Kinga PAWLICKA*
Poznań University of Economics

The significance of architectural attractiveness in creating property value – a case study of Poznań

Abstract: The aim of this article is to present the relationship between architectural attractiveness and property value. As a valuable asset of a cityattractive architecture gives value added to an area, yielding economic and marketing benefits. Attractive buildings become factors determining investment attractiveness by building up the image, brand, and market position of the property. Analysis of the empirical material allowed the formulation of two valid conclusions. Firstly, architectural attractiveness has a marginal influence on the property value. Second, this feature has a competitive advantage when comparing several properties with similar attributes.
Keywords: architecture, value added, property value.
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Introduction

Growing competition between cities tends to be accompanied by an increasingly marked interest in the architectural attractiveness of objects. Distinctive looking and conspicuous objects can enhance the value of the area and affect investment efficiency. The measurement of building architectural attractiveness is important for two reasons. Firstly, highly aesthetic architecture brings financial gains. Second, because it can be considered a valid satisfaction indicator of current and future property users.

A research hypothesis was encapsulated in the following question: Does attractive architecture have a significant effect on the value of property? This

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   * E-mail:kinga.pawlicka@ue.poznan.pl.

led to formulating two study aims. The first involved systematic architectural attractiveness measuring methods, whereas the second was intended to establish the degree to which the surroundings, particularly architectural attractiveness, influences the value of property. The paper is divided into three sections. The first section is devoted to methods of measuring architecture's attractiveness, the second one deals with the creation of added value by the architecture. The last one discusses the influence of architectural attractiveness on the property value. For the purposes of the empirical study, 1,237 commercial property transactions concluded in Poznań were analysed. In order to determine the impact of architectural attractiveness on the value of property the method of pairwise comparison was used.

1. Methods of measuring architectural attractiveness

In this study the concept of attractiveness is understood as the sum of positive opinions, impressions and beliefs that observers have about a given object, which are characterised by a certain degree of perceived subjectivity expressed in the attitude towards the object. The aesthetic landscape perception varies depending on the characteristics of the observer, his age or educational background. Here the paramount importance is the method of perception and the subjection of impressions, as well as the outline of both visual and functional forms. Regarding user preferences, the urban and architectural analysis includes four kinds of perspectives on space [Bonenberg 2010, p. 34]:
– scenic perspective on public space – refers to the perception of space by the user in motion,
– aesthetic perspective on public space – perceiving public spaces as showcases of the city,
– behavioural perspective on public space – involves the interplay between the space and residents and is closely related to environmental psychology,
– economic perspective on public space – refers to the correlation between public space and economic value.

A unique role of architectural attractiveness was confirmed by the study *Poles about Architecture* conducted by CBOS (Public Opinion Research Centre) in 2010. The aim of the report was to find out the opinions Polish people had about the perception of architecture and factors influencing the

choice of places to live. Eighty-two per cent of respondents declared that the appearance of urban space in their city was important. They generally agreed with the statement that the aesthetics of the place affected the disposition of residents. A decisive majority (98%) claimed that attractive public space made people feel better and perform their work duties more thoroughly. In the opinion of 94 per cent of respondents, the type of buildings in which they stayed and worked as well as the space in which they lived was important. The survey also included a question about the impact of architectural form on the functionality of buildings. The respondents' answers varied depending on the function the building performed [CBOS 2010].

It is worth noting that architectural perception processes change with time and are dependent upon the prevailing fashion at a particular time. The main reason for new trends to emerge is the desire to stand out from the crowd. With the passing of time, elite fashion transforms into mass fashion, which is followed by a departure from the mainstream models and a search for new trends of attractiveness. After the MoMA exhibition in New York in 1988, several deconstructivists including F. Gehry, Z. Hadid, and R. Koohaas were criticised for their lack of aesthetics and gravity-defying fantasies. Today they are worldwide acclaimed designers whose projects have shaped the art of the 21st century [Gzell 2009]. Another example of the perception change towards architectural design is the Royal Castle in Poznań. Although the project was heavily criticised at the design stage and later during the construction work, the castle is now perceived by the residents of the city as an object that blends harmoniously into the surroundings [Budner and Pawlicka 2013].

