Does Happiness Dwell in an Owner-Occupied House? Homeownership and Subjective Well-Being in Urban China

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Motivation

- **Subjective well-being (Self-reported happiness, Life satisfaction)**
  - Cornerstone of **neoclassical welfare economics.**
  - **Housing satisfaction** matters in determining subjective well-being.
  - **Homeownership** influences overall subjective well-being through housing satisfaction.
- **China's housing market is an appealing testing ground for analyzing the homeownership-happiness puzzle**
  - **Culture backgroud:** Home-owning socities vs. Cost-rental societies
  - **Housing market:** Land supply; Household registration system; Institutional deficiencies; Regional imbalances etc.
  - **Real estate:** Consumption good; Investment good

Literature Review

- **Mixed and ambiguous findings on relationship between homeownership and subjective well-being.**
  - Overloaded financial burden offset the positive effects
  - Differences of research backgrounds
  - Unrepresentative sample and lack of heterogeneity analysis
  - Disparate identification strategies
- **Causal relationship remains under-researched.**
- **Influences channels through which homeownership impacts subjective well-being.**

Conceptual framework

- **Hypothesis: a positive association between homeownership and subjective well-being exists.**
- **Cost-benefit analysis of homeownership**
  - **Benefits:**
    1. Inhabitable value
    2. Investment value
    3. Social value added
    4. Intangible psychological benefits
  - **Costs:**
    1. Financial burdens
    2. Holding cost
    3. Maintenance cost

Data

- **Data structure: household-level panel data**
  1. we combine two waves of China household finance surveys (CHFS) in 2011 and 2013.
  2. We keep the households who are renters in 2011 in urban areas and then develop a balanced panel data.
- **Variables**
  1. **Dependent Variables:** we use the self-reported happiness to represent the overall subjective well-being of the household.
  2. **Control Variables:** Individual characteristics and household indicators.

Empirical model

$$SWB_{it} = \beta_0 + \beta change_{i,t} + \theta rto_i + \eta post_t + \lambda \mathbf{X}_{i,t} + p_j + \varepsilon_{i,t} \quad (1)$$

- $SWB_{i,t}$ - i^{th} households subjective well-being.
- $change_{i,t} = tro_i \times post_t$ takes on the value one if household i experienced tenure change from renter to owner between 2001 and 2013.
- rto_i - treatment group
- $post_t$ - year fixed effect
- $\mathbf{X_{i,t}}$ - control variables
- p_j - province fixed effects

$$SWB_{it} = \beta_0 + \beta change_{i,t} + \eta post_t + \lambda \mathbf{X}_{i,t} + h_i + \varepsilon_{i,t} \quad (2)$$

- h_i - household fixed effects

Empirical results: Main results

Table 2 Homeownership and subjective well-being (OLS results)

	Dependent variable: Subjective well-being			
	(1)	(2)	(3)	(4)
change	0.3340***	0.3490**	0.3480***	0.3210***
	(0.11)	(0.14)	(0.12)	(0.11)
rto	−0.1039	−0.2050**		
	(0.09)	(0.08)		
post	−0.2012	−0.0499	−0.1996	−0.1830
	(0.13)	(0.14)	(0.18)	(0.23)
income		0.1677***		0.1581***
		(0.06)		(0.06)
Individual's Controls		√		√
Household's Controls		√		√
Province Fixed effect	√	√		
Household Fixed Effect			√	√
Observations	792	782	792	782
Adjusted R^2	0.07	0.17	0.86	0.87

Notes: This table reports OLS coefficients in baseline DD model in Equations (1) and 2. Standard errors in parentheses are corrected for clustering at the province-year level. Results are adjusted by sampling weights.

Endogeneity

- A potential threat of DD method is that the arrangement of homeownership is endogenous, the OLS estimator will be biased and inconsistent.
  1. We use **matching** (Propensity Score Matching; Corsened Exact Matching)to address the concern of selection-on-observable and common trend problem, and mitigate endogeneity and confounding bias.
  2. We use **Lewbel's estimator (generated instrument variable)** based on heteroscedasticity as instruments for endogenous binary treatment variable in DD specification.

Empirical results: Matching estimations

- DD term remain statistically significant with meaningful magnitudes.

