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Changes in the Use of Urban Land on the Example of Katowice Downtown in Years 2003-2017

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ABSTRACT

Purpose - The aim of the article is to identify the phenomenon of undeveloped land in the city downtown and therefore fill the gap in the recent urban land literature, likewise to provide recommendations to local authorities how to tackle with the idle land problem.

Design/methodology/approach - The data of landed property sales transactions are examined in downtown Katowice during the years of 2003-2017, paying special attention to changes in land use after the purchase. The researched period of 14 years is characterised by strong transformation of city's landscape and its surrounding, that is creating Upper Silesian Agglomeration, and then formal structure of GZM Metropolis (Upper Silesian and Zagłębie Metropolis). Applying the case study method for city description, it is seen, that numerous public and private investments have contributed to a strong reduction in land supply and densification of downtown Katowice. The literature review bases on the specificity of the land market in the city centres.

Findings - The study shows that corporations are the main player on the land market in downtown Katowice. 35% of the number of purchased land stays undeveloped, of which 81% of land remains undeveloped for over a period of 3 years.

Research limitations - As the study is the introduction to the topic, it contains basic descriptive statistics regarding landed property prices, transaction parties, and changes in land use. As the research focus on Katowice downtown it does not take into account possible liaisons with other cities that constitutes metropolitan area.

Research implications - Recommendation to local authorities are the following: to levy taxes on vacant land, execute perpetual usufruct contracts, establish spatial development plan for whole area of the city, change an attitude to the investors for less liberal attitude and with greater emphasis on spatial order of city.

Keywords:	undeveloped land, spatial order, urban land market, monopolistic location
JEL codes:	R30
Article type:	case study
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INTRODUCTION

Land underneath the cities' downtowns is characterized by peculiarity resulting from the monopoly of location. The supply of land in downtown areas is very limited, prices are high, and the opportunities for land development that are constrained by spatial planning implicate investors' decisions what and when to build. When the city and downtown grow, changes in the use of urban land are more dynamic and easily perceivable. However there is still some part of land that is undeveloped or developed not to the highest and best use. Both of these phenomena are noticed in Katowice downtown, the capital of Upper Silesian and Zagłębie Metropolis (GZM), especially in areas around new focal points, that arose from previously industrial places. It is thought provoking why there are undeveloped building plots or plots invested significantly below the highest and best use, with a monopoly location characteristic of the city centre. The research problem concerns the issue of idle land and time to obtain the optimal land use by landed property in city centres. The problem of undeveloped land is very important because it leads to spatial disorders in cities and speculations that lift land prices. Both the investors and city authorities require knowledge about occurrence and implications of vacant land in the city. On the investors side it is crucial to be aware of local market and institutional obstacles that may be encountered when investing highly urbanized land. From the point of view of city authorities, it is important to preserve the city's spatial order.

There is a plethora of literature and studies regarding suburbanization, urban sprawl and gentrification in Silesian region[1], however there are no quantitative surveys that show the exact volumes and aggregated values of landed properties in the process of urban land use change.

The research aim of the article is to identify the phenomena of land in downtown Katowice that remains undeveloped or under the highest and best use, thereby fill the gap in the research, and propose the solutions and recommendation to city authorities to tackle with the problem.

For the purpose of the article, the case study of the changes in the land use in downtown Katowice is conducted. Basing on landed property sale transactions in downtown Katowice in 2003-2017 and their current usage, the land usage change is captured. The applied method is basic descriptive

[1] About these issues in Silesia writes inter alia Klasik and Kuźnik (2014, 2017), Klasik, Drobniak and Wrana (2010), Twardoch and Bradecki (2017).

statistics of data, observation of build-up landed property, and the analyse of structure of subjects that acquire and build-up landed property. The background of the study is the context of the city's transformation over fourteen years. The research question is: What is the volume and value of vacant or below best use landed properties in downtown Katowice? Which market participant contributes the most to idle land share and how long on average land remains unoccupied? The research hypothesis is that vacant land problem in Katowice Downtown is significant and the delay in changing the land use results from the purpose of purchasing the land, which is a capital investment.

The article is ordered in the following structure: introduction, literature review of urban landed property, data and methods, that contains basic descriptive statistics about landed property transactions and case study of Katowice Downtown, findings, discussion and conclusion.

LITERATURE REVIEW

The literature review concerns the introduction into the subject of land in the city. Hence, there are selected papers that regards issues of supply and demand of land, land prices in the cities and rent premiums, as the important institutional factors, such as zoning that influence the land property market, and the concept of the highest and best use of land.