Changes in the socio-cultural sphere as well as the increase in the importance of such factors such as mobility, temporariness, individualism and the pursuit for varied experiences lead to a distortion of traditionally understood observation resulting from time constraints [Florida 2010]. Currently, the identification of objects requires the taking into account of an architectural event. The concept is understood as spatial processes described by means of the language of architecture, which temporarily affects urban and architectural values of the area and, in consequence, the recipients [Woźniak-Szpakiewicz 2012]. An example of an architectural design event is the Serpentine Pavilion Gallery in Kensington Gardens. Every year in the same place a new temporary structure is constructed featuring different functional and aesthetic characteristics. In 2013, a 3D pavilion made of translucent steel poles was created by Sou Fujimoto [www.serpentinegallery.org].

The research and analysis of the architectural attractiveness of objects differs amongst themselves according to the evaluation methodology, indicators

used, space features, formulated conclusions and recommendations. One of the problematic areas when it comes to measuring space attractiveness is the application of quantitative measures instead of qualitative evaluations suitable for assessing aesthetic values that are difficult to transpose. (I do not understand the relevance of this phrase). Therefore, in order to facilitate the assessment of competitive sites, numerical values are assigned to aesthetic impressions. Increasing the number of evaluators is the primary method of enhancing the precision of the results obtained. This is based on the assumption that the mean value of several independent evaluations is closer to an impartial assessment. As a method of measurement a points-based assessment producing a quantitative result is applied. It reveals, for instance, that a given view is five times more beautiful than another view. This allows the use of this indicator in strategic documents when making planning decisions [Skiba 2008, p. 124].

We distinguish two basic approaches, structured and unstructured, that can be applied to collect and analyse data related to the image of the object (see Table 1). The first approach pertains to the quantitative research tools applicable to analysis of the attributes of attractiveness. The selected features are subject to evaluation using the Likert scale and semantic differential.[1] Conversely, the other approach refers to a free image description which can correspond with statistical qualitative methods.

Table 1. Classification of architectural attractiveness methods of measurement

Structured methods of measurement	Unstructured methods of measurement
1. Likert scale based survey questionnaire 2. Semantic differential methods 3. Fuzzy sets 4. Geographical matrix 5. Impression curve	1. Methods based on the psychology of place, including cognitive mapping 2. Methods determined by personal traits and temperament 3. Measurement based on the consumer behaviour theory

Fuzzy sets are generally used in the field of space valuation. Every element of a fuzzy set can either belong to it entirely or partially, or does not belong to it at all. The elements take the value from an interval ranging from

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[1] Semantic differential is a measurement technique that involves presenting opposing adjective pairs, e.g. chaotic – orderly, in order to pinpoint social preferences.

0 to 1. Degrees of adherence can be determined by means of a survey or expert method [Rykaczewski 2006]. For instance, one can consider three types of sites described by the respondents as ugly, average, and beautiful. If a potential survey sample size varied according to educational background and aesthetic sensitivity it would be possible to determine the degree of adherence and distribution of answers. As M. Skiba claims [2008, p. 26], original views – the best and the worst on equal terms – that shape the overall feeling of the attractiveness of the space capture the greatest attention of a space user.

The geographical matrix can also be used to compare sites with one another. This delineates the spatial differentiation of certain features in n-spatial and spatial units. It was formulated and introduced to geographical research in the middle of the 20th century by B. Berry. An analysis of matrix rows informs us about the size of observed features in a given space whereas the analysis of columns shows the distribution of features in space [Runge 2006, p. 93].

A significant input into research on measuring the attractiveness of a site came from K. Wejchert who argued that space is a sum of elements in a given area. Whilst they create a clustered area the relations between them can be subject to assessment. He was the originator of the impression curve method, one of the easiest measuring techniques. The method does not pose technical problems, although it does require considerable experience from the evaluator. The curve presents a set of impressions and emotional responses evoked by environmental aesthetics that the observer experiences in a space-time sequence. The procedure protocol involves describing a properly assorted scale of the set of impressions in a given time whilst moving across the site. This method is solely limited to the comparison of individual fragments of space and their reciprocal influence [Wejchert 1984, p. 96].

