RECONCILIATION OF RESEARCH PROBLEM METHODOLOGICAL APPROACHES OF REAL ESTATE APPRAISAL IN SETTLEMENTS

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Statement of the problem

On the basis of coordination of evaluation results are procedure of final judgments about the ultimate goal of examination. In this case - determining the most probable expert money estimation of land, taking into account socio-economic factors and civil restrictions that affect the estimated value and conditions of sale or purchase. For the coordination of evaluation result in all cases should be guided by the basic rule of professional appraisers - the principle of reasonable care. This principle implies in conditions of insufficient information security of payments, uncertainty interim judgments, without the possibility of objective justification for the benefits of a result of making the most pessimistic estimates.

Connection with important scientific and practical problems

There is no generally certain and accepted method of aligning evaluation results in evaluation theory.

Famous American authors do not give specific recommendations on how to make the process of harmonization. For example, Harrison [1] believes that when during the coordination of result evaluator collects data and parameters value obtained using three approaches and evaluates them using the method of causal analysis which leads to the reasonable conclusion about the market value of the assessment object. Thus, it is necessary to clearly define the nature and amount of the ordered works and start weighting the different data and approaches to problems.

An analysis of recent research and publications that started a solution of this issue

According to Eckert [2, 3] "thorough assessment of concordance of the results provides a brief analysis of used information, assessment of its quality and scope, establishing the relative strength or weakness of each of the approaches used for a specific object property." Because of this, it is not possible to deduce the arithmetic mean of the three results of the assessment and not necessarily that one of the results will be final. The purpose of the study is to calculate the approximate value of the market value, defined as the most likely selling price and the value of this can not be the result obtained from the three assessment methods. The ultimate value valuation will be determined by somewhere between them. However, it is not clear how this cost between them search?

Friedman and Horde [4] believe that coordination - a kind of "examination of conscience", that is the decision-making process, but not a process of mechanical choosing of the mean value from the application of the three approaches. An appraiser may use statistical calculations for develop probable distribution. You can then consider the range within which shall be located the desired number of value.

Remaining parts of the general problem

In world practice real estate appraisal is a problem harmonize methodological approaches to assess the market value of a single property that is to solve two important problems:

1. To ensure the reliability of the results.
2. Promptly perform assessment work on time.

These problems are solved by the implementation of duplicate payments for each object from a comparison of the results and conclusion of the relevant harmonized evaluation. Requirements for the implementation of these duplicate payments and adjustment obtained estimates fixed by the international valuation standards. This requirement leads to an increase in the complexity of evaluation work at least three times, but does not solve the problem of reliability assessment.

Problem

Develop a method of harmonization of evaluation results, the results of which would be understood by all stakeholders, and would not cause to doubt. For example, the International Financial Reporting Standards set simple and clear rule: if the result of the cost approach exceeds the value of the cost, then you will need to perform an impairment that is taken for truth the result of the income approach.

The main material

Valuation - the process of modeling of logic potential buyer and performance at a higher professional level of assessment procedures (now the evaluation procedure performed on an intuitive level, and only in exceptional cases are made serious calculations), the majority opinion of the investors about the value of object will be in range between the values obtained used the methods and the more precise definition is possible by using the average between them in equal or unequal (in some cases for a method of zero), their specific values. On the basis of analysis of evaluation results is procedure justification of the final judgments about the ultimate goal of peer review. In

this case - a definition based on market factors, the most probable value of land based on socio-economic factors and civil restrictions that affect the estimated value and conditions of sale.

For the coordination of evaluation results in all cases should be guided by the basic rule of professional values - the principle of reasonable care. This principle implies in conditions of poor information security of calculations, uncertainty interim judgments, without the possibility of objective justification for the benefits of a result of making the most pessimistic estimates. For the purpose of evaluation was used as provided by the Land Code of Ukraine, expert money estimation.

Market value, the definition of which is based on the principles of market conditions, highest and best use, of expected changes and profitability of land takes into account individual traits of land and economic situation at the moment of evaluation. Therefore market value is displayed as the most probable price at which an object can be sold on the open competitive market at the moment, that coincides with the date of valuation, providing all signs of an honest deal and in the absence of atypical terms of financing taking into account that term of realization object must be in this case reasonably long.

Results of the evaluation of the same object made by different appraisers in accordance with the methods of coordination may differ more than twice. Therefore method of subjective weighting in our conditions, can not be applied, as well as expert method, which is on the verge of subjective and mathematical weighting - are established weight is subjective, but subsequent calculation is done using the mathematical apparatus.

Method of aligning of evaluation results should reduce the errors of the final value of current (PV) of the assessment object. To do this:

1. Quantitatively express reliability (K) of some of the results obtained by three methodological approaches: costly (K_V), comparative (K_P) and profitable (K_D);

2. Using values K as weight coefficients to calculate the final value of the object PV , as an average of the values obtained by three methods:

$$PV = PV_V \cdot K_V + PV_P \cdot K_P + PV_D \cdot K_D \qquad (1)$$

PV_V, PV_P, PV_D - current values of the evaluation object.

