

Housing policy and the distribution of wealth: A comparative perspective on public and private wealth

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Comparative research suggests wealth inequality does not necessarily follow patterns of income inequality. Recent accounts highlight role of housing policy. But:

- ▶ What is the role of public housing wealth? - We compute augmented wealth measure for housing and offer a subnational comparative perspective on distributional implications
- ▶ To what extent do such findings depend on methodological choices? - We propose several sensitivity checks for augmented housing wealth (decomposition, etc.)

We find that:

- ▶ Novel augmented wealth measure has explanatory power for cross-regional variation
- ▶ Comparable results for augmented wealth and decomposition approach

Wealth inequality puzzle

Motivation

Starting point: What determines cross-national differences in wealth inequality?

- ▶ Substantial share of variation driven by institutional factors unrelated to household structure, employment characteristics, education or age (Cowell, Karagiannaki, and Mcknight 2018; Bover 2010)
- ▶ Focus → Old age income security. Crowding out private accumulation - higher wealth inequality (Feldstein 1976; Fessler and Schürz 2018; Domeij and Klein 2002).
- ▶ Many studies use imputation methods, eliciting distributions of "augmented wealth" (Feldstein 1976; Sabelhaus and Volz 2020; Wroński 2023). They point at diminishing cross-national differences (Bönke et al. 2020).

Recently, housing related to international variation:

- ▶ Fourth pillar of social policy more important than traditional social insurance (Pfeffer and Waitkus 2021; Christophers 2021; Wind and Dewilde 2019; Bryant, Spies-Butcher, and Stebbing 2022) - mechanisms debated
- ▶ Popular approach: decomposition methodology (Kaas, Kocharkov, and Preugschat 2015; Christelis, Georgarakos, and Haliassos 2013; Pfeffer and Waitkus 2021)

Contributions:

- ▶ Developing a "capitalisation" method for housing
- ▶ Provide different benchmarks to appraise robustness

Idea: Capitalising households' (in-kind) government transfer income stream, arising from below-market price rental values of social and cooperative housing tenancy.

- ▶ Present value of perpetual annuity
- ▶ Capitalisation of difference between social housing/housing association and market rent, rather than full rent
- ▶ Imputation of social housing wealth by first estimating market rent for tenants in social housing and housing associations by hedonic regression (OLS)

where $s_i = \{1, 2, \dots, 6\}$ refers to tenure type, h_i to living space, X to a set of further property characteristics and r_i to the market rent net of utilities and s_i :

1 = outright owner

2 = mortgaged owner

3 = rent cooperative

4 = rent council

5 = rent market

6 = free user

$$\ln(r_i) = \alpha + \ln(h_i)\beta + X\gamma + \epsilon_i \quad \forall s_i = 5 \quad (1)$$

regression coefficients from equation 1 for $s_i = 5$ are used to impute for $s_i = \{3, 4\}$ the equivalent market rental values

The rental subsidy arising from lower market prices follows from the imputations as:

$$e_i = (\hat{r}_i - r_i) \quad \forall s_i = 3, 4 \quad (2)$$

Subsequently, we arrive at our measure of augmented wealth including imputed social housing wealth by computing the perpetuity due which we add to net wealth:

$$a_i = e_i * \frac{1 + r}{r} \quad \forall s_i = 3, 4 \quad (3)$$

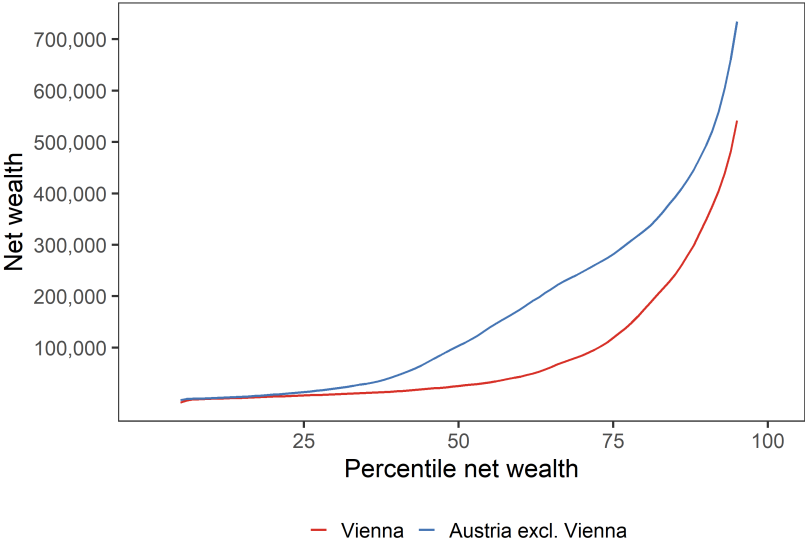
Interest rate: 3% (Boenke and Grabka 2016)

Methodological choices involved along the way - how can we validate the approach?