Specifying the methods of measuring the perception of architectural attractiveness is impossible without establishing how the environment affects humans. The understanding of space is a fundamental principle that underlies human actions. In order for humans to function on a given territory, they have to learn how to remember it and observe it [Chanas]. The psychology of place, including environmental aesthetics, emphasises that humans hold within themselves a mental representation of their environment called a cognitive map. This map is a complex structure that exceeds the scope of purely geographic images. It consists of a great deal of information in the form of connotations and memories which, depending on individual predispositions, can be stronger and more meaningful. K. Lynch, D. Appleyard and D. Meyer

[1964] used this method as the basis for the assessment of objects by introducing the cognitive mapping method.

The measurement of an object image can also be based on the consumer behaviour theory. This approach was presented in the works of Ch.M. Echtner and J.R.B. Ritchie [2003] who have defined the site image as a target image. They presented the image in a discursive context that involved analysing part of the information about the object's particular features or attributes understood by an individual as a result of a specific stimulus. The authors have underscored the significance of a tangible familiarity with the object in measuring attractiveness. They have also highlighted the necessity to divide the sample into people who visited the place under analysis and individuals who knew the destination from secondary sources. The greater the knowledge the respondents have about an analysed object, the greater the likelihood is for compatibility with its authentic and objective aims.

According to J. Nasar [2011], the different temperament of the observer can determine the evaluation of architectural objects. As a means of evaluating personality, temperament contributes to the triggering of various attitudes towards the surrounding environment. Similar research was also conducted by A. Bańka [1997] who established certain regularities in the perception of space users endowed with different personal characteristics. For instance, introverts choose asymmetrically-shaped buildings whereas extroverts prefer solid-looking buildings with regular form. The same correlation exists in the perception of colours: in contrast to introverts, extroverts more frequently choose light buildings with well-defined symmetry.

In order to measure architectural attractiveness, different models are applied. One of the examples is the *Probabilistic Model of Aesthetic Responses*. It was designed by the architect, J. Nasar, who studied perception and aesthetics of buildings. He believed that the concept of "value" was inherent to the term "evaluation" [Nasar 1994]. Therefore, he argued that in order to compare individual opinions it is necessary to clearly establish the categories **that** the observer takes into account when making a choice. These studies became part of the social current in architecture where a special role was ascribed to the assessment of ordinary people rather than experts. The author analysed human response models, including affective and behavioural responses to visual stimuli. As part of his measurements, he distinguished several groups of factors, amongst other things the characteristics of the perceived object and physical space in which the object is located, conditions determining the connection between the object and the observer that include a situational context and the psychological distance of the observer in relation to the object. The

interactions between the examined space users and the building were grouped according to the observer's measurable and non-measurable psychological traits and measurable physical features of the building [Preiser & Nasar 2008].

Object rankings are one of the most popular methods of systematising the measurement of architectural attractiveness. Buildings are ranked according to various categories and by numerous institutions, journals and social networking services. One of the examples is a 2013 CNN ranking of 11 of Europe's most bizarre buildings. The Atomium in Brussels, an edifice constructed in 1958, was ranked as the top one [www.cnn.com]. Makabryła (Eyesore) is a contest held annually in Poland. The initiative was launched by an Internet portal. Internet users choose a building, edifice or monument that is particularly incongruous with its surrounding neighbourhood. In 2012, the title of Makabryła was won by the corrugated stadium roofing in Radom [www.bryla.pl]. However, the truth that aesthetics is in the eye of the beholder was reflected in a survey carried out in London about the ten best and worst buildings of the metropolis. The Royal National Theatre was ranked both. This shows that rankings based on the selection of the most and least attractive buildings contribute to their popularisation. In this respect, architecture becomes a powerful marketing tool that influences the shaping of the economic potential of the city.