K_V, K_P, K_D - reliability weight coefficients, where $K_V + K_P + K_D = 1$

3. Assign reliability weight coefficients based on the importance of their contribution to the outcome of the assessment.

Of course the use of these requirements will always exist some relative error. Such an approach is founded on the famous advice of René Descartes: If before you there a difficult task, then break it into subtasks, each of which in its turn break up the into even less sophisticated subtasks, etc. - As long as no subtasks will remain so simple that you are able to solve. It is important to find and justification the possible managerial decisions for more effective use of the potential settlement, increase the impact of the expenses as the economy of the settlement as a whole, and for some the most important areas, businesses and organizations. Thus, the cadastral property valuation will enable more fairly apportion land payments predict the consequences managerial decisions, to create advanced tools to change the existing land use systems for harmonization the development of human settlements. Therefore without detailed analysis of the major problems of land use on macro-and micro-economic level, modeling the consequences of such decisions, privatization of real estate human settlements as seen from practice leads to the loss of effective management development town and is great damage to the interests of residents. Application of methods and approaches cadastral valuation of real estate human settlements will increase the filling state and local budgets to 25-30 percent of all the cash inflows and accordingly establish valid tax and rental payments for real estate settlements [9]. For obvious, we propose such an algorithm harmonization results of the assessment real estate objects (pic.).

Consider an example. During the execution of real estate appraisal found that the value of the assessment object by costly method is 650 thousand USD, comparative method - 580 thousand USD and profitable way - 700 thousand USD. After analyzing the results we consider that in the specific circumstances of this evaluation is the most accurate method of comparison and therefore assign it weight $R_P = 100\%$, reliability income approach 20% below the benchmark $R_D = 100\% - 20\% = 80\%$ and reliability of costly method is 35% lower than the benchmark, then $R_V = 100\% - 35\% = 65\%$.

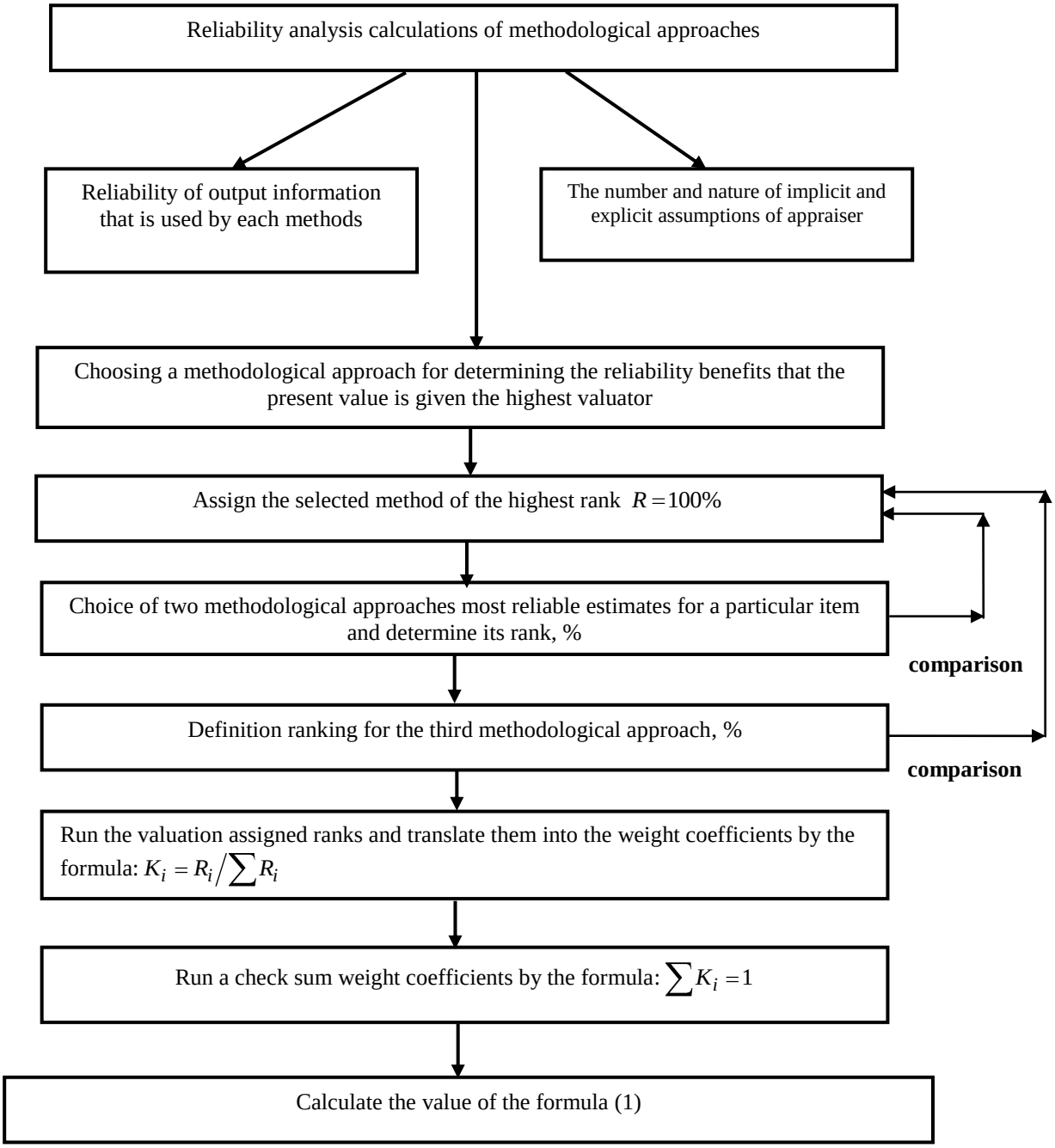
Assigned ranks translate to weight ratios:

