

Comparison of Results of Normative And Expert Monetary Valuation For Taxation Purposes

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Summary. The possibility of expert monetary valuation using as a mass evaluation for taxation is analysed in the article. The comparison of results of normative monetary evaluation and expert monetary valuation of lands is conducted. Expert monetary valuation gives real value nowadays, but lack of basic gate of evaluated objects makes it impossible to use in practice. **Key words:** normative monetary evaluation, expert monerati valuation, mass monetary evaluation of lands, land tax, a plot of land, settlement, market value, objects of real estate.

With the development of the market and, most importantly, education of taxpayers there is a task of valuation evidence that is presented to a particular taxpayer.

TASK SETTING

Compare results of normative and expert land plot evaluation and possibility of their use for taxation.

PROBLEM STATEMENT

In Ukraine, the most common types of land valuation are normative and expert monetary ones [15, 18]. In countries with the developed land market for regulation of land relations, the appraisal by mass methods is used. We can therefore expect that, in some time, Ukraine will also use it broadly.

Massive monetary land valuation in Ukraine, is normative one and is used to determine the amount of the land tax, the state duty in case of exchange, inheritance and donation of land according to the law; the rent for the land plots which are in state and municipal property; losses of agriculture and forestry and also losses after the development of indicators and mechanisms of economic incentives for rational use and protection of land.

ANALYSIS OF RECENT STUDIES

Nowadays in Ukraine there is active forming of the real estate market, and a growing number of professionals and government agencies realize that the real estate tax system should focus on the account of the real estate market state, and prices for it [4, 5, 13, 14, 19]. Important contribution is being made by Andriychuk V.G, Drapikovskyy, Danylenko A.S, Lyhohrud M.G, Shpychak O.M, Mesel-Vasylyak, Fedorov M.M, Tretiak A.M. and other [1, 6, 17, 11, 10].

THE MAIN MATERIAL

Methodical bases for the implementation of normative monetary valuation are Methods of monetary valuation of agricultural land and settlements, approved by the Cabinet of Ministers of Ukraine dated March 23, 1995 [15, 16].

Procedures with the same name were approved to the subordination of these methods.

“Due to the procedure of monetary valuation of agricultural land and settlements” the procedure of its implementation, which is done in three stages, has been defined [16].

At the first stage the target (average for a given locality) price per square meter of the built-up land, which depends on the location of the settlement in the national, regional and local systems of production and resettlement and the level of development and improvement of the area, is defined.

At the second stage the target price is differentiated within the settlement in accordance with economic planning zones, which are determined according to the heterogeneity of functional and planning area characteristics that affect the amount of rental income: the difference of accessibility into the levels of engineering maintenance and improvement of the area, development of services, the environmental quality of the territory and attractiveness.

At the third stage the price per square meter of land of specific functionality is defined taking into account terri-

torial and planning, engineering and geological, historic and cultural, natural landscape, sanitary and infrastructure peculiarities of the plot location.

According to the Methods of monetary valuation of agricultural land and settlements monetary valuation of a square meter of land is determined (Vg) by the formula 1:

$$Vg = \frac{C \times Rr}{Rc} \times Cf \times Cl, \quad (1)$$

where:

C – rate of costs of development and improvement of the territory per 1 m² (UAH),

Rr – rate of return (6%),

Rc – capitalization rate (3%),

Cf – coefficient characterizing the functional use of land (for housing and community development, for the industry, etc.),

Cl – coefficient characterizing the location of the land.

The coefficient characterizing the functional use of land (Cf) takes into account the relative profitability of existing within it economic activities and is set for certain categories of built-up plots: residential building, industry, mining and opencast, commercial use, transport and communication, technical infrastructure, landscape and recreational areas and other open land.

The coefficient that takes into account the location of land (Cl), takes into account also the impact of the location rent on the general rental income.

