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PRICE AS A MEASURE OF MARKET VALUE ON THE REAL ESTATE MARKET

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Abstract

Issues related to the relationship between prices and values of goods have occupied the minds of economists since the beginnings of economic thought. These considerations concern both general issues and the direct, practical dimension of values. For the real estate market, the main value category considered and used is market value. Its concept has been defined at different levels of legislation, but regardless of how detailed the content of the definitions, they all refer to price as the main basis for reasoning. On the other hand, a part of the economic trends call into question the possibility of measuring values directly on the basis of prices. Consequently, in the light of existing divergences in interpretation, can prices be a good yardstick for value, particularly in the light of the evolving concepts of Highest and Best Use (*HaBU*) and Hope Value? In an attempt to answer the question, the paper presents considerations on the relationship between prices and value on the real estate market, in particular in the context of the significance of this relationship for the determination of market value. Theoretical studies were supported by empirical research, which allowed for disproving the research hypothesis concerning the relations between the analyzed economic values.

Key words: *transaction price, market value, market characteristics, property valuation*.

JEL Classification: *D40, D46, R31, P00*.

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1. Introduction

Issues related to the relationship between prices and the value of goods have occupied the minds of economists since the beginnings of economic thought. These considerations concern both general issues and the direct, practical dimension of values. For the real estate market, the main value category considered and used is the market value. Its concept has been defined at different levels of legislation, but, regardless of the specific content of the definitions, they all refer to price as the main basis for reasoning.

However, taking into account the relatively low information effectiveness of the real estate market, often raised in literature, as well as certain difficulties in the interpretation of the market value itself (KUCHARSKA-STASIAK 2012), the paper attempts to answer the question of whether real estate prices, including, in particular, the prices of real estate, similar to the objects of valuation, may constitute a useful measure of their market value by taking into account not only historical conditions, but also the economic principle of anticipation, by showing the Highest and Best Use (*HaBU*) and the Hope Value. On the basis of the above, a research hypothesis was adopted to reflect the above conditions in the prices and, consequently, to accept transaction prices concluded on the conditions specified in the study as an effective measure of the market value of the property. In this context, literature was reviewed and the concepts of economic value were analyzed, with particular emphasis on its usefulness, as expressed by the concept of market value. In the following parts of the work, considerations regarding the relationship between prices and market value in the real estate market

were presented. The empirical part presents the results of research constituting the basis for the conducted falsification of the research hypothesis. In the study, literature research, observations and statistical analysis methods were used as the research methods.

2. Development of views on the relationship between values and prices - literature review

Attempts to define the concept of values have accompanied people since ancient times. In his work, Aristotle (ARYSTOTELES 2008) undertook to define the concept of value not only from an ontological point of view, but from an economic point of view in particular. He was the first to notice certain paradoxes connected with the valuation of goods. However, the state of knowledge at the time did not allow to explain his observations. In his deliberations he focused on the analysis of the relationship between the prices of goods and services, but apart from asking questions concerning the reasons for the observed differences, did not present a coherent theory in this respect.

Along with the development of economic thought, in the following centuries, further attempts were made not only to define, but also to explain the main factors influencing the creation of values. Leaving aside considerations relating to ontological problems, the main views relating to the practical, economic and monetary dimensions are presented and analyzed further on in this paper.

The development of the theory of values is connected with classical economics. The authors of classical economics, in particular Adam Smith (SMITH 2007), distinguished two varieties of values:

- based exclusively on the labor input used to produce the specific good,
- based on the production costs that have to be incurred to produce the specific good.

The first of the presented concepts was chosen basing on observations of underdeveloped societies. In this perspective, in a society of this kind, the volume of goods produced is determined only by human labor, and other factors of production do not play a significant role in creating the value. In a developed society (under the conditions of capitalist production), the notional value is composed of three elements of the production cost: wages, profit and land rent. According to this concept, two values have been distinguished:

- utility, i.e. the ability of the goods to satisfy needs,
- exchangeability, i.e. the ability to exchange one good for another.