2. Architecture as the creator of value added

Having analysed the definition of "value", it is possible to specify certain common features such as subjectivity, relativity, and change in time [Kucharska-Stasiak 2006]. However, the meaning of the term "value added" is interpreted differently depending on the field to which it pertains. According to P.A. Samuelson and W.D. Nordhaus [2012, p. 684], value added is the difference between the sale value of the goods and the production costs. The financial accounting system distinguishes the following categories of value added: economic value added (EVA), market value added (MVA), as well as shareholder value added (SVA) and social and economic value added (SEVA). Value added is also used to evaluate effectiveness and project management. Marketing considers value added in a traditional and modern dimension. In the former the term considered is an addition to a product, contributing to its competitiveness. The modern view sees value added as the most significant factor that affects the attitude of the client [Pietrasik].

As an interdisciplinary field architecture requires the incorporation of knowledge from other areas, such as economics and marketing. As one of the three types of production inputs, the concept of capital that is closely related to economics can also be applied to architecture. Drawing upon the historical meaning of capital, buildings are not only a physical part of resources, but also a potential that creates value added. Immateriality is what characterises the term; hence capital is not a creation of nature, but a value of this matter. Capital becomes a resource only when it is precisely defined and materialised in a real object [Kucharska-Stasiak 2006].

Real estate developers and investors very often view architecture in the context of a product. A developer expects an architect to deliver a project that will yield the highest financial benefits and additionally enhance or reinforce a positive image of the company. They require a building which at minimal cost will fully satisfy the needs of a specific market segment. Due to such a set-up of the design process in some cases the architect is limited as to what he/she can do. Once the investor has chosen the location for the object and specified his/her expectations as well as the features and standard of the building, research on end-user preferences, predominantly including the developer's potential clients, is conducted. However, the ultimate responsibility for the final, quality-guaranteed product always rests with the architect [Stachura 2012].

Shaping a high-quality space attractive objects enhance the image, brand, and market position of the city, which contributes to the increase in value added. A number of cities are willing to have a building that would play the role of a symbol. According to W. Bonenberg [2012, p. 99], we can distinguish six attributes that shape the identity of an architectural brand: uniqueness, homeliness, personification, prestige, readability, and cultural identification. The first feature determines the level of competitiveness of the building compared to other objects. This category includes unique character, traditions and the mood of urban interiors. The attribute of homeliness is associated with the social attachment to architectural surroundings that has an impact on the acceptance of the image and the sense of security. The personification of architecture allows for establishing compliance with one's own system of values, particularly the aesthetic ones. It manifests itself in the perception of such elements as peculiar entrances, or architectural details (cornices, socles) and colouring. The prospect of having access to prestigious buildings has an impact on the user's satisfaction levels and the shaping of his social status. Therefore, it is a subjective criterion of identification of attractiveness. Prestige is considered one of the primary reasons for designing and constructing the

most expensive buildings around the world. The role of readability is to present a clear and comprehensive form. In this perspective buildings are a recognisable part of urban systems. Conversely, cultural determinants are an important element of distinctive architectural style and the symbolic values characterising the local community.

Aesthetic values of objects are factors that create a context for marketing communication. The issue raised of the role of the city image in brand building is also included in the paper of R. Nallathiga [2011]. When architecture becomes a medium through which the transmitted message is amplified then the property owner can use it to influence the observer. According to R. Janowicz [2012, p. 69], the following individual elements of a brand's consumer functions can also be applied to architecture:

– authenticity, repeatability – the harmonious architecture of the brand warrants spatial order,
– support, warranty – architecture contributes to the increase in the level of security and assures spatial quality of the city,
– experience transformation – architecture affects human behaviour, hence it can contribute to increasing satisfaction from using space,
– distinction – objects create the identity of a place which helps to establish an unequivocally recognisable brand,
– value added – highly aesthetic objects raise the quality of space and affect the attractiveness of investment.