Development land in city centres is the subject of direct interest mainly to investors and local authorities, as the development of free spaces affects the city's character as well as its functionality and attractiveness. The supply of land in highly urbanized areas is very limited. There is a problem of scarcity of available land in downtowns. According to Jowsey (2011), the supply of land, defined as physically available land, is limited and inflexible, while the supply of land within the possible land uses is not rigid. Land prices continue to play a key role in rationing the scarcity of supply among competing uses. It is therefore necessary to ensure that land is used in the most favourable way in each location, according to the preferences of consumers and society. Additional supply of land can always be outbid from other uses if the proposed new use is of a higher value than the current use (Jowsey, 2011, p. 59). Under the concept of land productivity, land supply can be increased by using the land more intensively, i.e. by building higher buildings. This way of using land in cities, however, has its limitations, imposed by the institution of spatial development plans, and economic restrictions, resulting from the marginal nature of the additional building floor compared to construction costs. Barr (2010) also draws attention to a

factor that goes beyond the rational economics of buildings, and consists in the fact that new office buildings are often higher than the competitive ones, which is called competition of high-rise buildings (Barr, 2010, p. 726). Żelazowski (2015) came to the conclusion that the height of the building is determined by many factors, such as: technical, spatial, economic and financial factors. According to the researcher the main economic factors stimulating the construction of high-rise buildings include the increasing demand for residential and commercial space as well as the shortage of attractive land in cities and their high prices. There is also a redevelopment option in city centres, where the supply of land is very limited, according to Brueckner (1980, as cited in: Womack, 2015) and Wheaton (1982, as cited in: Womack, 2015), redevelopment will occur when the price of land for new development exceeds the price of land in its current use by the cost of demolition. Because this theory implies that properties purchased for redevelopment can be used to estimate the value of vacant urban land, the theory has made possible urban land value studies where the number of vacant lots is limited (Womack, 2015, p. 55). As the supply of land is limited, land price depends on the possibility of its use and is a derivative of the demand for services, trade, etc., which can be performed on developed (built-up) land. Various features of urban land, such as accessibility, size and shape, and institutional constraints (local plans, legal acts), cause differentiation of rent (Jowsey, 2011, p. 64). Two factors determine rents for the best locations, such as cafes at the railway stations: the productivity of the plot (in walking distance) and the value of this productivity (which is high, because at peak times customers are able to pay a higher price for coffee - in a hurry they are “blind" for the price (Harford, 2006, as cited in: Jowsey, 2011, p. 64). This explains one of the highest land prices at railway stations, which have already been invested in shopping malls in most major Polish cities. Supply depends on the price and non-price factors: production costs, property maintenance costs. Głuszak (2008) notes that there have recently appeared developers' opinions, in the industry press, indicating the problem of low supply of relevant construction plots in the largest cities and their soaring prices. On the other hand, it was said that there was a significant underestimation of land prices, especially in relation to housing prices. This view seems to be confirmed by the high profit margins of development companies. Lots in city centres are often "inappropriate" for developers, due to their shape - mainly elongated rectangle, small size, fragmented ownership (Głuszak, 2008). Dzieciuchowicz and Dmochowska-Dudek (2017) studied the shapes of land plots in urban space, on the example of Łódź city. Their research shows that the density of land plots increased in the city

centre and that the shapes of plots were more diverged and compacted in the city centre.

The determinants of demand adopted in the literature are: the price of a given product, prices of other products, income, fashion, preferences, taste, progress of civilization, number of buyers, future price predictions, etc. Demand for land as a factor of production is a derivative demand - land is desirable because of the contribution it can make to produce the final product. Therefore, the amount of land required by the investor depends on: its productivity, its price compared to other production factors and the price of the final product (Jowsey, 2011, p. 61). For example, in recent years in Poland a greater demand for office buildings has been observed, due to the development of IT services. The demand for land in downtowns does not depend on the prices of other plots, because the central location counts, and there is a very limited amount of such a lots in the centre. The substitute cannot be the land on the outskirts. Therefore, there is a certain location monopoly in the city centres. However, most researchers agree that land markets today are basically structured as monopolistically competitive (Isakson, 1997, p. 1).

According to Gunterman (1997), the value of land is influenced by investors' expectations. Concerning the areas ready to develop (growth areas), the development premium amounts to around 50% of the land value. A good measure of the growth of the area (city, agglomeration) is the migration rate. On the basis of research carried out in New York, in 1835-1900, Atack and Margo (1998) came to the conclusion that at the passage of time the difference in land prices decreased along with the increase in distance from the City Hall and the city growth did not have monocentric but polycentric character. Next, the increase in free land prices followed the decrease in distance from Business City Centres. Colwell and Sirmans (1978) researched in the USA that land prices fall as the distance from the centre increases, prices fall faster from 0 to 1 mile from the centre than in the next ranges. Plaut and Plaut (2003) based on research on real estate prices in the Haifa metropolis confirmed the occurrence of the phenomenon of inversion, which occurs when e.g. due to the reasons of criminalization of city centres, deteriorating urban tissue, pollution and lack of greenery, prices in centres are lower. The research was conducted for residential real estate (flats, houses, lands), but the effects of inversion are also visible for commercial real estate. When there is an inversion, high land prices are reached at other sub-centres, e.g. at the business centre. The reason for the inversion at Haifa was the rapid development of road transport. Gawron (2012) studied the development trends of the construction land market in the Poznań

