instead of unit-FE, zip-FE and control for $\overline{\Delta pred\_HA}_{kc}$ in level

Back to robustness

Estimation equations: Household choices

Moving out: After the reform, are recipients less likely to move out of units where predicted HA change was larger?

$$y_{it} = \theta \, \overline{\Delta pred\_HA}_{1c} + \sum_{\substack{s=2010q1 \\ s \neq 2014q4}}^{2019q4} \theta_s \, \overline{\Delta pred\_HA}_{1c} + \delta_q + \gamma_m + \epsilon_{it}, \tag{5}$$

where the outcome is an indicator variable for if household moves out of the current unit, estimated in the sample of all payments

Moving in: Conditional on moving, do recipients choose units where predicted HA increase was larger?

$$\overline{\Delta pred\_HA}_{1c} = \sum_{\substack{s=2010q1 \\ s \neq 2014q4}}^{2019q4} \theta_s + \omega_m + \epsilon_i. \tag{6}$$

estimated in the sample of movers

NB. Not a ”diff-in-diff” equation, only ”diff”!

Back to demand results

Estimation equations: Supply

$$\overline{\Delta pred\_HA}_2 = \sum_{\substack{s=2010 \\ s \neq 2014}}^{2019} \theta_s + \omega_m + \epsilon_{it} \tag{7}$$

Construction: Estimated in the sample of newly constructed units that are immediately provided on the private rental market

Conversion: Estimated in the sample of units which get converted from owner-occupied to unregulated rentals

Rental stock: Estimated in the overall unregulated rental stock

NB. Not a ”diff-in-diff” equation, only ”diff”!

Back to supply results