Subjective Housing Price Expectations, Falling Natural Rates and the Optimal Inflation Target, by Klaus Adam, Oliver Pfaeuti, and Timo Reinelt

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Should monetary policy respond to house prices?

- What are the driving forces for boom and bust in house prices?
  - Relative importance of credit conditions and expectations have been investigated
- Do movements in house prices transmit to consumption expenditures?
- Is housing relevant for monetary policy transmission?
  - relevant through several channels: mortgage rates, wealth effect, life-cycle effects (young home buyers)...
  - Klaus and coauthors new angle: house price expectations

Internal rationality

- Klaus, together with Albert Marcet, developed the concept of theoretically consistent deviations from RE
  - agents are internally rational: fully optimal decisions with dynamically consistent subjective beliefs about the future
  - externally irrational: may not know the true stochastic process for payoff relevant variables beyond their control

- Today's talk is an example of an admirable illustration of why internal rationality matters in a decision-theoretic framework embedded into an equilibrium model.
  The first paper to do this for house price beliefs.

Point 1: house price expectations are key to understanding house price fluctuations

- External irrationality
  - subjective expectations weakly extrapolate past housing capital gains into the future
  - fits data patterns in survey expectations and data (price to rent)
  - model with RE does not fit these data patterns

Point 2: house price expectations impact optimal monetary policy

- Model elements: sticky prices and housing investment
  - role for aggregate demand
  - non-neutrality of monetary policy
  - household substitutes between housing services-investment and consumption
- Internal rationality
  - distorted beliefs distort the allocation of output between housing investment and non-housing consumption
  - monetary policy has to lean against the (house price expectations) wind to reduce the distortion in the allocation of output

Household problem

$$\max \; E_p^{\mathcal{P}} \sum_{t=0}^{\infty} \beta^t \left[u(C_t; \xi_t^c) - \int_0^1 v(H_t(j); \xi_t^h) + \xi_t^d (D_t + D_t^R) \right]$$

$$C_t + B_t + D_t \frac{q_t^u}{u_C} + k_t + R_t D_t^R = (1-\delta) D_{t-1} \frac{q_t^u}{u_C} + \xi_t^a \frac{k_t^\alpha}{\alpha} \frac{q_t^u}{u_C} + \text{income}$$

- D_t stock of owned houses
- D_t^R units of rented houses
- ξ_t^d housing preference shock
- q_t^u real price of houses in marginal utility units
- k investment in new houses
- $\xi_t^a \frac{k_t^\alpha}{\alpha}$ production of new houses

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Optimal housing choice (interior choice $D_t \in [0, D^{\max}]$)

$$q_t^u = \xi_t^p + \beta(1-\delta) E_t^{\mathcal{P}} q_{t+1}^u$$

Mechanism: housing beliefs distort consumption choices

- $E_t q_{t+1}^u$ higher
- Higher demand for housing, invest more in k_t
  - higher price to rent ratio $\frac{q_t^u}{\xi_t^d}$
- Substitute away from consumption

Comment on mechanism

- Housing kept simple to focus on the role of beliefs. This provides a very elegant solution
  - new house price gap in the Phillips curve: optimistic beliefs decrease non-housing consumption
  - housing price gap impacts the natural rate of interest
  - new welfare loss term: housing price gap

- Some alternative (realistic) housing sector modeling could counteract the mechanism
  - **Remortgaging could counteract consumption fall**: optimistic belief shift leads to fall in leverage (price increases, debt not). Remortgaging can facilitate higher consumption.
  - **Optimistic beliefs could lower homeownership.** House price beliefs do not impact rent and rental choices in the model. But a lower rent-to-price ratio in another setting could lead to higher demand for renting and lower house ownership.

- In the model **flexible housing market** - immediate investment in new houses. If the short-run supply of housing is fixed, belief shifts will impact rental prices.

Asset pricing

Do movements in house prices transmit to consumption expenditures (and asset prices)?