- ▶ Interest rate sensitivity
- ▶ Life satisfaction
- ▶ RIF regression. Explaining by how much a function of the marginal outcome distribution is affected by changes in the covariate distribution
 - ▶ Regress RIF^G on an indicator $K = \mathbb{1}[s_i \in \{3; 4\}]$ using OLS and employ Oaxaca-Blinder decomposition methodology to arrive at counterfactual distributions "net of" social or cooperative housing status
 - ▶ In a next step, we decompose the difference in inequality between Vienna and the other Austrian federal states using a twofold Oaxaca-Blinder decomposition

- ▶ HFCS 2017
- ▶ Regional stratification, separate indicators
- ▶ Complex survey design: all implicates used, (replicate) weights taken into account where appropriate

Regional wealth distribution Data

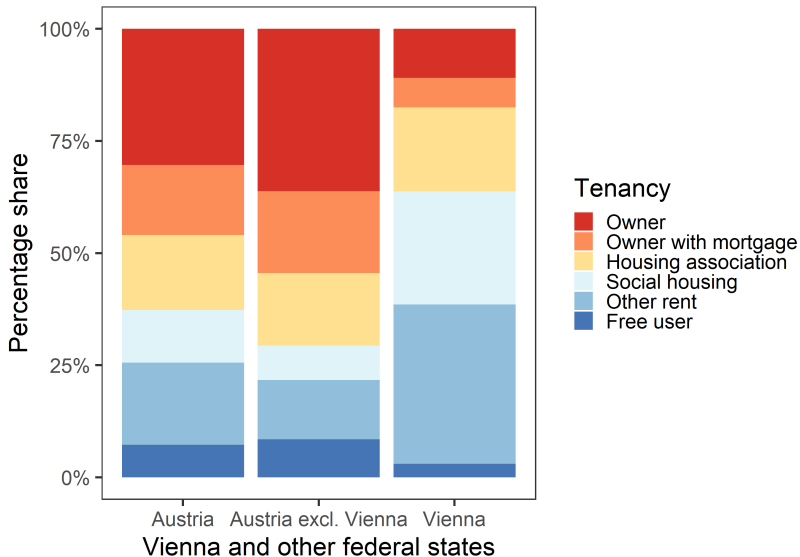


Inequality indicators Data

Component	Indicator	Vienna	Austria excl. Vienna
Real assets	Top 20% share	0.91%	0.70%
Real assets	Ratio p90/p50	57.60	4.48
Real assets	Gini	0.85	0.71
Gross wealth	Top 20% share	0.83%	0.68%
Gross wealth	Ratio p90/p50	15.37	3.98
Gross wealth	Gini	0.79	0.68
Net wealth	Top 20% share	0.84%	0.70%
Net wealth	Ratio p90/p50	14.52	4.74
Net wealth	Gini	0.81	0.70

Inequality indicators for different wealth concepts by regions. *Source:* HFCS, own calculations

Tenancy status Data



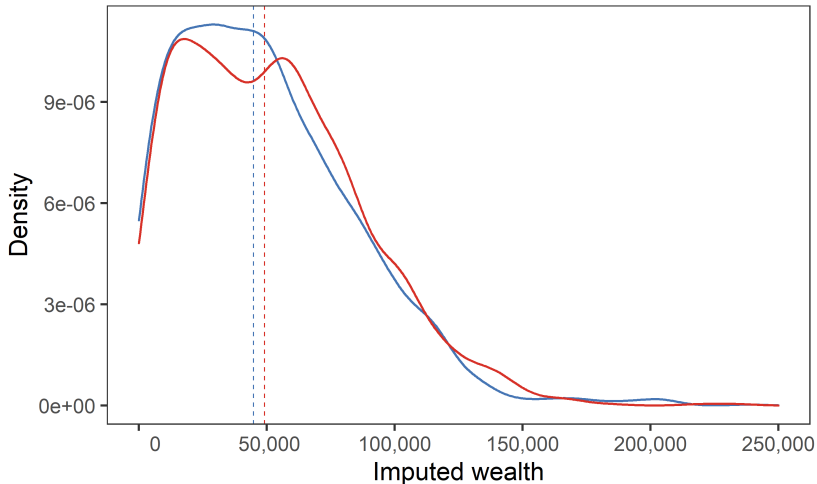
Households with imputed wealth Augmented wealth