To sum up, the theory of values presented by A. Smith indicated a kind of balance between work and the costs of production factors as the basis of values. That concept ignored the impact of demand on the price of goods, considering it only from the supply perspective. D. Ricardo presented another approach to values which stayed within the framework of classical economy. He was the first to present a theory of value that explicitly took into account the element of demand, noticing a relationship between the value in use and the interchangeable value. Ricardo believed that that the relationship stemmed from demand. In particular, he pointed out that deviations of market prices from deviations in the values of goods resulting from capitalist competition were rather infrequent and did not ultimately determine the exchange value of goods (TAYLOR 1957).

Other representatives of the classical school who developed the theory of values included J. B. Say and J. S. Mill. Say, like Ricardo, claimed that the creator of the value of a good is its usefulness. This concept was developed in the following years by neoclassical economists, also referred to as subjectivists. The representatives of this trend, in particular William Stanley Jevons and Carl Menger, assumed that value is a function of utility, i.e. the ability of goods to satisfy needs. According to Jevons, the value of a good depends only on its utility, which is expressed in the volume of demand. In his theory, work influenced value only through supply. Menger, on the other hand, expressed the view that value is an assessment of things, occurring only in people's consciousness, and therefore subjective in nature (GÓRSKI, SIERPIŃSKI 1972).

Analyzing the difficulties in interpreting the value theory based on the utility itself, Alfred Marshall presented a concept that linked subjective elements with objective ones, thus creating a new theory of values and prices. When analyzing market processes in conditions of excellent competition, Marshall finally specified two assumptions. The first of them referred to functional relationships between economic values, while the second referred to the primacy of consumption. In his approach, both value and price were ultimately determined by both demand (subjective) and supply (objective) factors. In such a situation, the balance between supply and demand led to a market equilibrium price (LANDRETH, COLANDER 2005).

The synthesis presented by Marshall remains valid until today. While further reflections have been continued on his theory, they remain philosophical rather than linked to its practical, i.e. expressed in the prices of goods, dimension. In particular, one can mention the work of Ayres, who proposed the introduction of the concept of social value (STANKIEWICZ 2007), or Galbraith with his definition of the value of goods as a component of wealth (GALBRAITH 1992).

The above considerations concerning the definition of value and its relation to the prices of goods were universal and referred to different types and categories of goods. However, the main axis linking these considerations was, in each case, the reference to the direct dimension of value expressed in monetary terms which, in the context of utility, takes the form of prices of goods and services as well as of labor and other resources. Taking into account the specific character of the real estate market, the question is whether the above-described general relationships are also reflected in this market and, therefore, whether they refer to the principles of setting market prices and determining the market value.

3. Values and prices on the real estate market

The real estate market differs from other markets by certain qualities which make it unique. The characteristics of real estate that distinguish it from other goods include its complexity, stability in place, durability, diversity or relative indivisibility. A similar range of evaluations of real estate characteristics can also be formulated in relation to its economic, institutional and legal aspects.

However, the analysis of literature shows that these features do not affect the different approach to the application of fundamental rights and principles of economics in the area of real estate valuation. Both foreign authors (AMERICAN INSTITUTE OF REAL ESTATE APPRAISERS 2000) and domestic authors (KUCHARSKA-STASIAK 2012, 2011; KUCHARSKA-STASIAK, ŹRÓBEK 2015) point out the above. When determining the value of a property, in particular its market value, one should take into account the aforementioned principle of supply and demand, the principle of competition and, finally, the principle of anticipation relating to the predictive role of value, based on the assumption that property value is shaped on the basis of future expected benefits. Other rules taken into account in the estimation process are: the substitution principle referring to the assumed rationality of market participants in the decision-making process, or the principle of change imposing the need to include the circumstances related to the condition of real property and its environment in the valuation (GACA 2009; FORYŚ 2011). Another principle taken into account in the process of making market decisions is the principle of opportunity cost. This substitution principle relates directly to the cost incurred as a result of giving up other investments. The choice of a specific property deprives the investor of the possibility to purchase another one without the need to obtain additional capital. In this context, it is of particular importance in terms of risk and liquidity analysis. The principle of marginal effectiveness of outlays allows for analyzing the effectiveness of investments particularly in individual components of the real property, by examining the impact of the outlays on the value of the entire real property. According to this principle, only those investments leading to improved optimal real estate development bring an increase in its market value. Another principle taken into account in the decision-making process is the principle of balance, which is directly related to the concept of optimal use and development of the property by maintaining a balance between its components, e.g. land and buildings, or inputs and revenues. The principle of compatibility requires that account be taken of the circumstances surrounding the adaptation of the property to the current preferences of purchasers. The described principles also include the additional income principle, which uses the concept of the residual value of the land being a natural resource, and which is based on the theory of additional income remaining after the payment of labour, capital and location factors. Another relevant principle is the principle of external factors that refers to the location stability of the property, which limits the risk of depriving the property of the effect of positive or negative factors of this type.