- Separable utility+RE: no
  - stochastic discount factor not dependent on housing
- Nonseparable utility: yes
  - stochastic discount factor depends on changes in the expenditure share on housing (composition of consumption bundle) (Piazzesi, Schneider, Tuzel 2007)
- $E_t^{\mathcal{P}}$ even with separable utilities: yes, housing impacts consumption plans
  - subjectively pessimistic expectations, decrease housing investment plans, through equilibrium increase numeraire consumption plans

Some observations on heterogeneity

Optimal housing choice

$$q_t^u = \xi_t^p + \beta(1-\delta)E_t^{\mathcal{P}} q_{t+1}^u \tag{1}$$

- Representative agent β linked to real interest rate.
- I will show you some interesting evidence on heterogeneity that can matter for monetary policy transmission with internally rational but heterogeneous agents.
- Point 1: There is substantial heterogeneity in $E_t^{\mathcal{P}} q_{t+1}^u$
- Point 2: Housing demand (ownership) depends on preferences (beliefs)

Heterogeneity of house price expectations by income (Italy)

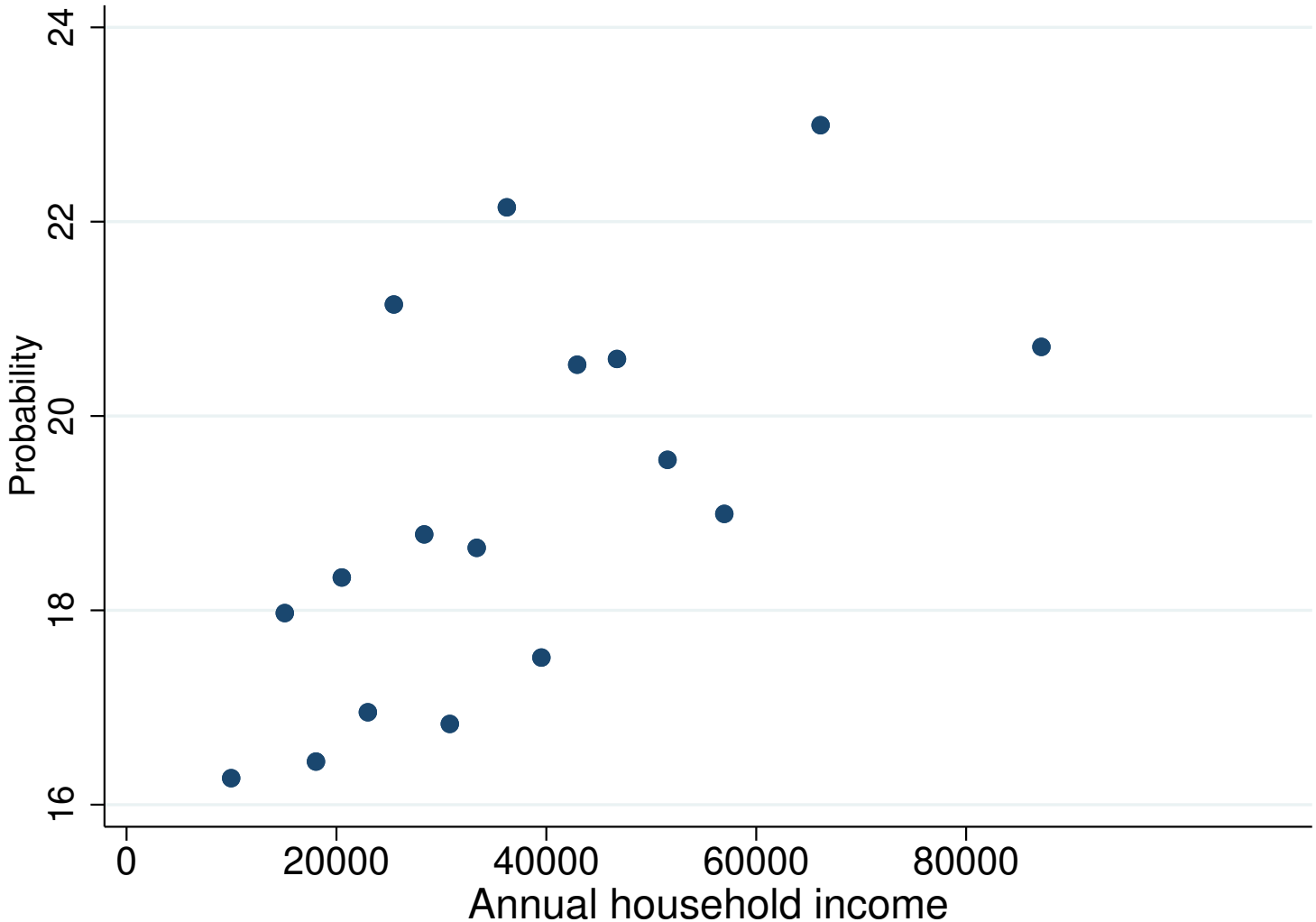


Figure: Probability of a house price decline (2010 SHIW survey)