The value of the given coefficient in accordance with the “Procedure of monetary valuation of agricultural land and human settlements”, is conditioned by three groups of rent forming factors: of regional, zonal and local character, is calculated (Cl) by the formula 2:

$$Cl = Cl_1 \times Cl_2 \times Cl_3, \quad (2)$$

where:

Cl_1 – coefficient that describes the dependence of rental income on the settlement location in regional and local systems of production and resettlement – regional factors,

Cl_2 – coefficient that characterizes the dependence of rental income on the degree of urban development of the value of the town territory (economic and planning zone) – zonal factors,

Cl_3 – coefficient that characterizes the dependence of rental income on the peculiarities of the location of land within the economic and planning zone – local factors.

Works on the normative monetary land valuation is done every 5-7 years. As of 31.12.2012 the normative monetary evaluation was conducted in 29471 settlements. By 2006, the normative monetary evaluation was conducted in 3122 settlements of Ukraine, which is 11 %, since 2006 to 2010 – 8100 (27%), 2011 – 6751 (23 %) 2012 – 11498 (39%) [12].

For comparison, we conduct some calculations of normative and expert monetary valuation of land in the town of Dolyna of Ivano-Frankivsk region.

The costs of development and improvement of the territory include: engineering services and construction at val-

ue – 94,491.337 UAH, area improvement and landscape gardening – 11,073.700 UAH, road network – 67,843.760 UAH. The total costs – 173,408.797 UAH. The basis for calculating the costs of development and improvement per 1 m² is the estimated area equal to the area of the built-up area of Dolyna – 6 213,567 m².

Thus, the costs of development and improvement of the territory of Dolyna are:

$$173,408.797 \text{ UAH} / 6,213,567 \text{ m}^2 = 27.91 \text{ UAH/m}^2$$

The next element to determine the target price of the settlement land is the calculation of the regional coefficient $Km1$, which characterizes the dependence of rental income on the location of the settlement in the national, regional and local systems of production and resettlement, and the zone coefficient $Km2$, which characterizes the dependence of rental income on the degree of urban planning value of the city territory. The coefficient $Km1$ is a product of coefficients that take into account:

$$Cl_1 = C_{1-1} \times C_{1-2} \times C_{1-3} \times C_{1-4} = 1, \quad (3)$$

where:

Cl_{1-1} – administrative status of the settlement and its place in the system of settlement in Ukraine (table 3.2 “Procedure of monetary valuation of agricultural land and human settlements” [16],

Cl_{1-2} – entering the suburbs of large cities (Table 3.2. “Procedure ...”),

Cl_{1-3} – availability of the status of a resort town (Table 3.4. “Procedure...”),

Cl_{1-4} – entering the zone of radiation contamination (Table 3.5. “Procedure ...”).

The target price per square meter of land in Dolyna is:

$$Vgm = \frac{27,91 \times 0,06}{0,03} \times 1,0 = 55,82 \text{ UAH/m}^2.$$

The scope and the amount of economic and planning zones, and the values of the coefficients $Km2$ are not predetermined parameters, but the result of valuation of the settlement territory taking into considerations factors [8]. After analyzing the functional and planning structure of Dolyna 36 assessed areas have been identified.

Calculation of the complex territory valuation index of the assessed areas is done by weighing the individual indices which were calculated as a result of evaluation taking into considerations factors. To determine the weighting (calibrating) coefficients the method of correlative analysis was used (coefficients of pair correlation were weighted between the values of individual indices).

As a result of the economic and planning zoning of the settlement in Dolyna there were allocated 16 zones and calculated monetary valuation of 1m² of land within the economic and planning zones. The highest price per square meter of land – 68.66 UAH/m², the lowest – 42.42UAH/m².

The magnitude of the rental income of a particular area is influenced not only by zone factors but also local ones and the functional use of land.

Local peculiarities (Km³) of the land location within the economic and planning zone should play some importance in assessing the land. Situational land location, presence or absence of network engineering infrastructure, the location of architectural monuments or their absence on the territory of the plot may (by 1.5 times) increase or decrease its value and, thus, affect the ultimate monetary valuation of land.

