

The Estates Valuation Models in the Developing Markets

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INTRODUCTION

- Nowadays, authenticated deeds contain transaction prices for real estates sets or urbanized estates with complicated structure.
- Such deeds can be neither used for market analysis, nor for similar estates market value estimation.
- For such authenticated deeds, there is a need to divide the whole estate value into unit transaction prices of all estates elements.
- Obtaining solution of this problem enables the use of information from authenticated deeds in the analysis of real estates market and estimation of cadastral and market value for real estates.

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INTRODUCTION

- The model of dividing transaction price into separate estates elements prices is presented in the paper.
- The transaction number is often smaller than number of elaborated elements for estates being rarely subject of trade, so applying conditional model of unit prices for estates elements is necessary for the estimation process.

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THE MODEL CONSTRUCTION

- To divide transaction price into separate estates parts prices on criteria of their destination in local spatial plan and type or function of buildings, it is necessary to prepare equations for each estates group
- Generally, such an equation has the following formula :

$$S_1 \cdot (\tilde{c}_1 + \delta_1) + S_2 \cdot (\tilde{c}_2 + \delta_2) + \dots + S_i \cdot (\tilde{c}_i + \delta_i) = C_T$$

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THE MODEL CONSTRUCTION

- These symbols are explained below:
- C_T – the transaction price of elaborated estate,
- S_i – the area of every i-element (parcel, parcel parts having defined soil classes, flat or building usable areas or whole building),
- \tilde{c}_i – i-element approximated unit price,
- δ_i – i-element approximated unit price random remainder.

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THE MODEL CONSTRUCTION

- The conditional model for unit estates prices application is going to give proper results only if the appropriate estates components prices approximations (\tilde{c}_i) have been calculated earlier.
- The estates components prices vary for different real estates markets.
- Coefficients of mutual proportion for estate elements unit prices can make the reference level for differing estates markets.

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THE MODEL CONSTRUCTION

- The proportion coefficients of estates elements unit prices structure can be delivered from replacement value analysis.
- In order to achieve it, the average replacement values for unit of estates element and then coefficients of mutual proportion should be elaborated.
- All this ought to be done not only for each building type, but land as well.
- The coefficients of element prices shares in the whole estate price should be obtained earlier.
- When elaborating these values some specifics of local markets should be taken into account.

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THE PARAMETERS ESTIMATION

- The conditional model that is shown as the set of equations, have the solution when the transaction number (j) is smaller than number of elaborated elements (i)
- The random remainders (δ_i) of approximated values (\tilde{c}_i) for estates unit prices are the estimated values of this model.
- The set of equations have the following form in the matrix notation
- $$\{S_w\} \cdot \{\delta\} = \{\Delta C\}$$

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THE PARAMETERS ESTIMATION

The meaning of symbols:

- $\{S_w\}$ – orthogonal horizontal matrix that consists of elaborated estates areas,
- $\{\delta\}$ – random remainders of approximated values for estates elements unit prices,
- $\{\Delta C\}$ – matrix made of results of subtraction between transaction and approximated model prices for the whole estates.

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RECAPITULATION

- The conditional model presented in the paper enables the separation of the whole transaction price into the prices of elementary estate parts.
- Its application for any types of estates requires mutual proportion coefficients prior calculation for the unit prices of estates elements.
- These coefficients will be used for the proper calculation of approximate values for estates elements unit prices that are required in the conditional model.

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RECAPITULATION

- The calculation of unit price for every estates component enables us using information from authenticated deeds in the real estates market analysis.
- Moreover, it provides us with information for estimation of similar estates market and cadastral values.
- Calculating, processing and managing information concerning unit prices of estates elements may be important step in fiscal system reform in Poland.
- It can also be very supportive in tax changes from tax based on area into one based on value.