Italy house price index

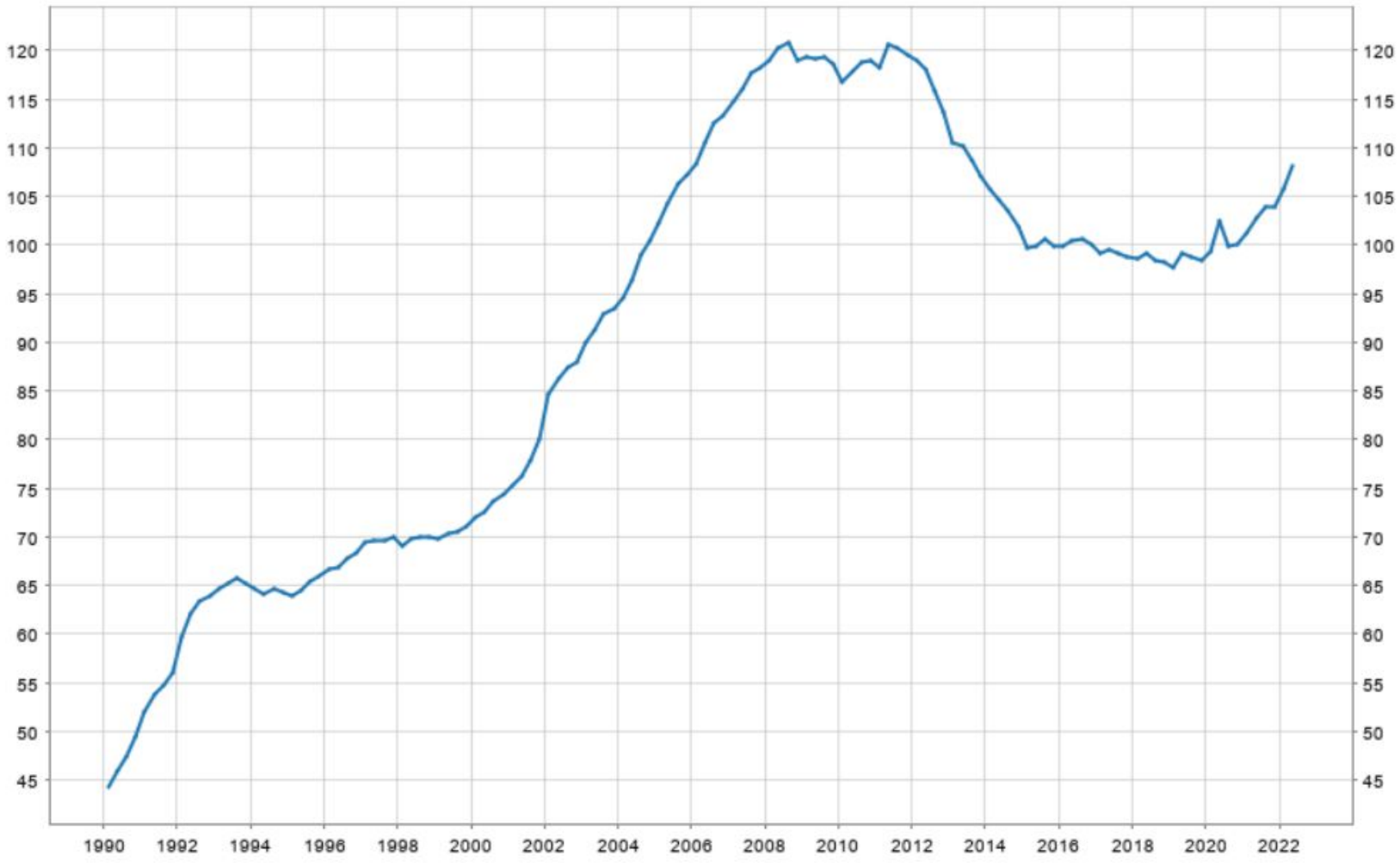