Tenure type	Region	Population share
Social housing	Vienna	81%
Housing association	Vienna	60%
Social housing	Austria excl. Vienna	63%
Housing association	Austria excl. Vienna	64%

Population share refers to the share of households in each group (by region and tenure status), who see their wealth increase as a result of the imputation. For the other households, our model predicts a market rent equivalent lower than the actual rent paid. *Source:* HFCS, own calculations

Imputed wealth distribution

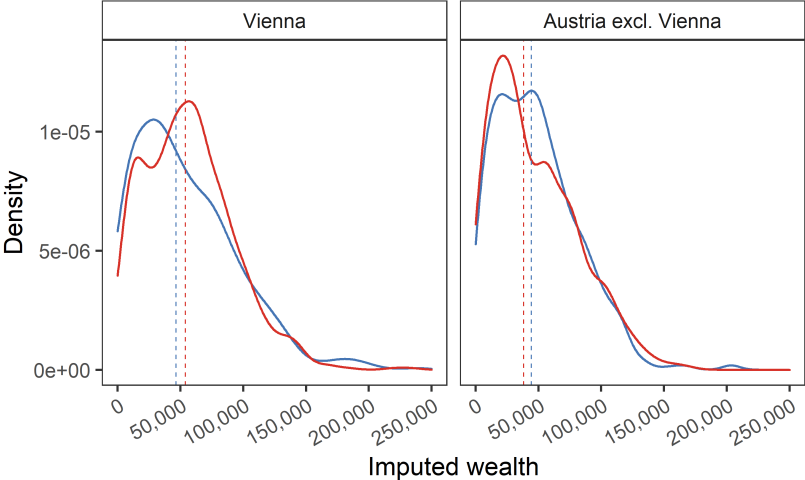
Augmented wealth



Median ■ Renters cooperative ■ Renters council

Imputed wealth distribution

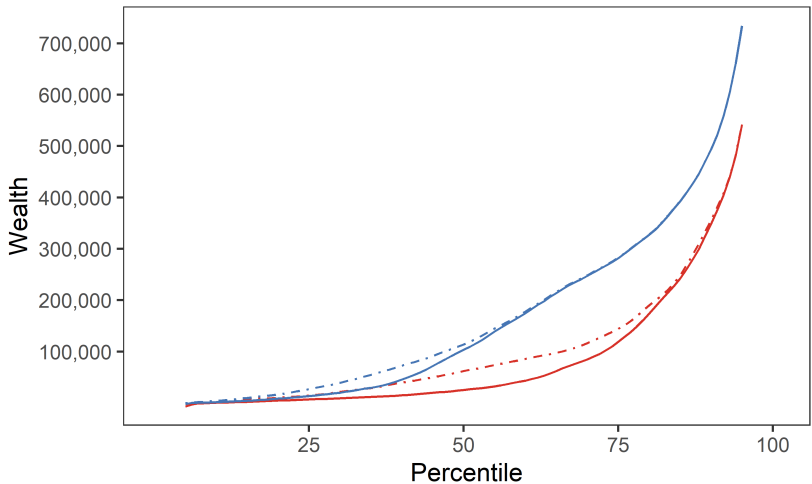
Augmented wealth



Median ■ Renters cooperative ■ Renters council

Augmented wealth distribution

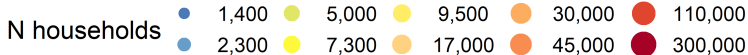
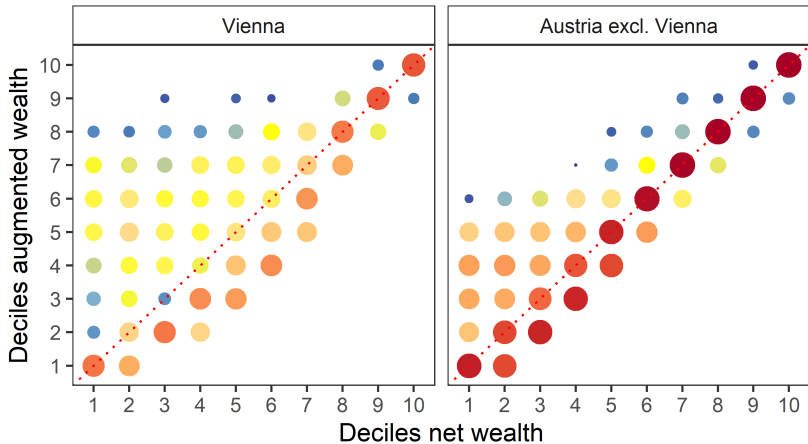
Augmented wealth