Agglomeration (Poland) and the analysis shows that land prices in the studied area have increased more than 3-fold in the last several years. The correlation between the price of land and its distance from the city centre is significant in the studied area. M. Fitzgerald, D. J. Hansen, W. McIntosh and B. A. Slade (Fitzgerald et al. 2020) examined land prices in 20 US cities in 2000-2017 and noticed a decrease in the number of transactions in 2001, which was probably caused by the collapse on the IT market. The analysis also showed that in the early years of the survey, the distance between the plots of land sold and the city centre was increasing, suggesting that developers were building in the suburbs, and since 2009 this distance began to decrease again, indicating the opposite trend. Studies have shown that land prices increased over the considered period, likewise changes in land prices are in most cases ahead of changes in built-up real estate prices, and that land prices are more volatile than house prices. The issue of land prices in cities is also the subject of inquiries from the professional property appraisers. Czaja and Klajn (2007) have analysed the undeveloped land market for the Downtown district of the city of Kraków in the aspect of updating perpetual usufruct fees, Hołubicka (2016) has analysed prices of investment land in Poznań in 2014-2015. The analyses have shown that one of the most important features differentiating the prices of the studied lands was the designation in the spatial development plan. Clauretie and Li (2019) have studied the relationship between land area and unit price on the example of American cities and came to the conclusion that the price per acre first increases and then decreases, and that the relationship between value and area is convex for smaller plots (up to appr. 6 acres) and concave for larger plots (over 6 acres). The optimal plot area is 10 acres.

Wyatt (2013) ordered in the book Property Valuation, location theories, which are derived from Ricardo's theory (1817, as cited in Wyatt, 2013), who noted that land located close to the market or a supply of labour (a “prime” site) will be able to generate more revenue with the surplus thanks to reduced transport and labour costs. Land located in such a way is characterized by its best accessibility. In 1826 Von Thunen applied Ricardian theory to develop a profit and cost-based model, in a spatial context, e.g. distance from the market, and also noted that entrepreneurs achieve higher revenues, by locating their businesses near the market, outbidding those who do not reach such revenues (Wyatt, 2013). Next, Mill (1909, as cited in Wyatt, 2013) translated the above assumptions into rent from land, depending on the distance from the market. Hurd (1903, as cited in Wyatt, 2013) simplified the above reasoning and stated that the land value depends on nearness. Adapting these theories into the 20th century and to the degree

of development of monocentric cities, land in a central location may generate higher revenues due to the availability of labour resources, lower transport costs, and accessibility to customers. As far as metropolises are concerned, the availability of a fast and extensive transport system is an important criterion. Alonso adapted von Thunen model to land use in cities where the highest revenues are achieved through trade and services, followed by offices and finally industry, due to its central location. The availability of central areas is very limited, hence there is a certain location monopoly. It should be emphasized that, according to Richardson (1971, as cited in: Wyatt, 2013), that the highest rates of land are achieved only in the centre, and then drop sharply as the distance from the centre increases. In economic reality, there are limitations of these theories, mainly in the form of: incomplete access to information, local law, spatial development plans, the phenomenon of inertia, the changes of consumer preferences regarding the use of city central spaces, the changes in transport prices, and the economic life of a buildings located on land, existing lease agreements, negative external effects (traffic jams, air pollution, limited number of parking spaces). Also in the last few decades there have been changes in the use of space due to high increase in the use of cars, the expansion of shopping centres on outskirts and changes related to the development of communication technologies, allowing to remote working or shop online. Land revenues depend entirely on the demand for land. Groot et al. (2015) has researched the rent from land in Dutch cities. Modern city centres, where the biggest amount of companies and the retail and service points are located, attract residents due to the possibility of higher earnings, high consumption, nearness to public places and the cultural offer of the city. Due to higher wages, lower travel costs and time savings, residents are able to pay a higher price for dwellings. Groot et al. (2015) described a land price model in a monocentric city, which shows that land in city centres, in comparison with land on city edge, gains a surplus. Net benefit is fully capitalised into land prices. The wage raise is fully absorbed by the price of land, and then rents and dwellings. Further, Groot et al. (2015) came to the conclusion that the higher the population density in the city, the higher the land prices, and that the greater the plot area, the lower the unit price for the land. Another correlation concerns the proximity to the city centre, the closer it is, the more expensive it is (for example, in Amsterdam, land in the city centre is 200 times higher than prices in country side of East-Groningen). Additional research shows that 77% of the land price differences can be explained by a limited number of factors, such as access to jobs, public nuisance, a historical city centre, and amenities such as cultural amenities,

shops, and restaurants. Factors on the production side (access to jobs) and consumer amenities each explains about 50% of the land price differences. The availability of luxury shops, historical city centre, restaurants and cultural amenities together determine 30% of land price differences (Groot et al., 2015, p. 74).