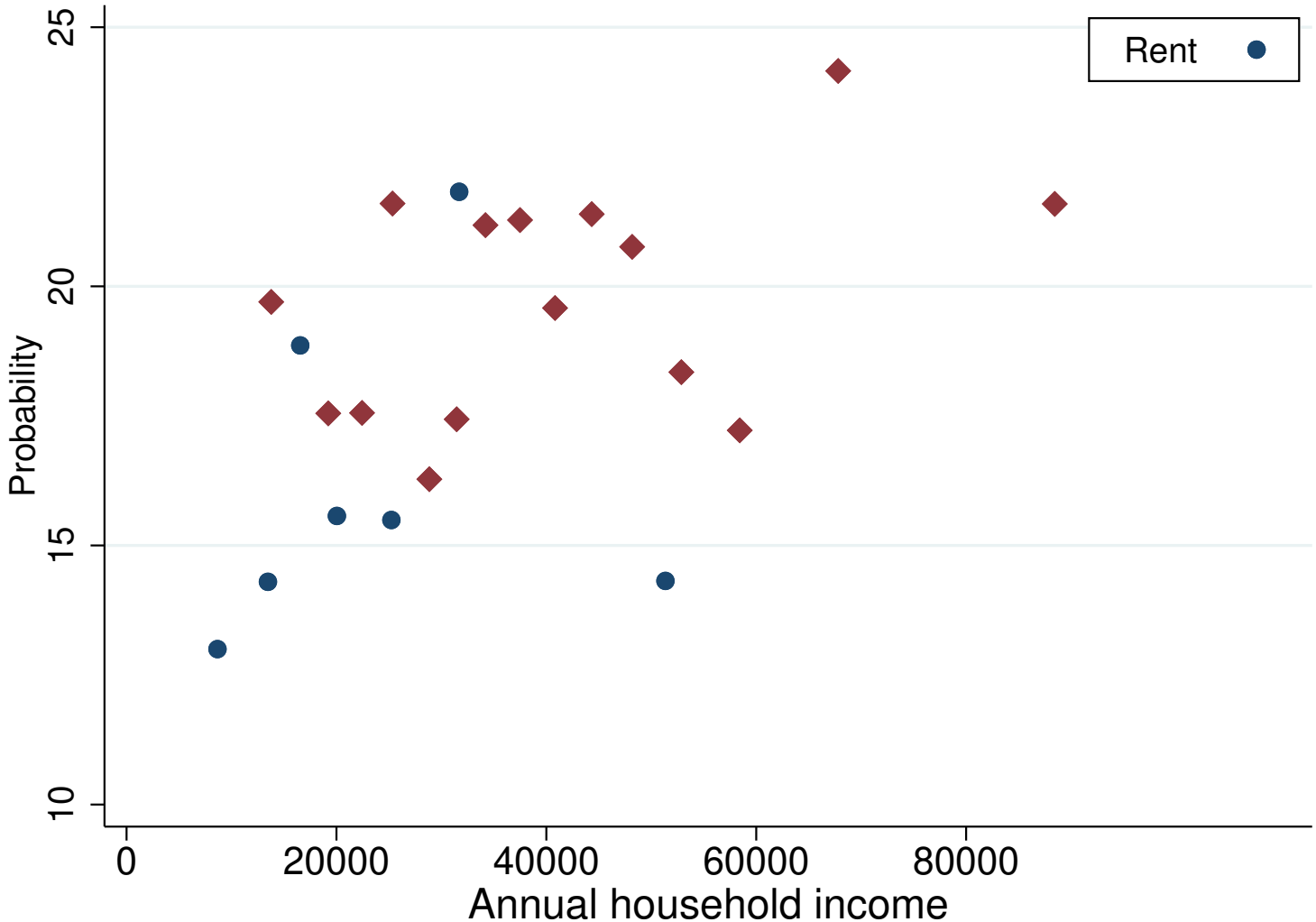