According to the “ Procedure ... “ the maximum number of local factors that can be applied in monetary assessment is 30. All local factors are divided into six groups (functional and planning, engineering and infrastructure, geotechnical, historical and cultural, natural and landscape and sanitary), depending on the nature of their formation. Some factors (14) has a rising effect on the price of the land, and the remaining 16 factors – a lowering effect.

For example, we define normative valuation of the land for commercial use with the aim to serve the shop located in 13 Khmelnytsky Street. Total area of buildings – 75.20 m², building area – 90.00 m², building volume of a structure – 300.00 m³, area of the plot – 111 m².

Taking into account local factors and functional use, the price of the land is 17,268.27 UAH., as per 1 m² – 155.57 UAH.

For the same plot we calculate its value using an expert way.

Expert monetary valuation of the land is based on the following methodological approaches: a comparison of asked prices of similar plots, capitalization of net income, taking into consideration the costs of land improvement [2, 3, 7, 9].

According to the method, based on the comparison of asked prices of similar plots, the estimated value of land is determined at the level of the asked price of similar plots as follows:

$$C_{lp} = C_a + \sum_{\gamma=1}^m \Delta C_{a\gamma} \quad (4)$$

where:

C_{lp} – estimated value of a land plot, determined by comparing the sale price of a similar land plot, Hr.,

C_a – sale price of a similar land plot, Hr.,

m – the number of factors of comparison,

$\Delta C_{a\gamma}$ – difference (amendment) in the sale price (+, -) of a similar land plot, which is evaluated by γ factor of comparison.

Net operating income is defined as the difference between income prevailing at the market of rents for the land and its improvement, and the annual cost of maintenance and using of the land.

Within this methodological approach to the valuation of the land its two types are used: direct and indirect capitalization.

In direct capitalization of net income the estimated value of the land is given by:

$$Cd = \frac{D_o}{S_k} \quad (5)$$

where:

Cd – estimated value of a land plot determined by direct capitalization of net income, Hr.,

D_o – the annual net income (actual or expected), Hr.,

S_k – capitalization rate (coefficient).

The methodological approach based on consideration of the costs of land improvement is used in the assessment of built-up land plots providing their effective use.

$$Cn = Cs - B \quad (6)$$

where:

Cn – nominal value of land (land balance),

Cs – the expected sale price of the land plot,

B – expenses on implementation of improvements on the land plot.

Taking into account the nature of the object of assessment and the available information, to determine the estimated value of the land we use the spending methodical approach by the method of balance and distribution of income. According to the method of balance for the land, the land value is determined as the difference between the present value of the capitalized net operating income (or rental value) of the improved land plot and the cost of land improvements. The method of distribution of income involves determining of value of the land as the capitalized one at the rate specified for the land, the difference between net operating income from the improved leased land and the expected return on invested capital in land improvements. In this case, the expected revenue from land improvements is defined as the product of their value and capitalization rate for improvements.

The process of calculating the estimated value of the land due to the balance method can be divided into two stages:

1. determining the expected asked price of the built-up land by the method of capitalization of net income from the built-up land,
2. determining the costs of land improvements.

Table 1. Cost of objects-analogy leasing data

№tr/n	Address	Space, m ²	Wear and tear,%	Availability of communications	Price of lease (including VAT), UAH	
					Total	1 m ² m ² m ²
1	Open joint stock company "Dolyna motor depot" Dolyna, 49, B.Khmelnytsky St. offices are leased, the ground floor of a two-storey adminbuilding, tel. 25090, the middle part of the town	46,60	30	electric lighting, water, sewerage, heating, in an average state, simple repair, common sanitary unit in the corridor	4660	100
2	Dolyna, B.Khmelnytsky St. room for a shop easy approach road from the highway Stryy – Ivano-Frankivsk tel. 0505625214	22	20	electric lighting, water, sewerage, telephone, in a good, autonomous heating	3300	100
3	Dolyna, S. Bandera St., the central part of the town, office	30	15	European-quality repair, all communications, approach road from the yard	1950	65

Profit from the built-up land is determined on the basis of the land lease of similar land property. Table 1 presents information about the premises that can be viewed as analogues for the assessed room.