To sum up, as it results from the analysis presented above, real estate, and in particular the principles of shaping its prices, are subject to the influence of the above conditions and rules and, in this context, strongly embedded in the theory of economics..

Referring to the above considerations on the value theory and its principles, and taking into account the latest concepts in this respect, it can be assumed that the value perceived by the purchasers derives from a comparison of what they receive to the costs of obtaining a certain type of good. These costs include not only money, but also psychological outlays, physical effort and other factors, including behavioral ones (ZADORA 2004). Of course, in such an approach, the indicated costs

cannot be seen from the monetary perspective as expenditure in terms of the valuation rules, but rather from the market perspective as the expenditure incurred for the acquisition. At the other end of the spectrum, according to the principle of supply and demand, there are expectations and preferences of the supply side. In this respect, the value that allows for the above-described comparison and assessment of the benefits and increased cost, and consequently the market balance, is the price - particularly its form that meets the above-described assumptions, i.e. the transaction price.

The very concept of price is defined in legal regulations as: "value expressed in monetary units which the buyer is obliged to pay for the goods or services to the trader; the price includes value added tax and excise duties if such charges are made under separate legislation" (USTAWA z 2001). This approach, which by definition refers to economic relations, is also reflected in private relations, despite the existing differences. In reference to the previously presented theories of values, it can be stated after M. Prusik and R. Źróbek, that the price on the real estate market expresses a set of values exchanged for benefits resulting from the purchase of goods or services (PRUSIK, ŹRÓBEK 2016). Therefore, price can be considered as a numerical quantity which characterizes and reflects the value of a specific good. In particular, for the purposes of expressing the market value, reference must be made to prices which are set under certain conditions known as the free market conditions.

The above concept of price as a measure of value is currently the basis for the majority of practical methods of setting prices seen as an economic category in the market approach. An example of such a legally recognized approach is the concept of the value of real property contained in the Act of 21 August 1997 on real estate management (USTAWA 1997). Pursuant to the provisions of the said Act (Art. 151.1), market value is "the estimated amount that can be obtained for a real property on the date of valuation in a sale transaction concluded on market terms between a buyer and a seller who have a firm intention to enter into a contract, act with discernment and act prudently, and are not in a forced situation". It should be noted that this definition is basically the same as that contained in the Directive 2014/17/EU of the European Parliament and of the Council of 4 February 2014 on credit agreements for consumers relating to residential property and Regulation (EU) No 1093/2010 (the Regulation) and in the European Valuation Standards (STANDARDS of 2016). As can be seen from the interpretation of this definition provided in the National Standard of Basic Valuation "Market Value" (PKZW STANDARDS of 2017), the "estimated amount" is the price expressed in money due for a real estate in a transaction concluded on market terms, where both parties act independently of each other. Therefore, the reference in the definition to "the estimated amount that can be obtained for a property in a sale transaction on the valuation date" clearly indicates how a value based on transaction prices can be measured. However, this orientation and the subsequent content of the definition are not limited to the indication of "prices" as a basis for determining the value of the property. This definition also clearly indicates other features of the process of its shaping, referring to their market character, determined by the forces of demand and supply. Terms such as "the parties to the contract were independent of each other", "did not act in a forced situation" or "act with discernment and prudence" indicate that prices are formed under the influence of the forces described.