$$K_P = R_P \Big/ \sum R_i = 100 / (100 + 80 + 65) =$$
$$= 100/245 = 0{,}41$$

$$K_D = R_D \Big/ \sum R_i = 80 / (100 + 80 + 65) = 80/245 = 0{,}33$$

$$K_V = R_V \Big/ \sum R_i = 65 / (100 + 80 + 65) = 65/245 = 0{,}26$$

Check $\sum K_i = 0{,}41 + 0{,}33 + 0{,}26 = 1$.



Pic. Algorithm coordination of results of evaluation properties.

Calculate the final value of the assessment object by the formula (1).

$$PV = 650 \cdot 0{,}26 + 580 \cdot 0{,}41 + 700 \cdot 0{,}33 =$$
$$= 169 + 237{,}8 + 231 = 637{,}8 \textit{muc.y.o.}$$

If coordination takes more than one expert, but a few, while increasing the quality of coordination and error estimates are reduced compared with the errors of one appraiser. In this case, the values are taken as an average of the estimates of some experts and are defined as follows:

$$R = \frac{\sum R_j}{n}, \qquad (2)$$

$j = 1..n$ (n - number of experts in the group).

It should also to note characteristics which affect reliability of evaluations by different methods computing:

-reliability of baseline information;

-cash flow information;

- information about the general economic situation in the country;

-the number and the character assumptions used in calculating the appraiser; permanence of future revenue streams;

-permanence to discount rates;

- infinity future revenues;

-permanence of inflation indicators (deflation);

-permanence rates and tax structure;

-permanence of the speed of the physical and functional of wear of the assessment and so on.

Market real estate revenue heterogeneous and therefore it is advisable to submit in three main groups:

-Buyers who are purchasing real estate directly for use.

-Buyers who are purchasing property for investment of temporarily idle assets, investors.

-Buyers who are purchasing property for resale.

Weight coefficients represent the probabilities of purchase of the facility assessment representatives of three groups: users (value of the cost approach emerges as value in use), investors (value of the income approach - the investment cost) and sellers (value of the comparative method - the base price for sale property on the market).

Equation (1) is the expectation of the price offered by the facility in the market based on the probability of belonging to a potential buyer of a group. Equation (1) can be represented as follows:

$$PV = PV_V \cdot K_V + (-K_V) K_D \cdot PV_D + \\ + (-K_V)(-K_D) K_P \cdot PV_P + \\ + (-K_V)(-K_D)(-K_P) > 0 \qquad (3)$$

$(-K_V) K_D$ - the likelihood that the buyer is an investor, provided that it is not user;

$(-K_V)(-K_D) K_P$ - the likelihood that the buyer is engaged resale property, provided that it is not the investor and non-users;

$(-K_V)(-K_D)(-K_P)$ - the likelihood that the buyer does not belong to three main groups.

When you open a the brackets in formula (3), the sum of the coefficients is equal to 1, and the data coefficients represent a probability of belonging to a potential buyer of one of the segments of each may be crossing. Therefore, the coordination of the three methodological approaches using formulas (1) and (3) becomes a strictly scientific character.

The main complexity of these methods is to obtain the probability for the following reasons:

- underdevelopment of the real estate market for certain types of income real estate, that is even possible lack of registered cases for sale;
- lack of information about the actual price of the transaction;
- difficulty setting market lease payments;
- the complexity of determining the aggregate depreciation of property;
- imperfect development of the real estate market;
- difficulties of establishing motivation agreements.

General approach to solving these problems, in our opinion, is the creation of appropriate commercial information services, where final product should be a periodic newsletters and pay reference concerning research on particular market. It is also necessary to accumulate all sorts of information about the real estate market in own information bases.

Conclusions

The article has explored our proposed method harmonize methodological approaches in the evaluation of real estate settlements. The mathematical dependence and procedure to resolve the problem of harmonization of evaluation procedures through the introduction of rank coefficients. Research proves the theory of rational expectations, which is what the market value of emerging market entities expectations of future real estate.

Commentation

Reconciliation of research problem methodological approaches of real estate appraisal in settlements

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The article presents mathematical dependence and matching procedure to solve the problem of evaluation results through the application of rank coefficients. The research proves the theory of the rational expectations, which is to the market value of the expectation of market subjects formed by the future benefit from ownership of property.

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