Land prices are affected by institutional factors, such as local policy and local spatial development plans, as well as public facilities, and levied taxes and other fees, and transaction costs. Groot et al. (2015) described the phenomenon that interest in land near public facilities is higher, as city dwellers can use these facilities by covering a shorter distance. Spatial development plans allow the maintenance of spatial order and optimal layout of various ways of using the city centre, i.e. a combination of residential, commercial and service, business and public spaces, including recreational ones. The impact of local spatial development plans on the value of real estate in Krakow has been studied by Telega (2011). The author has analysed the decisions issued by the municipality of Kraków to determine the planning fee. The issue of spatial development plans in Poland is the subject of inquiries of professional communities, such as property appraisers, urban planners, architects and developers. In Poland, the percentage of evolved spatial development plans is very low, and as Gabrel (2016) notes, in this case investors have a dominant role in the spatial development. In the absence of a spatial development plan, building permit decisions are issued on the basis of a land development decision issued by the individual official. In addition to spatial planning, land prices are influenced by other local government policies. The impact of public facilities on land prices, such as public transport, was studied by Wu et al. (2015) in Beijing, as this mega city has significantly expanded its public transport in recent years. Using geographical models, the authors have investigated the impact of reduced distance to transport stations on land prices and have showed that land prices increased at newly opened railway stations. Price competition should ensure that, at equilibrium, land is allocated to its most profitable use, but inertia and spatial planning distort competitive conditions (Wyatt, 2013). As indicated on the basis of literature research by Womack (2015), sometimes the land has to mature to its optimal use, hence, for example, there are parking lots in highly urbanized areas, which are designed to "wait" for optimal use of the property. According to the standard "Real option model", developers are investing time in acquiring new information to reduce uncertainty, which increases the cost of delay in investment (Yang &Wu, 2019). Yang and Wu (2019) have examined in Beijing the prices of land acquisition, the duration of development projects and have come to the conclusion that if the developer

purchases the land at too high (in his opinion) price, he postpones the start of construction. Conversely, if the developer purchases land cheaper, the time to start the construction is accelerated. The authors explain these phenomenon with behavioural theories about risk propensity. Risk appetite decreases after loose and increases after win.

Keeping the land vacant leads to its use in not most profitable way. As the best use of property is not commonly understand in the same way, the highest and best use concept is defined. HBU is a concept enforced by law to enable a comparative standard for making real estate value decisions (DeLisle & Sa-Aadu, p. 89). HBU may be defined as the reasonably probable and legal use of vacant land or an improved property, which is physically possible, appropriately supported, financially feasible and that results in the highest value.

RESEARCH METHODOLOGY

The applied research methods are: basic descriptive statistics of land prices, case study, observation, and hypothetical-deductive inference. The description of development of Katowice Downtown and change in land are based on data obtained in The Investment Department of City Katowice, own observations and data available on the Internet, in particular orthophoto maps[2]. The research procedure includes the following points:

1. The characteristics of Katowice and delimitation of the downtown area.
2. The examination of data[3] of landed property sale transactions in Katowice downtown in years 2003-3Q/2017, rejection of doubtful transactions, where market conditions for the transaction of urban land in the downtown area were not met (as prices below 20 PLN/sqm, what is the price for agricultural land, plot area below 100 sqm, that is not possible to build-up).
3. Statistical analysis in Excel and R-Studio.
4. Descriptive characteristics of land use after sale.

[2] https://www.google.com/maps/ (access on the 4th of February 2019)

[3] Data of sale transactions were disclosed to the doctorate candidate - Katarzyna Reyman, by Department of Investment and Real Estate at University of Economics in Katowice for purposes of science research and come from property valuers' database „Śląsk". The database of property appraisers used for the research was assessed in others research as a reliable and relatively complete source of data (Konowalczuk & Ramian, 2009, pp. 83).

RESULTS & DISCUSSION

Katowice is the administrative capital of the Silesia Voivodship and together with neighbouring cities form the Upper Silesian conurbation and the GZM Metropolis. According to data from the year 2017, the number of inhabitants in Katowice is app. 300 thousand, area 165 km^2, population density 1799 people per quadrat meter, there are 11 universities, the number of students is 57 926, the unemployment rate has been decreasing since 2013 and is 1.8% (February 2019), the negative migration balance has been maintained at -2.4 for several years. In the past, the strict centre of Katowice as a monocentric system was the Main Square, 3rd of May Street, Korfanty avenue, the railway station. The railway tracks separated the above-described southern and northern part, which is Andrew Square, Kościuszki Street, Jagiellońska Street, and Francuska Street. Taking into consideration the geodetic system, there is not a separate downtown precinct, but downtown district is concluded in two precinct: Śródmieście-Załęże and Bogucice-Zawodzie. Downtown delimitation is arbitrary. The downtown area of Katowice is not officially designated, therefore was empirically determined on the purpose of this research in the following quarter of the main transport systems: from the north, the downtown district of Koszutka to the south, along the route line of Górnośląska Street (A4 Highway), from the west, Bocheński street to the east, Murckowska Street. The above delimitation is justified by the transformations of the urbanized downtown space over the last several years. The most important changes in the city landscape through last years are the following: the reconstruction of the main thoroughfare – Górnośląska Avenue along with the tunnel under the Roundabout, the modernisation of the marketplace, the renewal of the railway station and the construction of its extension - shopping centre, construction of the Silesia City Center shopping centre, the business centre, located on the revitalized area of former ironworks Baildon, the creation of The Culture Zone, which composes of the Silesian Museum, the Polish National Radio Symphony Orchestra, the International Congress Center near the roundabout. The following figure shows, in a marked yellow shapes, the areas ofthe reconstructions in recent years in Katowice Downtown (Fig. 1).