Figure: Transaction value - Index; Residential property, All dwelling types, new and existing
Source: ECB Statistical Data Warehouse

House price expectations by ownership



If all agents share beliefs, pessimistic house price expectations $\Rightarrow$ demand less housing, price/rent declines.

If the rental sector does not share beliefs - countervailing force.

Heterogeneity of house price expectations by patience

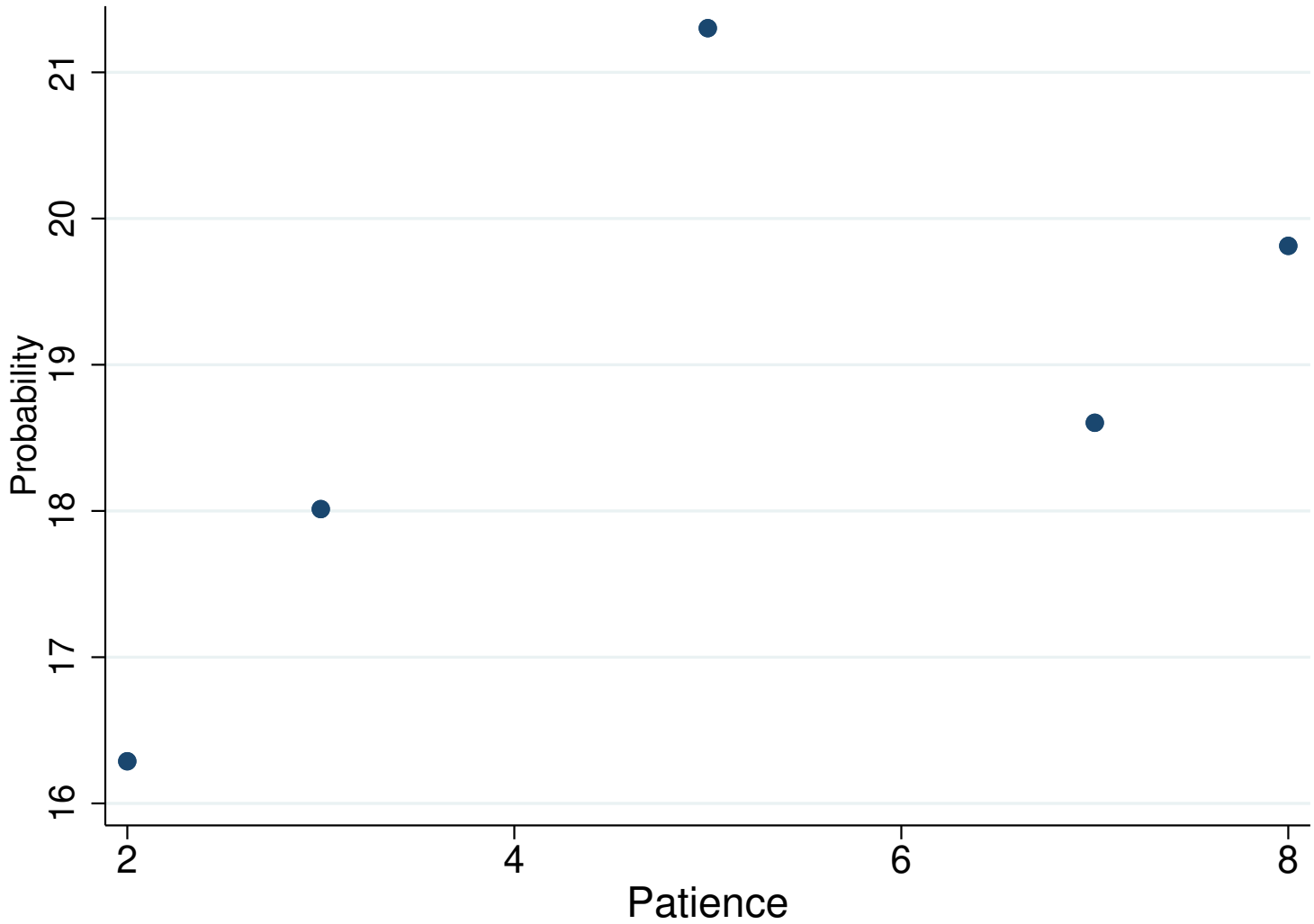
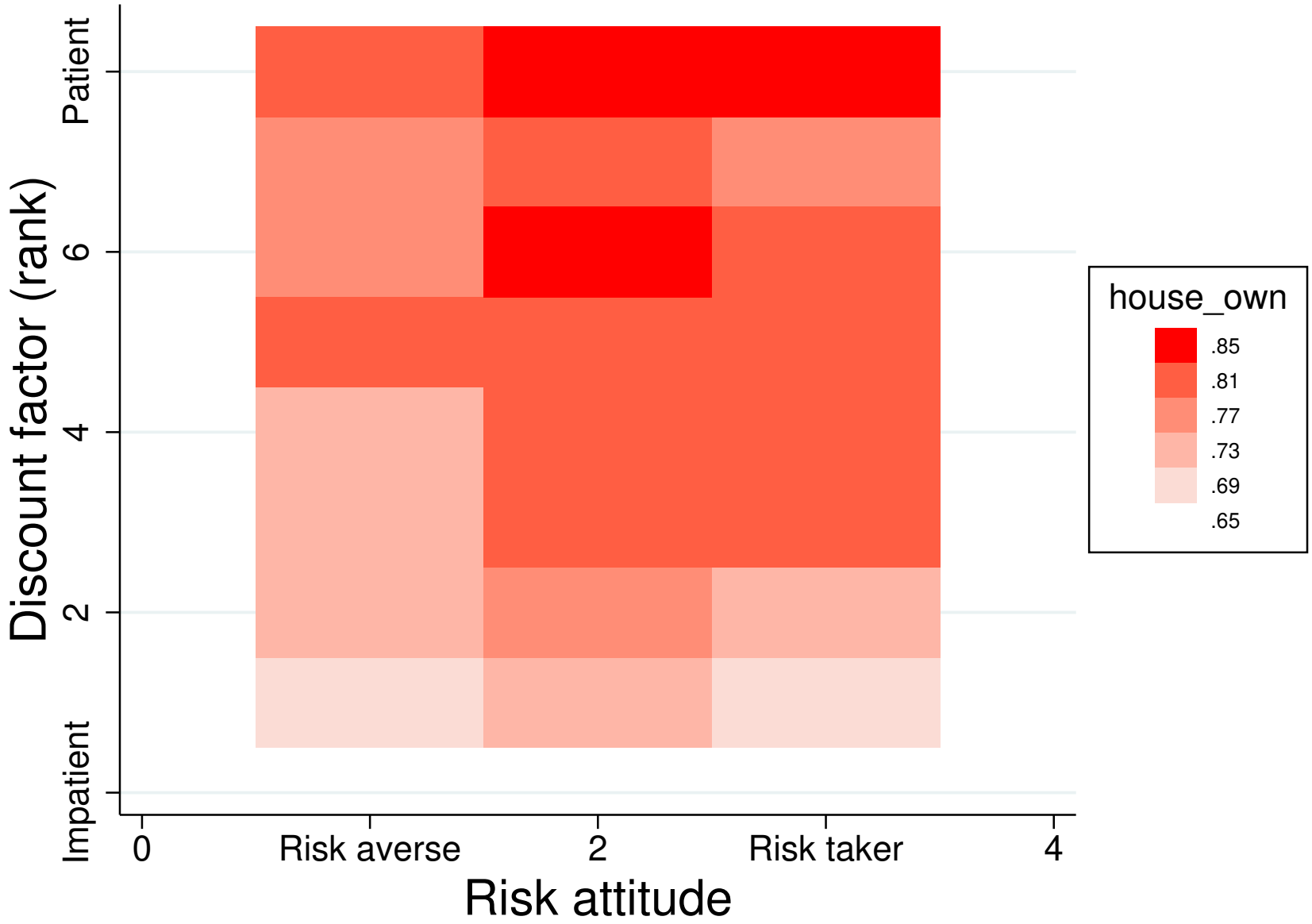


Figure: Probability of a house price decline (2010 survey)

Home ownership share - Italy



Heterogeneity in beliefs/preferences

- Heterogeneity in liquid/illiquid asset choices key for monetary transmission (Kaplan, Violante)
- Housing is the most important illiquid asset
- Internal rationality with heterogeneity in subjective house price beliefs/deep preferences would impact monetary transmission
- I think heterogeneity in belief updating a promising next step

Macroprudential policies

- Optimal housing taxes in this framework too volatile
- Can LTV ratios improve welfare?
  1. Could LTV ratios be welfare improving with internal rationality?
     - Limit over-investment in housing?
  2. LTV ratios in a heterogenous agent framework crowd out middle-income earners from the housing market (Karlman, and Kinnerud 2022)
     - switch from owners to renters
     - buy later
     - weaker monetary policy transmission: their MPC decreases