Heterogeneity of sellers in housing market: Difference in pricing strategies

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ABSTRACT

The present study analyzes Perm, Russia residential housing market supply focusing on sellers' heterogeneity. Many indicators of heterogeneity were considered in the previous research, and all of them were proved to have a great impact on housing prices and time on the market. However, the gap exists in evaluating sellers' pricing strategies in dynamics mostly because of unavailable data. Current study clears out the effect of time on price using data on asking price dynamics. We employ semiparametric sample selection estimation procedure which accounts for the unobserved property characteristics and non-random selection of objects out of the sample. We consider two main types of sellers: real estate agents and property owners, and show that real estate agents appear to be more impatient compared to property owners. Specifically, they set a lower asking price initially and are more likely to revise it over time if the object is not sold.

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1. Introduction

The housing market is a market with heterogeneous sellers trading durable goods. Like in any other market, the state of the housing market is determined mostly by its agents' behavior. The literature related to housing demand is extensive, while much less attention has been paid to the research of the supply side. In this paper, we expand on the existing literature by focusing on sellers' motivation.

The residential housing market is driven by two main types of sellers: private individuals (property owners) and real estate agents. The degree of sellers' motivation may depend on various factors. Some people want to sell a property faster for different reasons: due to a job change, or because they have already found a new place of residence, etc. Such impatient owners usually hire real estate agents to make a deal as fast as possible. Other sellers are ready to wait longer, for instance, when they want to change residence to have better living conditions and did not find an ap-

propriate alternative yet. Also, owners may not hurry with the sale when they get an apartment in the inheritance and want to sell it to receive money. In this cases, owners are likely to sell the property themselves.

Consequently, sellers are heterogeneous in motivation and have different selling strategies. This hypothesis is partially supported by preceding papers. Levitt and Syverson (2008) give evidence on the different motivation of real estate agents depending on whether they sell their own houses or provide services for sale to others. Authors also discuss the possible difference in selling strategies of private individuals and real estate agents, however, they do not have an opportunity to test these suggestions empirically as they lack the data on FSBO sales.

The fact that the behavior of real estate agents differs from that of property owners is supported by Hendel et al. (2009). In particular, empirical results reflect that time on the market is not the same for properties sold by real estate agents and private individuals. However, the dynamics of prices is not considered, hence there is no evidence of a difference in pricing strategies across time between these groups of sellers.

Our research is based on the assumption that a seller has an option to revise the list price according to market reaction to the

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initial asking price. The crucial hypothesis is that different types of sellers have different incentives to sell and pricing strategies when a property is unsold. Since real estate agents are selling a property for the commission from both owner and buyer, they tend to drop the price faster to shorten the marketing time and increase the number of deals. At the same time more patient owners who sell a property by themselves drop the price slower to obtain a higher revenue from the deal. In order to test this difference, we use the data on the dynamics of asking prices, which is expected to reflect sellers' motivation. We contribute to the literature on sellers' behavior in the housing market by collecting the unique data set. It contains information about flats on sale in Perm secondary residential housing market for the period October 2014–February 2015, so we observe the dynamics of every advertisement from placement till removal.

Another distinctive feature of this paper is that the analysis of behavior is conducted simultaneously for two groups of sellers' real estate agents and private individuals, whereas the majority of papers typically consider only one of these groups. Unlike the Hendel et al. (2009) we use the offers listed on the same MLS by different types of sellers which makes the comparison of types cleared from the effect of listing platform size. The two-step model used for estimation takes into account endogeneity of property (offer) characteristics and nonrandom withdrawal of offers from the sample. The main result of the research shows the difference in dynamics of asking prices across two main types of sellers, i.e. we evidenced the heterogeneity of sellers in terms of their pricing strategies.

The remaining part of the paper is organized as follows. The second section presents literature overview of academic work on the housing market, especially sellers' behavior. Then we discuss the data. In next section the econometric specification of the model is presented along with the estimation procedure. Empirical results are shown in the fifth section. The last section concludes.

2. Theoretical background

There are numerous studies that analyze the supply side of the housing market. In this field three topics are prevailing: determination of the optimal asking price (Arnold, 1999); examination of the relationship between asking price, selling price, and time on the market (Anglin et al., 2003; Horowitz, 1992); identification of the influence of sellers' characteristics on prices and time on the market (Carrillo, 2011; Gan, 2013; Knight, 2002; Piazzesi and Schneider, 2009; Springer, 1996).