Figure 1. Reconstructed area of Katowice Downtown
Source: The Investment Department of Katowice Town Hall.

The scale of the transformation is evidenced by the city's investment expenditure, which, for example, for the reconstruction of the Roundabout-Main Market Square Zone (marked with number I in Fig. 1) amounted to over 200 million PLN, and the Culture Zone (VI) - over a billion PLN. Investment expenses from the Katowice budget in 2011-2017 are as follows (in PLN million): 138.96 (2011), 252.22 (2012), 312.55 (2013), 469.25 (2014), 190.31 (2015), 43.71 (2016), 15.71 (2017)[4]. These expenses do not include amounts of private investments, which also significantly contributed to the transformation of the city centre, for example large-scale shopping malls: Silesia City Center, Galeria Katowicka, Supersam. The specificity of the city is also its location in the Upper Silesian conurbation, in the immediate vicinity of several large cities. In Katowice and neighbouring cities have been realized revitalization programs in order to recover from the remains of heavy industry, but at the same time, cities have been affected by negative sub-urbanization processes. As of today, in Katowice and downtown, the area that has spatial development plans established is low, and it amounts to around 40%.

The database includes 260 landed property sale transactions between years 2003-2017 in precincts Śródmieście-Załęże and Bogucice-Zawodzie in

[4] Source: The Investment Department of Katowice Town Hall.

Katowice. The area of the surveyed plots has ranged from 10 to 26 477 sqm, the total price of plots ranged from 90 to 53,900,000 PLN, and the unit price of plots from 20 to 5,424 PLN/sqm, the average transaction price is: 1,245,357 PLN and the average unit price: 529.54 PLN / sqm. Property land transactions outside the delimited Downtown area and also sales with shares less than 100% have been rejected. Outlier unit prices (0.99 quantile) have been rejected. Prices are updated by the calculated trend equals to 12.5 % per year. The total updated price of plots ranged from 176 to 69,320,407PLN, and the unit price of plots from 41 to 6,975 PLN/sqm, the average transaction price is: 2,191,629 PLN, median 339,077 PLN (there is a one very big transaction of large plot size and unit price, that influence the mean value of the sample). The average unit price is 772.51 PLN/sqm, median equals to 404.51 PLN/sqm. The largest amount of sales concerns the property land with prices round 282 PLN /sqm. Standard deviation equals to 935.61, the coefficient of variation is 1.21, what means very high discrepancy in the sample, data is highly skewed (the skewness equals to 3.1). The coefficient of kurtosis is 16.6, so the data distribution is leptokurtic with a sharp peak, what is seen on the below graphs.

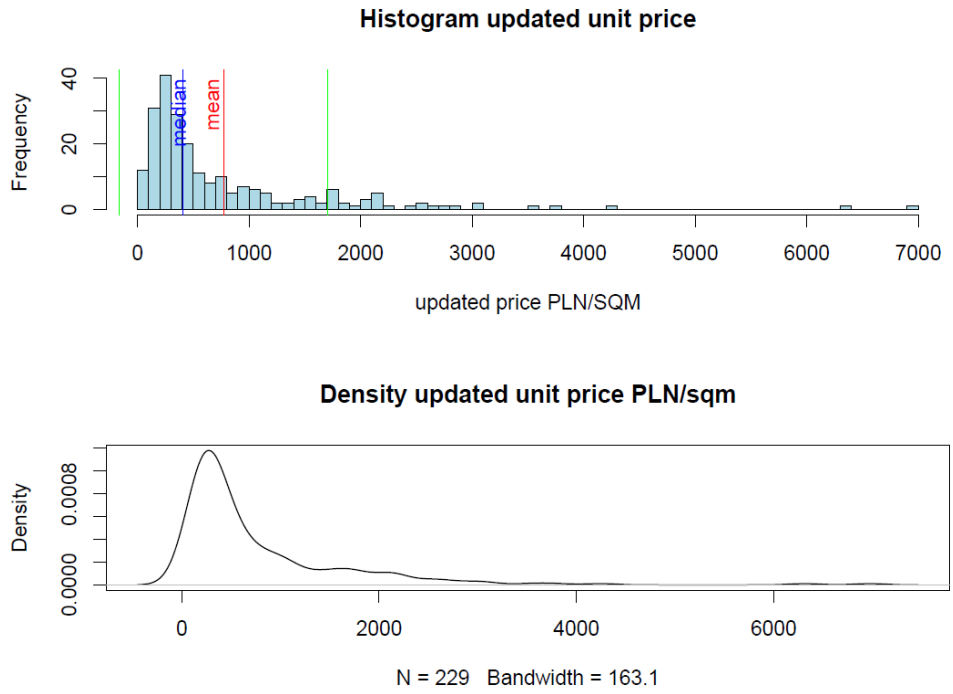

Figure 2. Histogram and density function of updated unit price [PLN/sqm]
Source: own elaboration.