Thus, the average rental rate per 1 m² of commercial premises is 51,85 UAH/ m². Annual income from the leased premises is determined by the formula 6:

$$P_n = C \times S, \quad (7)$$

where:

C – the rate of the annual rental per 1 m² of the leased premises ($C = 622,20$ UAH/ m²);

S – space of the leased room ($S = 75,20$ m²).

Thus, the potential gross profit gained from the rent of the given premises will be 46798 UAH per year.

Table 2. Annual cost of building operation and maintenance

№	Index	Value, UAH
1	Management cost	9020
2	Rental	705
3	Repair and maintenance	4800
4	Contingencies	450
	Total	14975

According to forecasting, annual costs paid by a lesser of operation and maintenance of a given building will be 14975 UAH (32% of the efficient gross profit), namely with the estimated appropriation (table 2).

Consequently, the net operating income of the build-up land will be:

$$46\,798 - 14\,975 = 21\,606 \text{ UAH.}$$

To calculate the capitalization rate we use the method of cumulative building that is to sum interests for different types of risks inherent to the object and the basic rate of interest (risk-free).

In Ukraine, it is most advisable to use in a role of the risk-free rate the rate for short-term deposits dominated in FX for legal persons of leading commercial banks. As a component of the risk-free rate of capitalization we take an average competitive rate on bank deposits of legal entities in U.S. dollar, deposit term – 1 year, that is 8 % (Table 3).

Due to the method of summarizing the capitalization rate, used as a component of a risk-free rate of deposits in land, we can see though that this rate is much higher than that one which is usually applied to the land, but in our opinion, is more real than with any other model of its definition.

Price (probable price) of the built-up land, determined by capitalizing the net income will be: $21\,606 / 0.125 = 172\,850$ UAH.

The obtained result is the sum of an object of real estate situated therein. To determine the estimated value of a plot of land it is necessary to take into account the cost of the construction of the object of real estate on a given plot of land, consisting of: the cost of designing and drainage

Table 3. Cumulative building of a capitalization rate

Rate name and compensations	The value of compensation rate
The basic rate	8,0 %
Compensation of difference in liquidity of investments	2,0 %
Compensation of differences in terms of investments	2,0 %
Compensation of necessity in investment management and competent asset management	1,5 %
Risk management inherent in land ownership	1,0 %
Compensation of inflation expectations	(-),3,0 %
Other risk remedies	1,0 %
Total	12,5 %

area, the cost of engineering preparation of the area for construction and other costs (marketing and management, the loss of agricultural production, financial services, profit of a developer).

Calculating of the cost of construction of objects of real estate on the plot involves determining the replacement cost: $B3 = 28,80 \text{ rubbles} \times 300 \text{ m}^2 = 8640 \text{ rubbles.}$

Replacement cost at current prices including the coefficient of raising the price ($K_y = 1.3$) and the coefficient for determining the premiums to the basic estimated cost of facilities, taking into account inflation $V_{zp} = 8\,640 \text{ rubbles} \times 1,3 \times 14,554 = 163\,470 \text{ UAH.}$

$Kind = 9.61 \times 1.026 \times 1.18 \times 1.009 \times 1.005 \times 1.006 \times 1.00 \times 1.09 \times 1.08 = 14.554.$

The cost of construction of the object of real estate on the plot of land makes the replacement value of the buildings and structures located on the site being valued up 245,205UAH.

Thus, the difference between the capitalized value of the build-up land and costs of development and construction of the area will be the value of the plot (relatively free of development):

$$172\,850 \text{ UAH} - 163\,470 \text{ UAH} = 9380 \text{ UAH.}$$

Thus, the expert monetary valuation of land with an area of 111 m² is determined by the income capitalization method, combined with the method of taking into consideration costs of land improvement, that is : 9380UAH (nine thousand three hundred eighty UAH), meaning 84.50 UAH per square meter of land.

CONCLUSIONS

The obtained results showed a significant difference between the normative and expert valuation of land. The use of a peer review as a mass appraisal for tax purposes is possible if there are long-term average indices for determining the value of objects. At this stage of development of market relations such data are absent.