With regard to architecture value added can also serve as a means to assess the building design. As final design products attractive objects can increase the value added of a city. Value added is a descriptive category that distinguishes a project from others. However, it does not seek to be its ultimate goal. In economic terms, P. Drucker defines value added as money that exceeds the means left for the servicing of capital. A business organisation ceases to bring loss when it exceeds the cost of capital [Skarzyński 2006]. By drawing a parallel this regularity can be compared to the execution of an architectural project. In this particular case a project investor is a city whereas a design studio and service provider responsible for the realisation of the project plays the role of a business enterprise. The capital of the project undertaking is the object investment value. The total cost of capital means the cost of lost profit the investor would have achieved when carrying out an alternative project.

Therefore, whether they are funded using own or foreign resources, the investor expects attractive buildings to generate sufficient revenue that will not only bring a return on the investment, but also yield a profit. Today, the

binding paradigm of shaping spatial order and sustainable development makes investment efficiency something more than just a financial aspect. Efficiency that takes into account both financial and social benefits can also be applied to architecture. It is defined as the maximal use of economic resources whilst gaining maximal satisfaction [Samuelson and Nordhaus 2012]. Efficiency assessment can be relative or absolute. The former refers to analysis of a concrete architectural design, whereas the latter allows for selecting the most cost-effective solution from a group of several alternatives. This enables the investor to take an investment decision which will approve a project that brings the highest value added.

Areas where such buildings are erected contribute to the increase in the area's investment attractiveness. Aesthetic values may encourage foreign investors to locate their businesses in certain buildings. However, it needs to be noted that they are by no means a decisive factor when it comes to making a decision about starting a business in this area. Architectural attractiveness constitutes an additional element amongst all other factors such as the absorption of markets, the level of manpower and operating costs, and the availability of resources [Szałucka and Szóstek 2012]. The attractiveness of buildings may contribute to the investment climate and be of particular importance when choosing from a number of similar sites. According to E. Kucharska-Stasiak [2006], in the estimate of the site value the most important functions of architecture include:

– informational function – enabling a market participant to gain access to information about the value to be used for the assessment of the current market,
– decisional function – establishing the basis for making key investment decisions,
– negotiating function – establishing the value added of the building is an element of negotiations during a marketing transaction,
– counselling function – the basis for establishing the rules of appropriate property management,
– indirect function – leads to the establishment of the future development direction of the area.

An example of architectural design that has had an effect on locating businesses in a given area are the buildings in the HafenCity quarter, a newly developed district of Hamburg. Amongst the companies that decided to locate their premises there are Kühne & Nagel, Spiegel Group, Unilever and Greenpeace. Numerous architectural awards prove the attractiveness of buildings in HafenCity. In 2013 the area won the first prize in the Global Excellence

Awards contest held by the Urban Land Institute, whereas the Unilever building won the title of the world's best office building in 2009 during the World Architecture Awards Festival in Barcelona [www.hafencity.com].

Attractive architecture can generate value added in the form of multiplier effects, amongst other things, in economy and tourism. Demand multiplier effects are defined as the increase in revenue or employment caused by a stimulus in the form of a specific activity [Domański 1987]. For the purposes of this article business activity is understood as designing attractive architectural buildings. When using a quantitative method to estimate the influence of new architectural investments the branch structure and spatial distribution of these effects should be examined. Multiplier effects are classified according to two categories: supply and income. The first category applies to an additional income that companies derive from supplying products and services to facilitate the construction and operation of the object. Conversely, the income multiplier effect results from the investment attractiveness of highly aesthetic objects. The specific location of businesses helps expand the local job market and, as a consequence, increases the purchasing power of households through the remuneration employees receive [Murzyn-Kupisz & Gwosdz 2010].

Architecture as value added has an effect on the development of an area through the increase in tourism. The most well known example of benefits derived from high-quality projects widely discussed in literature is the Bilbao effect [Sainz 2012]. In the case of growing tourism the economic effect, i.e. tourism multiplier, is taken into account. Tourists being attracted contribute to increasing the overall city revenue due to increased consumption of goods and use of services by external space users [Lohmann & Beer 2013]. Measured by means of basic flow the rate of expenditure incurred by tourists influences the local economy [Murzyn-Kupisz & Gwosdz 2010]. This rate depends on the amount, wealth and the style of consumption. The closer the connection between the tourism and other areas of economy, the greater the multiplier effect.