Figure 2 shows that sample is very diversified and right-skewed, what is typical for real estates, therefore the median is used to illustrate level of unit prices in individual years.

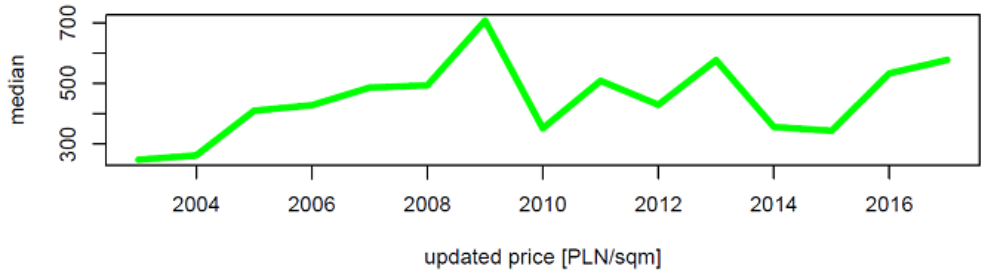

Figure 3. Median updated price in years 2003-3017

Source: own elaboration.

Figure 3 shows that median landed property prices indicates their gradual increase from 2003 to 2009, with a decrease in 2010, average increment up to 2013 and after decline, again increment up from 2015. The median measure did not catch the WFC in 2008/9, what is more visible in number of transactions (Fig. 4).

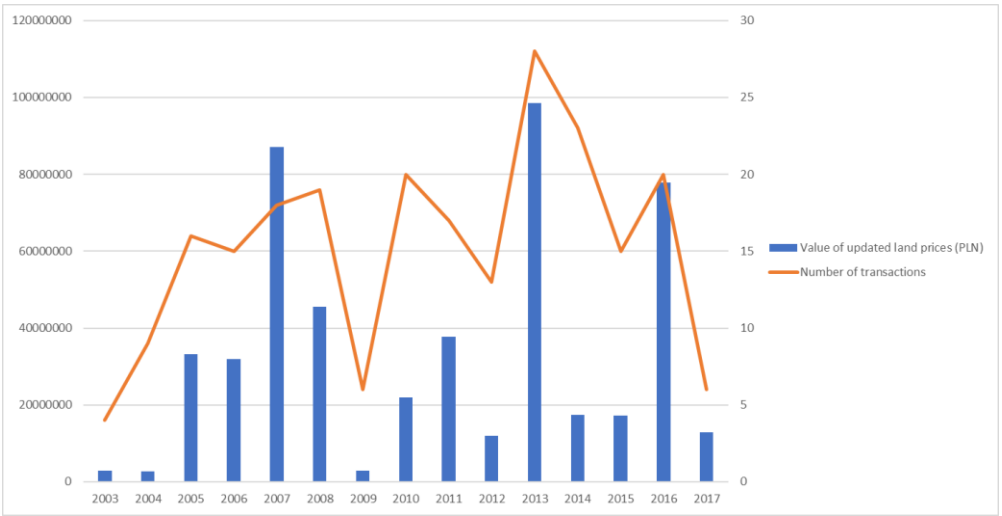

Figure 4. The value [PLN] and number of land sales in years 2003-2017 in Downtown Katowice

Source: own study.

As Figure 4 shows, that the biggest amount and value of sales occurs in 2013, and the smallest in the first years of the period of research data (the period before Poland's accession to the European Union) and in 2009, after

the WFC. Data for year 2017 are for three quarters. The value of landed property sales in the years 2003-2017 amounts to app. 502 millions PLN. The value of sales corresponds to the number of sales and is the lowest in 2003, 2004, 2009 and the highest in 2007 (boom period), 2013 and 2016. Both in 2013 and 2016, the highest sale price was achieved by land purchased for A-class office buildings, and in 2017 the highest price was achieved by land purchased for the construction of a hotel.

In the next part of the analysis the subject structure of the parties to the landed property transactions is analysed. The purchasers are divided into three groups: individuals, corporations, and others (local government, State Treasury, housing cooperatives). The majority of land buyers are corporations (48%), followed by individual persons (29%), others (15%), no data (8%). However, considering the value of transaction, corporations account for 84% (Fig. 5) of the value of all transactions, that is 421 millions PLN in total.