Table 3 Matching estimates of homeownership and subjective well-being

	Dependent variable: Subjective well-being			
	PSM-DID			CEM-DID
	(1)	(2)	(3)	(4)
change	0.2547**	0.2420**	0.2270***	0.2075*
	(0.12)	(0.12)	(0.08)	(0.10)
Controls		√	√	√
Province fixed effect	√	√		
Household Fixed effect			√	√
Year fixed effect	√	√	√	√
Observations	760	756	760	542
Adjusted R^2	0.0025	0.0714	0.4184	0.5217

Notes: Table reports OLS results in DD model with matching methods in Equation (2). The logit model is employed to obtain the propensity scores. Standard errors in parentheses are corrected for clustering at the province-year level. Results are adjusted by sampling weights.

Empirical results: Instrumental variable regressions

Table 4 Instrumental variable regressions

	Dependent variable: Subjective well-being			
	(1)	(2)	(3)	(4)
change	0.3117**	0.3708***	0.3533***	0.3170***
	(0.16)	(0.11)	(0.13)	(0.09)
rto	√	√	√	
Individual's Controls		√	√	√
Household's Controls			√	√
Province Fixed effect		√	√	
Household Fixed Effect				√
Year fixed effect	√	√	√	√
Observations	782	782	782	782

Notes: Table reports IV results in DD model. Standard errors in parentheses are corrected for clustering at the province-year level. Results are adjusted by sampling weights.

Robustness checks

- We employ placebo test by randomly assigning the homeownership to examine the extend to which the results are influenced by omitted variables.

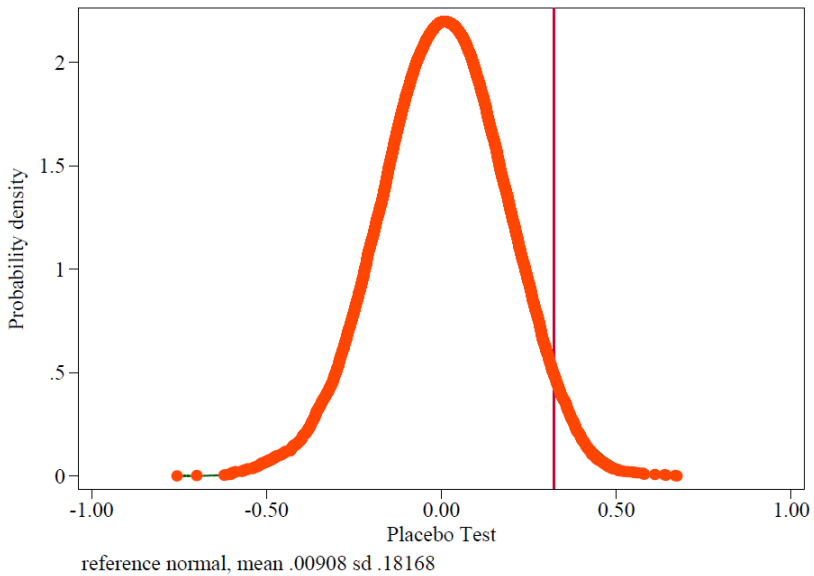

Figure 2. Distribution of DD estimates based on placebo test.

- The results suggest that the positive causal effect of homeownership on happiness is not likely driven by omitted variables.

Heterogeneous treatment effects:

Does financial burden matter?

- We analyze the possibility that the effects of homeownership may be heterogeneous along with the dimensions of household income and liquidity constrains.
  1. we introduce an **interaction term between change and high_income**.The highincome is regarded as a proxy for housing affordable.
  2. we introduce an **interaction term between change and liquidity_constraint**.The liquidity_constraint is regarded as an alternative proxy for housing affordable.

Conclusion

1. Home ownership (full, partial, partial) is positively correlated with life satisfaction.
2. Heterogeneous effect of different types of loan:
   - Having an **informal loan** rather than formal loan would exert a statistically significant **negative** impact on life satisfaction.
   - Having a **housing provident fund loan** is positively related to life satisfaction, while having a **portfolio loan** is negatively related to life satisfaction.
3. **House value** is positively related to life satisfaction, **long house tenure** ($>$ 15 years) is negatively related to life satisfaction.