There is no doubt that real estate prices are influenced by the forces of supply and demand. Of course, due to the limited effectiveness of the real estate market (KUCHARSKA-STASIAK 2010) mentioned in the literature, prices other than average may occur relatively more frequently on this market than on markets of other goods. The above is influenced by both, changes in the environment and different assessments of particular features made by individual market participants resulting from their individual preferences. External factors, leading to the creation of forced supply situations (RENIGIER-BIŁOZOR, WALACIK, ŹRÓBEK, D'AMATO 2018), may also be a reason for more significant price deviations. In this context, price volatility refers not only to prices often referred to as amateur or bargain prices, but is also appropriate for a range of typical prices. The extent of this volatility, also referred to as uncertainty, will vary depending on the level of market activity, decreasing with its growth (FRENCH, GABRIELLA 2004). The described characteristics of prices and their dependence on market factors and real estate characteristics, resulting from the socio-economic nature of the analyzed phenomenon (GACA 2017), are one of the basic determinants of the scope of analytical tools that may be used in real estate valuation (ADAMCZEWSKI 2006; GACA 2017). In this context, prices reflect the forces of supply and demand and can provide a basis for the valuation of prices when their market level is taken into account.

The principle of anticipation is also reflected in the price shaping process. Of course, this principle refers to the expectations of the participants of the transactions that took place in the past, but due to the significant stability of the real estate market, with few exceptions occurring in situations of strong growth or crises, these expectations change very slowly. In this context, property prices, in particular those set in a period close to the date of valuation, also reflect a predictive aspect, based on the assumption that decisions on their level will be made with a view to future benefits.

As it has been shown in previous studies (GACA 2009), in the process of real estate acquisition which ends with a decision on the transaction price, market participants also make use of such principles as the principle of substitution, marginal efficiency of outlays, or the principle of balance. Of course, property buyers and sellers often use these principles rather unconsciously. However, the fact that the above principles are actually applied can be inferred from secondary analyses of the effects of these decisions, which materialize in the form of relatively homogeneous prices for similar properties (GACA 2018).

In this context, the question that arises of whether to include such essential elements of price setting as the principle of the Highest and Best Use or the Hope Value into real property price is of particular importance. The significance of the issue lies in the ability to confirm or deny that prices reflect the principle of anticipation.

When analyzing numerous cases of price shaping, it is clear that prices in most situations reflect the conditions and preferences of market participants described above, including those related to development prospects. Of course, the level to which these prospects are reflected, understood as the realization of the Highest and Best Use principle in a particular transaction, can vary considerably. Observations and interviews have shown, however, that in typical cases which constitute a major part of the market, both in terms of their number and value, real estate prices as such discount the expectations described above.

4. Empirical studies

Two empirical examples are provided to illustrate the theoretical considerations set out above relating to the relationship between transaction prices and the market value of a property, in particular in terms of reflecting by them the Highest and Best Use or Hope Value of the property.

The study covered two sets of undeveloped land intended for residential purposes, for both single (Set No. 1, Subset A) and multi-family housing (Set No. 2, Subset A), as well as sets of land with identical location and planning conditions located in the same housing estates in Bydgoszcz, but with buildings of medium and low utility value (Set No. 1, Subset B and Set No. 2, Subset B). The data used for the analysis were obtained directly from the content of notarial deeds collected in the State surveying resources.

Basing on the hypothesis adopted in the theoretical part regarding discounting all possible and recognized local market factors, including, in particular, those related to their Highest and Best Use, the prices observed on the above described market segments should not differ significantly in terms of statistics. This would indicate that prices would reflect not only their characteristics and the current state of the market, but also the circumstances associated with acknowledging both the Highest and Best Use or the Hope Value.

Set No. 1 includes undeveloped and built-up land properties, intended for single-family housing development, located in the Czyżkówko and Jachcice housing estates. Set No. 2 includes undeveloped and developed land built up with buildings of low and medium utility value, intended for multi-family housing development and located in the area of Górzyskowo estate. The Czyżkówko and Jachcice estates are located in the western part of Bydgoszcz and are typical housing estates where single-family buildings dominate. The Górzyskowo estate, located in the northern part of the city, is a residential area undergoing intensive urban transformation from predominantly single-family housing towards a multi-family housing.

The locations of the analyzed real estate properties are shown in Figs. 1 and 2.

