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Historical perspective of residential development and its impact on the current market prices of apartments on the Czech real estate market

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Abstract

Historical development of residential housing is likely to have had certain influence on the current market prices of apartments. It is therefore important to ensure that the influence is correctly evaluated and adjusted to eliminate other factors. The influence is identified in relation to the probable motives and preferences relating to demand. The methodology is based on the formation of a comparative database of apartments, as homogeneous as possible, across different periods of construction on the Czech real estate market which can be divided into specific periods of time, each having their own characteristic features. Each database corresponds with a city with distinctive differences defined. The compiled and modified database can be statistically tested using linear parametric and non-parametric models. The findings indicate existence of price differences across the individual periods of construction, and facilitate a formulation of a functional (graphic) expression of the dependence for individual cities as well as an aggregate for the entire Czech market, i.e. a global curve. Subsequently, other possible causes, apart from the demand, are discussed.

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1. Introduction

Generally, various factors determine real estate market and affect market prices. It is important to evaluate at least the relative expression of factors affecting the price more than others. The main objective of this paper is to clarify the relationship between current market prices of apartments and the period of their construction on the

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Czech real estate market. It is not uncommon for the supply of apartments to provide (in larger cities) units which are more than a hundred years old. In these cases we deal with very old apartments whose cost of rebuilding has been reduced due to extensive wear with market influences still acting on them. Such cross-sectional interaction will probably be showing at different periods of the construction differently.

This paper was written with a partial contribution of colleagues' work (Sojakova, 2013; Cernosek, 2014; Stary, 2013; Walter, 2013; their thesis at vutbr.cz). Each of them was processing data within a particular locality of research.

2. The market price of flats, historical development of residential houses and their estimated relationship

2.1. Theoretical background

The research is based on the area of the real estate market, property valuation and statistical models explaining the factors influencing the market price (market value).

Various significant market factors may cause the market value of a property to significantly deviate from its material value (price based on costs). This fact is well illustrated on apartments and residential buildings. In general, it is obvious that we need to understand the building costs (replacement costs) of an apartment and its market value as two different values related to the same asset.

2.2. Previous research on the issue

The market price of a real property is conditioned by a number of qualitative and quantitative variables, which are then able to explain it in certain proportions according to the individual property. The estimate of the market value (definition in IVSC, 2011 and Tegova, 2012) can be roughly calculated by hedonic models or other tools. These may include a linear regression model with a link to a specific location with GIS application (Din, 2001) and classical concept of housing submarkets with hedonic modelling in the framework of the valuation process (comparative approach – IVSC, 2011) on price data from Belfast (Adair et al, 1996). The classical regression models often may appear heteroscedasticity in this type of data, which can be reduced by using generalized least squares as an estimating technique (Fletcher et al, 2000).

Preferences of demand on real estate market are generally difficult to determine, especially as regards the site selection and its parameters. One such research was carried out in the Wasatch Front region in Utah (Liao et al, 2015). The results derived from a latent class analysis reveal significant heterogeneity in residential location preferences. To be able to assess individual sites and their attributes, we need to analyze them in detail in order to achieve at least a relational structure. From a statistical perspective, factor analysis and cluster analysis (Bourassa et al, 1999) can be used to define specific submarket principal component analysis.

Knowledge of the local market can be attributed to general information asymmetry in real estate transactions. We can say that well-informed buyers prefer better localities and thus further enhance their quality. However, these buyers can achieve other benefits in the transactions, for example some form of discounts (Chinloy et al, 2013).

Apartment markets are distinguished by specific properties and influences, for example, state influences, the form of ownership, and usually sizable liquidity. Except for the usual parameters of trading, apartment submarkets also need to be considered. The research study on apartment submarkets in Dublin shows that different submarkets responded differently (Berry et al, 2003). For full identification and explanation of processes on a particular submarket, it is important to identify housing stock, as shown in detail on the example of Bratislava (Halas, 2007).

This paper deals with the issue of the market value of residential buildings, or more precisely, apartment units within them, depending on the location in the city. The value in historical centers is both symbolic and social (Millan-Millan et al, 2014). The primary subject of the paper must therefore be a relatively homogeneous location with the representation of various types of buildings (from a historical perspective) to compare their price level. The apartments must be compared according to certain comparable categories (size, condition, equipment).

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