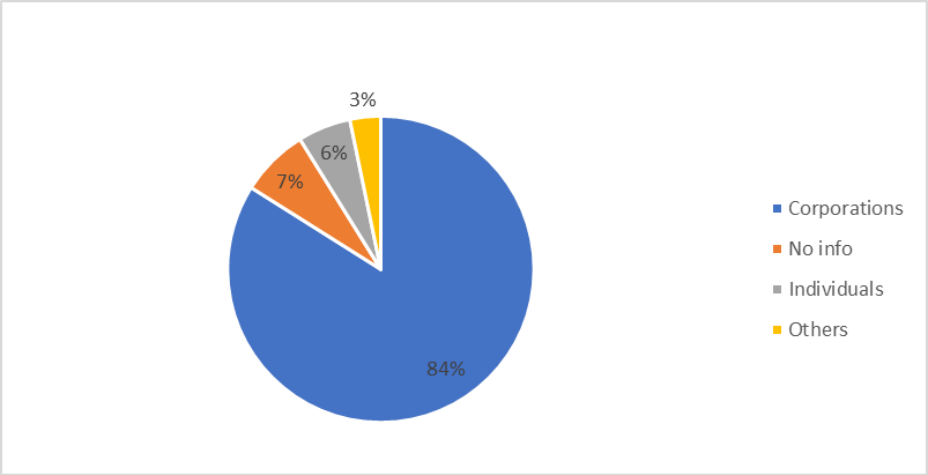

Figure 5. The structure (in %) of purchasers of landed property in value category (PLN) in Downtown Katowice in years 2003-2017

Source: own study.

Secondly, it is examined how the purchased property land is invested today. The following possible ways of land development are selected (their symbol in brackets for the purposes of the paper): undeveloped land (N), built-up with a communal road (ZdrG), built-up with a road, parking lot at a commercial investment (ZdrP), built-up with a hotel (ZH), built-up trade/services/office (ZH-UB), built-up with multi-family housing (ZMW), built-up with industrial building (ZP), built-up with gas station (ZSt), others - for improvement the neighbourhood plot (I). The land development symbols: ZdrP, ZH, ZH-U-B, ZMW, ZP can be qualified as commercial ones.

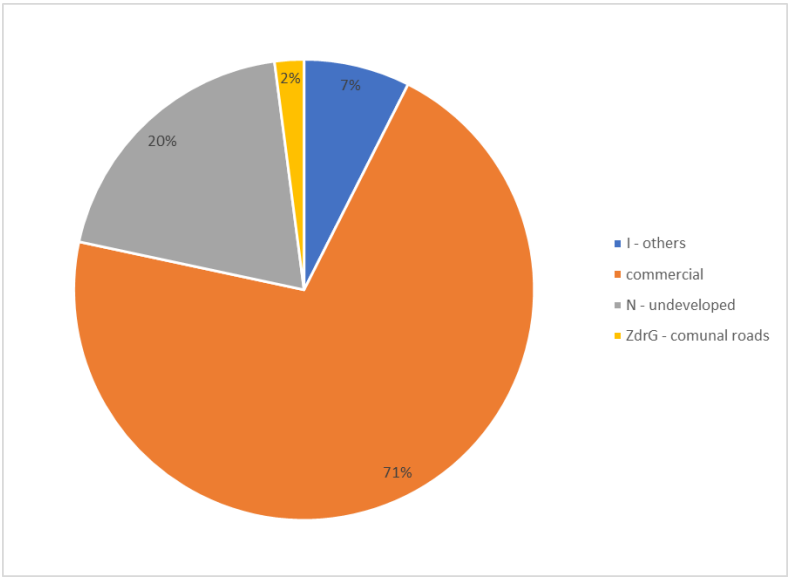

Figure 6. Structure of land development (by value in PLN) in downtown Katowice in years 2003-17
Source: own study.

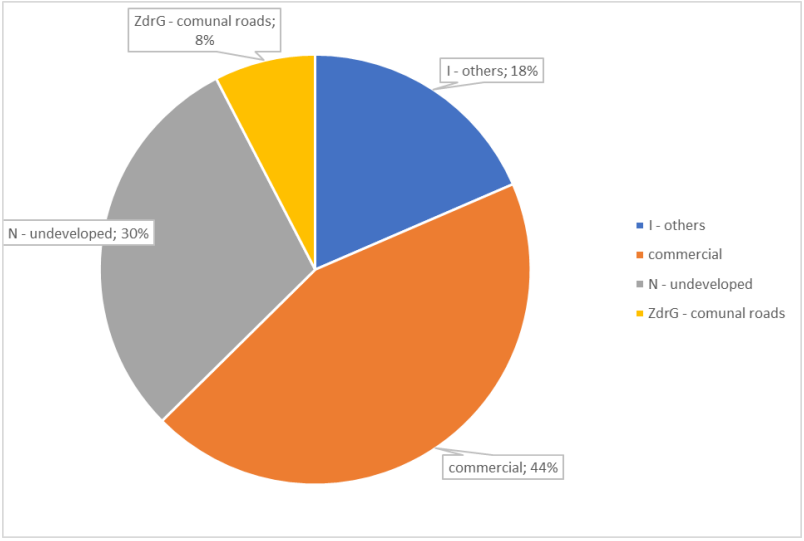

Figure 7. Structure of land development (by plot area in sqm) in downtown Katowice in years 2003-17
Source: own study.