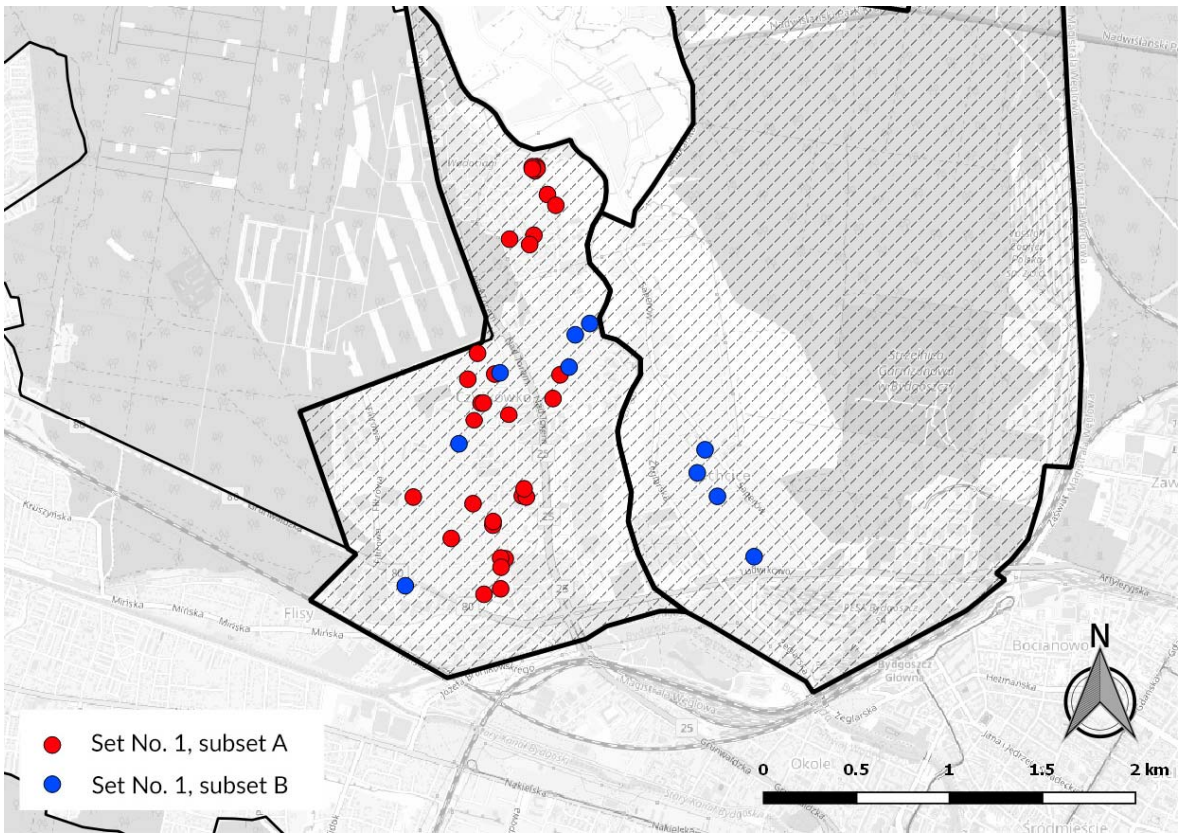

Fig. 1. Location of properties from Set No. 1 in the estates. *Source:* own study based on OpenStreetMap database.