Price is a means of measuring value added. It gives information about a required or offered sum in return for a product or service. Although price is not a perfect value gauge it remains a generally established determinant. The value added of an object can be measured by the probable price that can be achieved when the agreement is concluded by two independent parties guided by rational motives. When appraising a property, its market, replacement and fiscal values are determined. The market value of the property specifies the most likely price of an object that is possible to be achieved on the market [Kucharska-Stasiak 2006].

3. Influence of architectural attractiveness on the property value

The study of the relationship between attractive architecture and property value was possible after analysing commercial land transactions made in Poznań in terms of the surroundings and architectural attractiveness in particular. It aimed at establishing the degree of influence of architectural attractiveness on the property value. In the analysis, a comparative method was applied based on article 153.1. of the Act on Real Estate Management, which "involves establishing the property value assuming that the value corresponds to prices obtained for similar properties being the subject of market turnover. […] The comparative approach is applied when prices and features of properties similar to the property appraised are known" [Ustawa z 21 sierpnia 1997].

The subject of the analysis were commercial buildings commissioned in 2008–2011 within the area of Poznań. The following objects were selected: an office building at 116 Piątkowska Street, Malta Office Park on Archbishop Antoni Baraniak Street, Nowe Garbary Office Center on Solna Street, and the Omega office building on Dąbrowskiego Street (see Figure). The first stage of research involved preparing descriptions of individual properties and featuring their market characteristics.

Analysed objects, from left: office building at 116 Piątkowska Street, Malta Office Park, Nowe Garbary Office Center, and the Omega office building

The office building on Piątkowska Street is located four kilometres from the city centre and is in close proximity to a business-residential housing area. The proximity of three shopping centres also enhances the investment attractiveness of the object. This Class A, 1,700 square metre building was designed by an architectural design studio, Insomia. Commissioned in 2010, the building has a modern core comprising two wings [www.bazabiur.pl].

Malta Office Park is a business complex comprising six office buildings featuring repetitive design elements in their architecture. It is located at one of the main communication arteries of the city, two kilometres away from

the city centre. The proximity to the Maltański Reservoir (Lake Malta) and a shopping centre also adds to the location value. Class A buildings offer approximately 6,000 square metres of modern and aesthetically pleasant looking office space. The project was carried out in 2011 by an architectural design studio Litoborski+Marciniak [www.maltaofficepark.pl].

The Nowe Garbary Office Center is an office, commercial, and residential complex of Class A and Class B buildings. This article considered the influence of aesthetic values of the Class A office buildings. The creators of this Class A project commissioned in 2008 is the Klimaszewska and Biedak design office. With a total space of 16,400 square metres, The Nowe Garbary Office Center is regarded as a modern corner building that fits in harmoniously with the surrounding buildings [www.poznan.pl]. A definite advantage of the building is its location at the heart of the city centre on one of the main communication arteries.

Designed by an architectural studio Arcada, the Omega office, with a total space of 14,000 square metres, was commissioned in 2008. The application of state-of-the-art technology, including control systems for all technical installations, makes it an intelligent building. The glazed office building has 15 floors and a two-level underground car park [www.ataner.pl]. Omega takes advantage of the prime location at the heart of the city centre of Poznań and its close proximity to numerous public spaces, e.g. banks, shops and restaurants.

The other research stage involved generating a list of commercial land transactions within the area of Poznań that were highly attractive investment-wise and had prestigious locations. The data was collected from the GEOPOZ Land Surveying and Municipal Land Registry Office and included transactions made from 2006 until September 2013. The method of pairwise comparison can only be applied when properties similar to the analysed objects have been on a given market for the two years preceding valuation and when the features and pricing that affect the transaction value are known. In some cases the property valuation standard allows for comparison of properties being the subject of market turnover in a period that exceeds two years [Standard III.7.]. This refers to a situation when transactions are made with low frequency as in the case of commercial land properties.