The figure 6 shows that mostly land was built by commercial buildings (71% of total value and 44% of total surface) and 30% of area (158,080 sqm) of transacted land is undeveloped (Fig. 7). 16% of the number of vacant land

constitutes plots that were sold several times. 11 landed property were sold 2 or 3 times, several were purchased at the end of the boom period (years 2007 and 2008) and were resold at a lower price, on average 38% lower, the others were resold at a 33% higher price. Figure 8 shows the structure of purchasers of land that remained vacant (value).

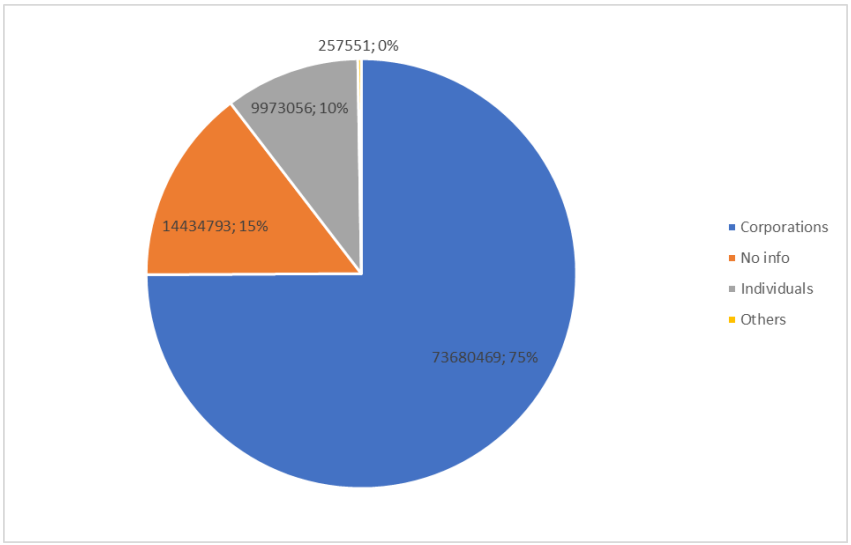

Figure 8. The structure of value of vacant land by transaction parties
Source: own study.

The majority of property land buyers who have not built-up land is corporations (75% in value terms). 81% of these transactions took place over 3 years before 2019. For 46% of these properties have been not established the spatial development plan.

The study shows that corporations are the main player on the land market in downtown Katowice. 35% of the number of purchased land is undeveloped, of which 81% of land remains undeveloped over a period of 3 years. This may be due to the fact that land is bought as capital investments and not for development purposes. This may also be confirmed by the occurrence of double-sale of the same property land at a higher price. It is likely that such investment opportunities on the property land market are provided by the municipal policy, which rarely enforces the provisions regarding the timeliness of development in perpetual usufruct contracts and does not implement institutions forcing development of land within a specified time (e.g. taxes levied on idle land). It seems that spatial policy in Katowice Downtown is failing, as there is no spatial development plan for 46% of undeveloped land, what confirms the research, that there is very low

percentage of spatial development plan in Poland (Gabrel, 2016) and may be problematic as designation in spatial plan is one of the most important feature that differentiate land prices (Hołubicka, 2016). On the one hand it may cause more risk for investors, as they do not know if assumed development project receives the building permit, but on the other hand, following the research (Gabrel, 2016) it favours investors, as it may leave open gates for further opportunities as zoning is established or the land development decision is issued in privilege to investor, as it is the individual official's verdict. During the period of strong transformation of the city, it is also likely that investors are waiting for the possibility of a most valuable land development, along with the development of neighbouring areas and the city and they develop plots for car parking, as it was indicated in literature (Womack, 2015). Certainly, lack of spatial planning and vacant land in Katowice lead to spatial disorder, suburbanization and urban-sprawl, what is commonly perceivable and substantiated in literature.

CONCLUSION

In the paper, the research of the landed property sales transaction in Katowice Downtown are examined in the period of 2003-2017. The current use of the transacted land is checked after the purchase. As it is described in discussion section, the big part of land remains undeveloped, what is surprising, when taking into account the monopolistic location of those sites and big competition of investors in city's downtowns. The research is put into context of the empirical background of city growth over analysed period. As the vacant land badly affects the city spatial order, causing the deterioration of the urban tissue, it is recommendable to apply proper preventing measures by local authorities. Those measures may be: taxes levied on vacant land, execution of perpetual usufruct contracts, establishing spatial development plan for whole area of the city, less liberal attitude to the investors with greater emphasis on spatial order of city.

This article is an introduction to further research on urban property land, because land retention as a capital investment can be one of several reasons for leaving the property land undeveloped. As the paper constitutes opening for further research and exploring the field, the limitations of the study is the usage of simple descriptive statistics and also analysis of just one downtown of cities that are in conurbation system. Possible further surveys may go in the following directions:

1. spatial analysis and the extension of the study area to neighbouring cities of the Upper Silesian conurbation,

2. analyses of the effectiveness of the highly urbanized property land markets,
3. research on investors' behaviour with limited land supply and monopoly location and city officials' rent seeking,
4. the impact of institutions on timing of land development.

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