The first task that must be assigned in the country is to form at the state level the database on the market value of

real estate objects for different oriented purposes with the aim of further use.

REFERENCES

1. **Drapikovskyy A., Ivanova I.** Evaluation of land: Prospects of its development / Law and normative acts from banking activities. – 17-21.
2. **Fedotova M., Utkin E. 2000:** REAL Evaluation of real estate and business. Tutorial. – Moscow: Publishing House “Ekmos.” – 352
3. **Harrison H.S. 1994:** Evaluation of real estate. Translation from English. – M., RIO Mosobluprpoligrafizdat, .
4. **Halanec V. 2013:** Development of agrarian politics in Ukraine in the conditions of economic crisis / V. Halanec // MOTROL. Commission of Motorization and Energetic in Agriculture – Lublin – Rzeszow, Vol. 15. No. 4. 159-166.
5. **Lysa O., Stadnyk B. 2013:** Theoretical and methodological approaches to defining assessment of quality of agricultural products / O. Lysa, B. Stadnyk // MOTROL. Commission of Motorization and Energetic in Agriculture – Lubin – Rzeszow, Vol. 15. No. 4. 120-125.
6. Methodical basis of monetary land evaluation in Ukraine: Scientific publication / Dekhtyarenko Yu.F, Lykhotrud M.G, Mantsevych Yu.M., Palekha Yu.M. – Kyiv: Profi, 2002, 256.
7. Organization of assessment and taxation of real estate: in 2 volumes /, edited by J.K. Eckert. – Moscow: RPO 1997. V.1. – 382.
8. **Palekha Yu. 2004:** Economic and geographic aspects of cost forming of populated areas. – K. Profi., 324.
9. Procedure for expert monetary valuation of land plots [electronic resource]. – <http://zakon1.rada.gov.ua/laws/show/z0396-03>.
10. **Seminozhenko B., Telizhenko A., Sokolov N. 1999:** Privatization and evaluation of urban areas. – Sumy GDP “Mria-1” LTD, 250.
11. **Shpychak O.M., Andriychuk V.G. 2003:** Theory and practice of pricing for farmland / Survey Scientific Notes. 82-90.
12. Strategic ways of agricultural development in Ukraine for 2020 / Edited by Yu.O. Lupenko, V.Ya. Mesel-Veseliak. – K.: NSC “IAE”, 2012. 182.
13. The Appraisal of Real Estate. 10-th edition // Appraisal Institute, USA.
14. The formation of land market in Ukraine. – 2- nd edition, remade and amended. / V.G Halushko, Yu.D Bilyk, A.S. Danylenko and others; Edited by. A.S Danylenko, Yu.D. Bilyk. 280.
15. The Law of Ukraine “On Land Evaluation” [electronic resource] <http://zakon4.rada.gov.ua/laws/show/1378-15>.
16. The order of normative monetary value evaluation of agricultural lands and settlements[electronic resource] <http://zakon2.rada.gov.ua/laws/show/z0388-06>.
17. Tretiak A. Formation of basic theory of land relations in Ukraine // Land Survey Scientific Notes. 5-9.
18. Valuation of land. Edited by. Stupen M. – Lviv “The New World – 2000”, 2005. 308.
19. **Vetrova N. 2012:** Ecologicheskiiy audit i ecologicheskiiy monitoring v upravlenii ecologicheskoy bezopasnostju regoina / N. Vetrova // MOTROL. Commission of Motorization and Energetic in Agriculture – Lubin, Vol. 14-1, 80-85.

Аннотация. В статье анализируется возможность использования результатов экспертной денежной оценки в качестве оценки для массового налогообложения. Приводится сравнение результатов нормативной и экспертной денежных оценок земель. Экспертная денежная оценка дает реальную стоимость земель в наше время, но отсутствие информационной базы оцениваемых объектов делает невозможным использования ее на практике для целей налогообложения.
Ключевые слова: нормативно денежная оценка, экспертная денежная оценка, массовая денежная оценка земель, земельный налог, земельный участок, рыночная стоимость, объект недвижимости.