— Vienna — Austria excl. Vienna — Net wealth - - Aug. net wealth

Re-ranking

Augmented wealth



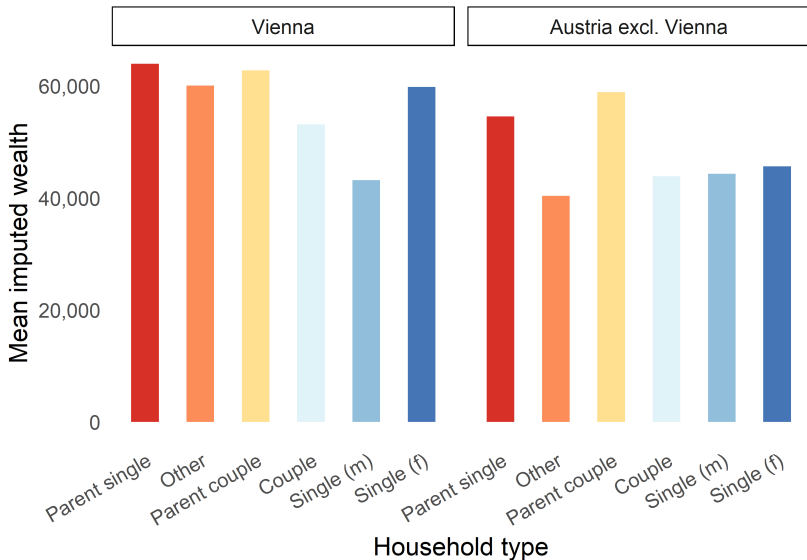
Inequality indicators Augmented wealth

Component	Indicator	Vienna	AT excl. Vienna
Net wealth	Gini	0.81	0.70
Aug. wealth	Gini	0.74	0.68
Net wealth	Ratio p90/p50	14.52	4.74
Aug. wealth	Ratio p90/p50	6.13	4.39
Net wealth	Top 20% share	0.84%	0.70%
Aug. wealth	Top 20% share	0.76%	0.68%

Different inequality indicators for both net wealth and augmented wealth (net wealth incl. imputed components). *Source:* HFCS, own calculations

Horizontal inequality

Augmented wealth



Sensitivity to interest rate

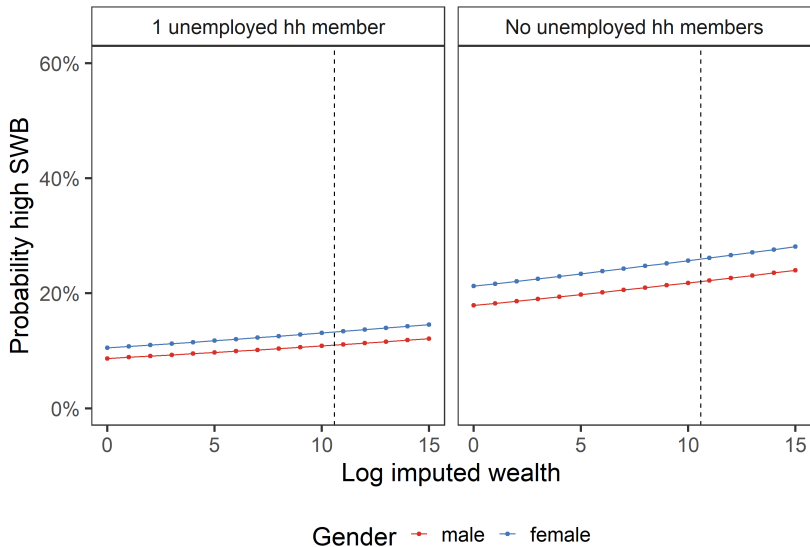
Robustness

Region	Gini	Gini	Gini	Gini
	1.4%	3.0%	4.1%	3.8%/5.5%
Vienna	0.70	0.74	0.75	0.75
AT excl. Vienna	0.66	0.68	0.68	0.69
AT	0.67	0.69	0.70	0.71

Table gives estimates of augmented wealth Gini coefficients by region and for the entire country for various interest rates. The final column applies different interest rates to Vienna (3.8%) and to the other states (5.5%). *Source:* HFCS, own calculations