Setting the price for real estate is an important decision in a process of sale because asking price affects the number of interested buyers (Arnold, 1999). The decision about asking price determines the success of the sale, in particular time and price of the sale. On the one hand, setting a low asking price will attract many buyers, but the sale price may be low (Horowitz, 1992). On the other hand, a high asking price may attract buyers who are willing to pay more, but the probability of receiving a higher bid may be much lower (Yavas and Yang, 1995; Merlo et al., 2015).

Although asking price is a key factor affecting the probability of sale, there are other factors that may influence it. For instance, the probability of sale may depend on the distribution of buyers' offers, seller's reserve price, and time on the market, i.e. duration of the sale (Thanos and White, 2014; Yavas and Yang, 1995).

Some of the studies consider that sample of houses that are sold more frequently than others is not random (Gatzlaff and Haurin, 1997; Hwang and Quigley, 2004; Jud and Seaks, 1994). These papers indicate that the probability of sale is not the same across houses with different characteristics. In particular, the probability of a sale for small houses is, on average, the highest. Consequently,

when evaluating real estate prices it is necessary to use the correction for non-random selection and attrition of observations.

Some of the papers related to the research of housing market are devoted to the study of sellers' behavior in terms of the choice of reserve and asking prices (Anglin et al., 2003; Horowitz, 1992). The main conclusion obtained in these studies is that seller's reserve and asking price have a significant impact on sale price and duration of the sale. However, these studies are based on the assumption that the optimal price is the same for all sellers. In other words, they do not consider the heterogeneity of sellers, which can have a considerable effect on sellers' strategic decisions.

The aforementioned thesis is confirmed in later papers. The issue of sellers' heterogeneity and its impact on market parameters was investigated using Texas data on broker sales (Springer, 1996). The behavior of sellers was defined according to various characteristics and comments listed in the MLS (Multiple Listing System). Evaluation of the system of equations, which includes two linear hedonic functions for the sale price and the duration of the sale, revealed that sellers' motivation has a significant impact on sale prices. In particular, sellers with the highest desire to sell, on average, sell a property cheaper. The conclusion is very straightforward: the desire to sell an apartment quickly forces sellers to sacrifice their profit. In addition, empirical results show that the reduction of the asking price allows selling an apartment quicker. However, this study has an important drawback: cross-sectional data do not allow to consider changes in market conditions and sellers' motivation. Moreover, duration of the sale is an endogenous variable along with the sale price, because the model does not take into account asking price, which affects both the time on the market and the sale price. For this reason, obtained results can not be considered as consistent.

The issue of the influence of sellers' characteristics on their behavior was addressed in many papers using different indicators of sellers' heterogeneity. Gan (2013) and Genesove and Mayer (2001) studied the relationship between sellers' attitude to risk and their strategies. Carrillo (2011) considers the attitude to risk and bargaining power as measures of sellers' heterogeneity. Knight (2002) argues that sellers' motivation is determined by the markup, different comments in the advertisement, and whether a house is vacant. Optimism about housing market conditions and state of economy as a whole can be also regarded as a motivation indicator (Piazzesi and Schneider, 2009). Thus, measures of heterogeneity can be different, but all of them have a great impact on sale prices of property.

It is difficult to evaluate motivation by the use of quantitative data, therefore survey is often conducted to get necessary data (Glower et al., 1998; Piazzesi and Schneider, 2009). Glower et al. (1998) revealed the following indicators of sellers' motivation: the desired number of days before removal, scheduled date of removal, relocation because of a job change, completed purchase of a new house. According to the results, these measures of a heterogeneity influence sale price and time on the market of the property, but not the markup. However, the study takes into consideration only FSBO sales. In Piazzesi and Schneider (2009) sellers' behavior is explained from the point of view of how they are optimistic about the economic situation and state of the housing market. For instance, how they assess the conditions of receiving a loan, current prices, future price dynamics, etc. The results indicate that even a small fraction of people, who estimate current market conditions as favorable, can have a considerable effect on the average prices of real estate.

All the above-mentioned studies use the information about sale price, time on the market of the property, and the initial asking price. Only a few studies take into account the dynamics of asking price (Knight, 2002; Merlo et al., 2015). Knight (2002) argues that the reduction of asking price may reflect a change in seller's re-