Within the area of Poznań, 1,237 transactions were analysed from which 13 properties were selected that bore the closest resemblance market feature-wise to the properties under study (see Table 2).

After analysing the data in the second table it can be ascertained that there is no clear time trend on the commercial land property market. The price range is quite wide and can span from PLN 1,000 to as much as PLN

Table 2. Transaction database for the analysis of property features

No.	Transaction date	City	Quarter	Street	Land area [in sq. m]	Total property price [in PLN]
1	18/03/2010	Poznań	Winiary	Piątkowska	953	1,632,360.00
2	15/04/2007	Poznań	Śródka	Tylne Chwaliszewo	834	2,200,000.00
3	16/11/2010	Poznań	Komandoria	Baraniaka	6,098	12,740,000.00
4	01/12/2008	Poznań	Poznań	Św. Marcina	579	2,266,305.00
5	07/05/2010	Poznań	Wilda	Górna Wilda	1,401	4,514,000.00
6	29/08/2008	Poznań	Winiary	Piątkowska	1,114	1,514,700.00
7	23/09/2009	Poznań	Poznań	Małe Garbary	102	13,450,000.00
8	15/02/2012	Poznań	Łazarz	Lubeckiego	2,051	5,152,569.00
9	05/11/2012	Poznań	Poznań	Andersa	2,870	4,612,500.00
10	15/05/2007	Poznań	Rataje	Katowicka	9,200	15,180,000.00
11	01/11/2006	Poznań	Poznań	Grochowe Łąki	687	2,050,001.10
12	01/08/2006	Poznań	Poznań	Muśnickiego	1,238	3,607,250.00
13	12/09/2012	Poznań	Jeżyce	Dąbrowskiego	1,505	5,398,902.00

Source: Own compilation based on GEOPOZ data.

Table 3. Comparison of land property features

No.	Street	Land area [in sq. m]	Total price [in PLN]	Unit price [in PLN]	Size	Location	Architectural surroundings	Investment attractiveness
1	Piątkowska	953	1,632,360.00	1,712.86	small	intermediate residential zone	better	average
2	Tylne Chwaliszewo	834	2,200,000.00	2,637.89	small	centre	worse	high
3	Baraniaka	6,098	12,740,000.00	2,089.21	very large	intermediate residential zone	better	very high
4	Św. Marcin	579	2,266,305.00	3,914.17	small	inner centre	better	high
5	Górna Wilda	1,401	4,514,000.00	3,221.98	average	outer centre	worse	high
6	Piątkowska	1,114	1,514,700.00	1,359.69	small	intermediate residential zone	worse	average
7	Małe Garbary	1,102	3,450,000.00	3,130.67	small	centre	better	high
8	Lubeckiego	2,051	5,152,569.00	2,512.22	average	outer centre	worse	high
9	Andersa	2,870	4,612,500.00	1,607.14	average	inner centre	better	very high
10	Katowicka	9,200	15,180,000.00	1,650.00	very large	intermediate residential zone	worse	very high
11	Grochowe Łąki	687	2,050,001.10	2,983.99	small	centre	better	high
12	Muśnickiego	1,238	3,607,250.00	2,913.77	small	centre	worse	high
13	Dąbrowskiego	1,505	5,398,902.00	3,587.31	average	outer centre	better	high

Source: Own compilation based on GEOPOZ data.

4,000 per square metre which to a large extent is a result of differences in property prices.

The property market can be analysed from the angle of choosing the property features which essentially influence property prices and as a consequence their market value. Every property was assessed taking into account three attributes: location, surrounding area and investment attractiveness (see Table 3). The properties under analysis were located in the centre, the inner centre, the outer centre and the intermediate residential zone. Investment attractiveness is a feature that can help describe the property in terms of its development, i.e. the type of building that can be constructed, any construction limitations, the height of buildings and the number of allowable floors. Four levels of attractiveness were distinguished: low, average, high and very high. The "architectural surroundings" feature describes the property in terms of its location amongst other commercial buildings whose architectural details make them stand out from the adjacent buildings.