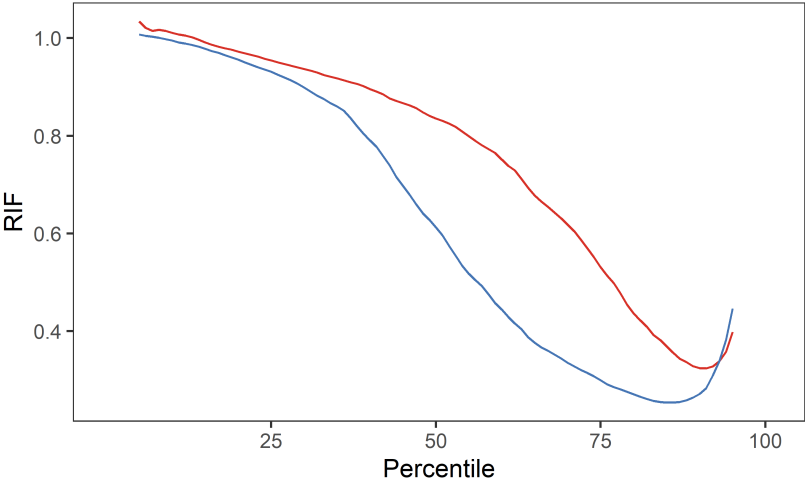
Augmented wealth and well-being

Robustness



Gini RIFs

RIF decomposition



— Vienna — Austria excl. Vienna

RIF regression results

RIF decomposition

region	estimate	se
Vienna	0.096	0.04
AT excl. Vienna	0.26	0.006

Table provides coefficients and standard errors for the relationship between a dummy variable indicating social housing or housing association tenure and the RIF. Estimates are provided for both regions separately. *Source:* HFCS, own calculations

RIF decomposition point estimates

RIF decomposition

Procedure	Gini Vienna	Gini AT excl. Vienna	Explained
Ref=nV	0.809	0.703	53.1%
Ref=V	0.809	0.703	20.7%
Ref=Pool	0.809	0.703	45.7%
Aug. wealth	0.738	0.677	46.8%

Ref refers to the reference coefficient for the OB-decomposition. Coefficients stem from group-wise regressions for Vienna (V) and the other federal states (nV) separately. Pool is a Neumark-style decomposition. Decompositions are performed for each implicate, point estimates mean the average explained variation across groups. *Source: HFCS, own calculations*

Regional differences in public housing infrastructure - social housing and housing associations - can explain some of the differences in regional wealth inequality

We develop an imputation strategy for housing-augmented wealth. Comparing the differences between augmented wealth distributions and net wealth distributions suggests that tenure structure explains 0.47% of regional variation

This result is roughly in line with findings from applying a Gini decomposition approach popular in the literature on housing and wealth inequality

The use of our augmented concept Conclusion

Advantages of augmented wealth perspective

- ▶ If wealth is considered as a measure of well-being, augmented wealth perspective might be desirable for comparative purposes (Bönke et al. 2020)
- ▶ When it comes to distributing national wealth on a personal level, imputing public asset components into household wealth according to some distributive principle might be required (Alvaredo et al. 2021)

But...

- ▶ Conceptual differences exist between public (housing) wealth and private wealth
- ▶ Focusing on one policy area is arbitrary (where to end?)
- ▶ Add uncertainty to an area of measurement that is already imprecise

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RIF regression and decomposition

Parallel approach: RIF regression. Explaining by how much a function of the marginal outcome distribution is affected by changes in the covariate distribution

IF gives the relative change in a distributional statistic of interest if there is a marginal increase in the probability mass of one specific element in the distribution

The influence function of the Gini Coefficient is given by (Choe and Van Kerm 2018):

$$\begin{aligned} IF(y, Gini, F) = & -\frac{\mu(F) + y}{\mu(F)} Gini(F) + 1 \\ & -\frac{y}{\mu(F)} + \frac{2}{\mu(F)} \int_0^y F(x) dx \end{aligned} \quad (4)$$

RIF regression and decomposition

Regress RIF^G on an indicator $K = \mathbb{1}[s_i \in \{3; 4\}]$ using OLS and employ Oaxaca-Blinder decomposition methodology to arrive at counterfactual distributions "net of" social or cooperative housing status

The OLS specification is a linear model estimated for each region separately, where

$$\mathbb{E}[IF(y, Gini, F)|K = k] = \delta + \eta k \quad (5)$$

In a next step, we decompose the difference in inequality between Vienna and the other Austrian federal states using a twofold Oaxaca-Blinder decomposition:

$$\overline{RIF_V^G} - \overline{RIF_{nV}^G} = (\bar{k}_V - \bar{k}_{nV}) * \hat{\eta}_R + \bar{k}_V (\hat{\eta}_V - \hat{\eta}_R) + \bar{k}_{nV} (\hat{\eta}_R - \hat{\eta}_{nV}) \quad (6)$$