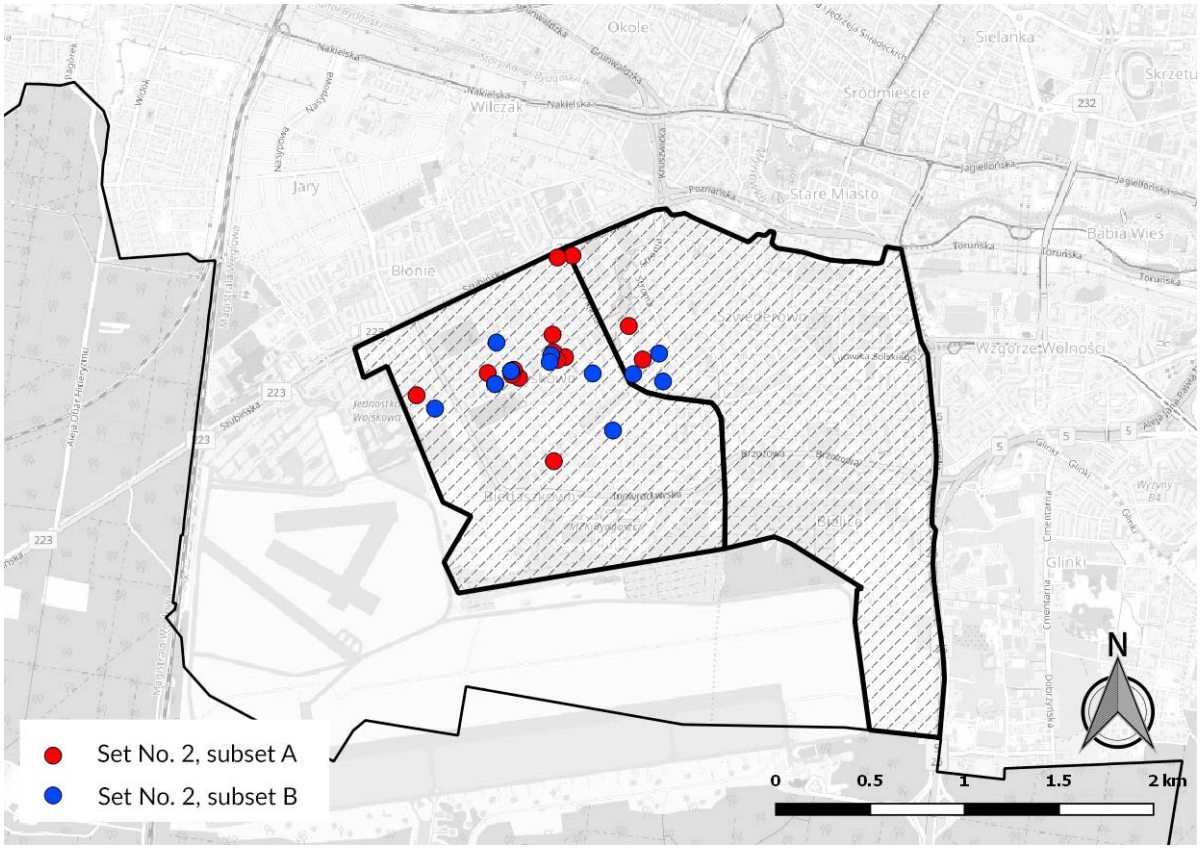

Fig. 2. Location of properties from Set No. 2 in the estates. *Source:* own study based on OpenStreetMap database.

In both analyzed sets, the qualitative and quantitative characteristics of particular properties were identified on the basis of available sources of information, both constitutive, listed in art. 155 of the Act, and optional. Optional sources used data from both direct identification of properties and from the analysis of offers placed on the Internet. The analysis made it possible to conclude that there was very little variability of property characteristics, except for the attributes significantly diversifying the sets and related to the nature of their existing development (the absence or presence of buildings on land properties). Moreover, no statistically significant change in the price level over time was assumed in the analyzed sets.

Descriptive statistics of the sets under analysis are shown in Tables 1 and 2.

Table 1

Descriptive statistics of Set No. 1

Set	Size	Area				Price			
		min	max	mean	SD	min	max	mean	SD
1A	24	324	1126	699	247	150.00	463.34	258.22	72.04
1B	15	410	1096	726	192	106.03	473.29	270.55	102.51

Source: own study.

Table 2

Descriptive statistics of Set No. 2

Set	Size	Area				Price			
		min	max	mean	SD	min	max	mean	SD
2 A	15	295	4759	1360	1410	226.77	800.00	491.45	206.59
2 B	12	417	3413	1064	863	239.18	894.50	545.26	184.19

Source: own study.

Taking into account the considerable homogeneity of quality features of real estate in particular sub-sets, such as the location, neighborhood or availability of infrastructure, as well as similar area layouts, it was adopted that average prices would be determined as the correct indicator of the occurrence or absence of differences between the sets. The rejection of the research hypothesis that both the Highest and Best Use or the Hope Value were taken into account in the transaction prices was based on the verification of statistical hypotheses (zero hypotheses) concerning the lack of differences between the means for the analyzed subsets of Set No. 1 and Set No. 2.