For the feature "surroundings", two categories were distinguished: better and worse. The first pertains to properties located adjacent to commercial buildings that stand out against other urban buildings as highly architecturally attractive objects. The second describes properties located adjacent to typical urban housing without any distinctive architectural dominants. Feature weights were calculated using the following formulas:

$$ W_i = \frac{C_w - C_m}{\Delta C \cdot 100\%} \qquad \Delta C = C_{max} - C_{min}, $$

where:
   W_i – weight of a selected feature,
   ΔC – range of price interval,
   C_w – property unit price (updated for the date of valuation) with the highest intensity of the feature,
   C_m – property unit price (updated for the date of valuation) with the lowest intensity of the feature.

Using the formulae presented above, adjustments were calculated representing a score which takes into account differences in features and weights allocated to them between the buildings under study and selected properties. As the next step property values were established for each of the comparative pairs as transactional prices excluding the sum of adjustments [Standard III.7.]. Having calculated the property value appraised as the arithmetic mean of values obtained from the comparison of individual pairs the following

conclusion was formulated: the mean weight of the surroundings feature, in particular architectural attractiveness, totals 13.5, which means that the surroundings have a relatively small impact on the property value (see Table 4).

Table 4. Calculation of the architectural surrounding feature weight

No.	Transaction no.	Street	Location	Unit value [in PLN]	Feature weight
1	1	Piątkowska	in the proximity of the office building at 116 Piątkowska Street	1,712.86	13.8
	6	Piątkowska		1,359.69	
2	3	Baraniaka	in the proximity of the Malta shopping centre and Malta Office	2,089.21	17.2
	10	Katowicka		1,650.00	
3	7	Małe Garbary	in the proximity of Nowe Garbary Office Center	3,130.67	8.5
	12	Muśnickiego		2,913.77	
4	13	Dąbrowskiego	in the proximity of the Omega office building at 79a Dąbrowskiego Street	3,587.31	14.3
	5	Górna Wilda		3,221.98	
5	11	Grochowe Łąki	in the proximity of Nowe Garbary Office Center	2,983.99	13.5
	2	Tylne Chwaliszewo		2,637.89	
				AVERAGE	13.5

In this case, the type of the investment being planned on a particular plot of land is more important than the building's architectural surroundings. However, it needs to be highlighted that in the case of identifying several features that are similar to one another and when comparing a greater number of properties, architectural attractiveness is seen as an essential quality that does affect the property value. In addition it needs to be emphasised that architectural attractiveness is more susceptible to the passing of time than location. Firstly, this is determined by fashion trends and the personal preferences of potential buyers. Second, purchasing a high-quality property at an initially bargain price can lose its value as a result of constructing a building of low aesthetic value. To recapitulate, it can be argued that architecturally

attractive objects create value for both the surrounding area and the building itself which proves the investment to be successful.

Conclusions

The measurements of architectural attractiveness vary amongst themselves in terms of assessment methods used, selection of indicators and features. The pertinent literature does not offer unequivocal recommendations regarding the application of specific techniques and analysis of the results. The methods of measuring the aesthetic values of objects can be classified into two groups: structured and unstructured measurement methods. While the first approach is associated with quantitative research tools, the second refers to a free description of an image.

The measurement of architectural attractiveness helps determine the impact of the building in creating the economic value of the area. Highly aesthetic objects shape the brand and the market position of a city, which increases the value added of the area. Hence sites with attractive architecture become a magnet for potential business entities. Furthermore highly aesthetic buildings can generate value added by means of tourism and economic multiplier effects.

Architectural attractiveness also affects the property value. Having conducted empirical research, it was concluded that the surroundings, particularly architectural attractiveness, represents 13.5 per cent of the property value. When faced with a choice between several properties of similar character, this proves to be an important piece of information for any potential buyers. By analysing the factors determining architectural attractiveness, the real estate developer can more effectively tailor their offer and come forward with prices that adequately reflect what the property is worth. Architectural design that sets great store by appropriate aesthetic values does not only facilitate creating property value but also shapes spatial order.

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