

Investigation of housing market supply

Student

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Subject area

- Price dynamics analysis
 - Construction of price indices
- Investigation of demand
 - Search models
 - Optimal buying time
- Investigation of supply
 - Relationship between list price, sell price and time on market
 - Effects of sellers' characteristics on prices and marketing time

Problem setting

- Sellers' behavior in the housing market (sellers' discount factor)

Hypothesis

- Different strategies of real estate agents and private individuals
- Discount factor of real estate agents is higher
- Private individuals are more heterogeneous

Literature review

Horowitz J.L. “The role of the list prices in the housing markets theory and an econometric model” (1992)

- Derivation of list and reservation prices that maximize the utility function
- The estimated model predicts sale and reservation prices conditional on list prices
- Sellers are homogeneous!

Literature review

Piazzesi M., Schneider M. “Momentum traders in the housing market: survey evidence and a search model” (2009)

- Heterogeneity of individuals (optimism about housing and the economy)
- Search model
- Small number of optimists can drive up the average transaction price

Literature review

Springer T.M. "Single-Family Housing Transactions: Seller Motivations, Price, and Marketing Time" (1996)

- Impact of seller's motivation on selling prices and marketing time
- $P_i = f(X_i, M_i, O_i), T_i = f(X_i, M_i, O_i)$
- Reducing the list price fosters faster sales at the sacrifice of the selling price
- Dynamics is not considered

Literature review

Gan Q. "Optimal selling mechanism, Auction Discounts, and Time on Market" (2013)

- Selling with recall
- Stopping rule is either number of buyers or amount of time
- Seller aims to maximize his expected utility $U(K)$
- $K(T) = Y_{N(T)} - cT$ or $K(N) = Y_N - cT(N)$
- Sellers with different levels of risk aversion may prefer different selling mechanisms

Literature review

- Carrillo P.E. “To sell or not to sell” (2011)
- Sellers maximize their expected gain from search
- Optimal behavior: reservation price should be such that seller is indifferent between selling and continued search
- More motivated sellers choose lower mark-ups

Literature review

Knight J.R. "Listing price, time on market, and ultimate selling price: causes and effects of listing price changes" (2002)

- List price revision may be treated as a change in seller's reservation price
- The revision of list price depends mainly on the length of time the house is on sale and the initial mark-up
- More impatient sellers are more willing to revise the list price downward if they did not sell a house fast

Data

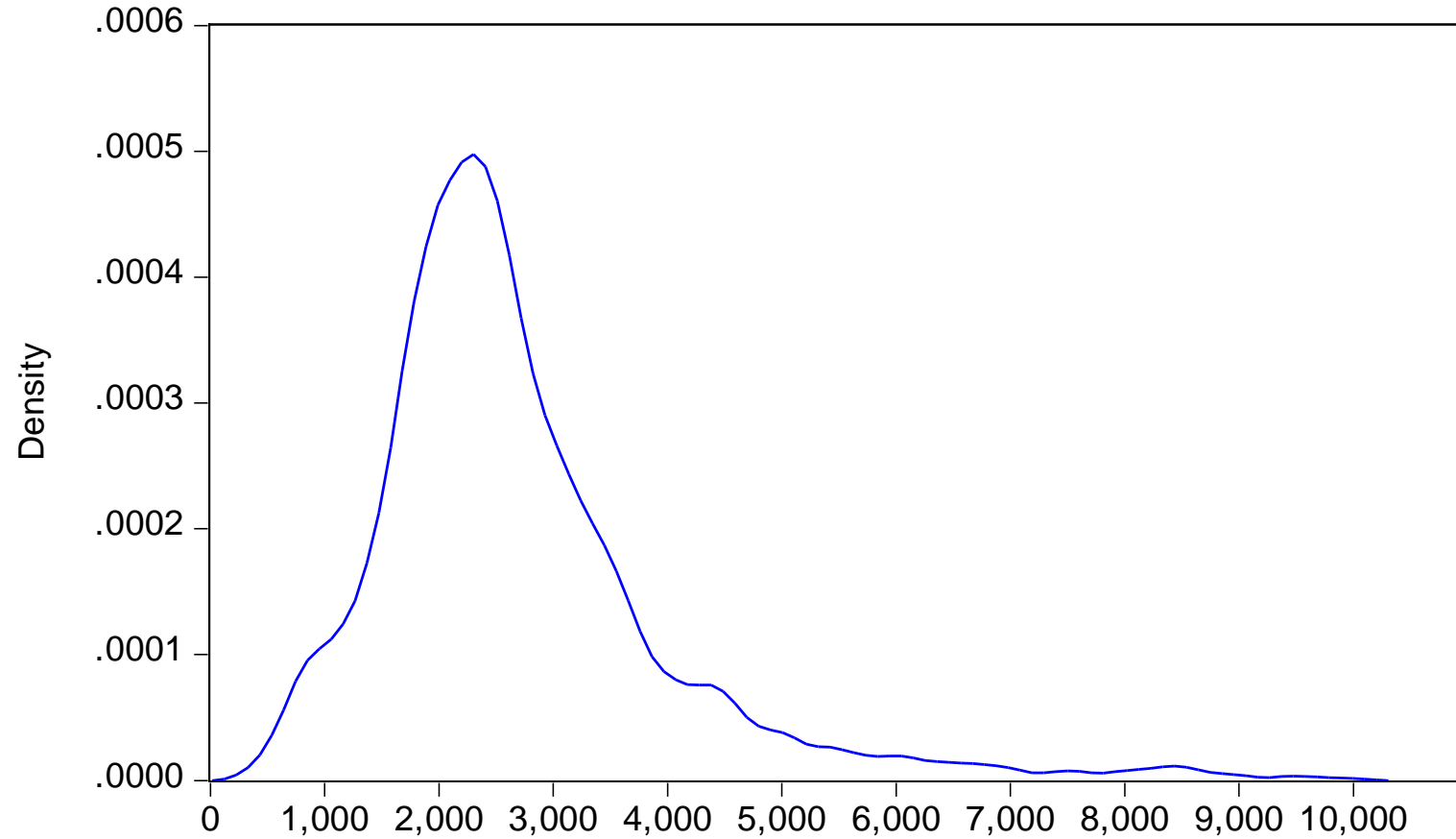
- Metrosphera.ru
- Advertising for sale of flats
- 27.10.2014 – p.t.
- Daily data
- Unbalanced panel

Data

- Ads are placed for 1 week
- It is allowed to place no more than two ads using one account or you may pay for placing more than 2 ads
- Any part of the ad can be edited
- Prolongation is free, while upping is not free

Data

PRICE



Mean	2702,4
Std. dev.	1323,9
Max	9999
Min	330

Data

- Number of rooms

Value	Count	Percent
1	5408	35.23
2	5347	34.83
3	3916	25.51
4	625	4.07
5	56	0.36
Total	15352	100.00

Theoretical model

- Every time moment a seller receives a bid from a distribution centered on the “true value” of flat (which is latent but depends on property characteristics) and right-censored on current list price
- The seller's decision at each step: $P_{it} = f(P_{i,t-1}, X_i, \delta_i, M_t)$
- The seller maximizes his expected utility of selling
- $V_t = \max_L \{P_t; \delta V_{t+1}\}$

Limitations

- The assumption that the apartment was sold in case when it disappeared from the website
- Selling prices are not observable
- There are unobservable characteristics of flats and neighborhood which affect list prices