In order to obtain more reliable results and due to the small number of sets, both parametric and non-parametric tests for independent groups were used to verify the statistical hypotheses. The parametric test was based on the Welch test, which is a generalization of the Student's t test for populations with different variances. For the non-parametric test, the Mann-Whitney U test was applied.

Summaries of the above test results are presented in Table 3 and Table 4.

Table 3

Summary of results of Welch **t** tests

Results of Welch **t** tests		
	Set No. 1	Set No. 2
statistic *t*	-0.4072	-0.7145
df	22.663	24.659
value - *p*	0.6877	0.4816

Source: own study.

Table 4

Summary of results of Mann-Whitney **U** tests

Results of Mann-Whitney **U** tests		
	Set No. 1	Set No. 2
statistic U	172	79
sum of observations	39	27
value - *p*	0.8186	0.5958

Source: own study.

On the basis of the results obtained at an assumed level of statistical significance of 0.05 for both tests, no grounds were found for rejecting the zero hypotheses on the absence of differences between the means. This signifies that, for the analyzed sets, both parametric and non-parametric statistical methods provided no grounds for rejecting the research hypothesis referring to the inclusion of property development prospects in real estate transaction prices.

5. Conclusion

Taking into account both the valuation principles applicable in Poland and those resulting from International and European Valuation Standards, it can be assumed that the value of real estate can be measured on the basis of prices meeting market conditions, referred to as transaction prices. This measurement must take into account both the individual features of the property and its relationship with the level of indicated prices. This means that, during the initial analysis as well as during further use of transaction prices, one should, first of all, be very cautious when assessing their "market character". The prices analyzed must be examined not only in terms of their causal relationship with the characteristics of the property and the state of the market, but also in respect to the terms and conditions of the contract. This analysis must be carried out as early as at the preliminary stage of data examination. The existing legal system does not allow for taking into account the diversity of the aforementioned conditions directly in the process of building a value model (KONOWALCZUK 2009).

Another circumstance that must be taken into account when using prices as a measure of value is the stability of the market, both in terms of the observed volatility of prices over time and the discounted prospects. When considering prices as a measure of value, it should not be forgotten that, unlike the value that anticipates the future, they express the historical decisions of market participants. The failure to take into account the circumstances described above may lead, in particular during periods of large price fluctuations, to delays and a tendency ranging from smoothing to permanent deviations of the estimated values from the prices existing on the market on the date of valuation.

The current concept of market value, which refers to factors such as the Highest and Best Use or the Hope Value, tries to represent and explain, as best as possible, the conditions existing on the market that influence the real estate prices. The comparison of these concepts to the maxim underlying Dow's theory: The Market Discounts Everything, proves that it is the right direction to take. Although in the case of the real estate market, circumstances related to its efficiency in Fama's view are questioned in the literature (KUCHARSKA-STASIAK 2010), taking into account the significant increase in the number of transactions and the relatively high homogeneity of prices for typical real estate, a significant improvement can be seen in this respect. This circumstance is most likely also linked to the vast and increasing, both in quantitative and qualitative terms, amount of relatively easily available market information. What is extremely important when shaping the opinions of and making decisions by market participants, this information is now generally available to the public and access to data is not limited to people with specific statutory or corporate rights.

It can therefore be concluded that transaction prices, although not an ideal measure of value, at the current stage of market development as well as according to the valuation theory and practice, constitute the best available measure of property value. As it has been shown in the study, the prices reflect all the factors, both supply and demand, present on the external and internal side in the process of making a decision on the purchase of real estate. Being themselves the effect of the interaction of the

state of nature (market) with the transaction participants' state of mind (their individual preferences), prices envelop both behavioral and external factors, and thus reflect revealed preferences (RP) which, in contrast to stated preferences (SP), reflect the actual market decisions, creating within the framework of many individual events a basis for both the "level of prices" and for the mapping of the market impact of particular factors on their formation and characteristics.

Finally, it should be noted that, due to the adopted research program limited to selected described local markets, the interdependencies identified in this study do not necessarily have to be found in other markets. For the above reasons, the results obtained cannot be treated as a general finding describing the analyzed phenomenon on a universal scale. In order to further clarify the relationship described, further research should be carried out into the impact of the factors and conditions analyzed in the study to allow prices to be used as an efficient measure of market value for other local markets.

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