Residential Real Estate Market in the Context of Local and Regional Development

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Abstract

The aim of the work is to present the relationship between the development of residential real estate markets and local and regional development. It was found that the number of completed dwellings is strongly connected with the value of transactions on residential property markets in cities of over 200 000 inhabitants (confirmation of the theory of the residential real estate market as a "growth machine"). The value of transactions on the residential real estate market in these big cities proved to be strongly correlated with the number of natural persons performing economic activity and the share of persons working in the service sector in voivodships which would indicate regional development. Along with the increase in transactions on the residential real estate market, the demand for construction and renovation of flats and houses increases, as well as for works that cause an increase in the utility value of the property: finishing works, production and assembly of fences, hardening of the area or setting up gardens. The question arises as to whether natural persons performing economic activity do such works mainly in cities with more than 200 000 inhabitants and in suburbanization areas surrounding them (the hypothesis of local development), or the external effects of real estate markets as a "growth machine" have a supralocal range, somehow "leaking" beyond the areas of large cities and suburbanization zones (the hypothesis of regional development). Therefore, in-depth surveys are necessary.

Keywords: real estate market, local and regional development

JEL: R11, R31

Introduction

Large cities constituting poles of economic development affect the competitiveness of the economies of countries in Europe and around the world (Gaczek 2010; Wojnicka 2009). The high importance of large cities in the settlement network is related to their functions of higher order (higher education, specialized hospital health care or culture) which often have a superregional range. Large cities concentrate immense wealth in real estate used for economic activity, meeting residential needs and performing public services. Real estate constitutes the source of bid rent, so its exchange value increases with intensification of land use of the surroundings of a given property. Real estate markets are described as a "growth machine" generating the development of cities (Molotch 2011). A question arises as to whether they affect exclusively local development or cause supralocal externalities influencing regional development. Local development is defined as positive quantitative and qualitative changes occurring in the social, economic, ecological and spatial aspects in communes and counties. Regional development is described as this type of change occurring in voivodships. Positive economic changes particularly comprise the development of entrepreneurship (effects of the supply side).

The objective of the paper is to present relations between the development of residential real estate markets, with particular consideration of flats, and local and regional development. Three hypotheses have been formulated. According to the first one, residential real estate markets are

strongly varied in terms of supply and demand: highly developed in large cities fulfilling central functions with supraregional importance, and very weakly developed in rural areas and in remaining cities where supply of flats for sale and to rent and effective demand for flats is limited. The higher the rank of a city reflected in higher order services, particularly number of students per 1 000 residents, the higher the demand and supply of flats (hypothesis no. 2). According to the third hypothesis, real estate markets influence local development, whereas the relation between markets of flats and regional development particularly refers to large cities with a population more than 200 000.

1 Literature review

Real estate is defined as a part of land surface constituting a separate object of property, as well as permanent buildings related to land, or parts of buildings which based on specific provisions constitute an object of property separate from land (art. 46 of the Polish Civil Code)[1]. Real estate is classified into land, buildings, and apartments, whereas land is often built-up with residential or non-residential buildings (Gostkowska-Drzewicka and Pestka 2014). A residential building is defined as a construction object in which at least half the total useful area is used for residential purposes (Myna 2011). A flat is a facility built or altered for residential purposes, for permanent residence of people, in construction terms designated within a given building by permanent walls, with an independent entrance from the staircase, a shared corridor, shared hall, or street, courtyard, or garden.[2]

Land, residential and non-residential buildings, and flats constitute a subject of turnover in the real estate market, defined in the literature in several ways. In the classic approach, it constitutes "a component of the capital market, total exchange relations between sellers and purchasers of real estate" (Bryx 2006; Kucharska-Stasiak 2006). In the institutional approach, the real estate market is defined as "total conditions in which transfer of rights to real estate occurs and agreements are concluded providing mutual rights and obligations combined with possession of real estate" (Kucharska-Stasiak 2006; Załęczna 2010). In behavioral economics (Borowska and Domańska 2016; Brzezicka and Wiśniewski 2012, 2013; see also: Kałkowski 2001), the real estate market is understood as "total relations, rational or irrational behaviors of participants of the market, developed based on the price and non-price factors, with particular consideration of individual needs, plans, visions of the market participants, manifested in decisions in the conditions of risk and/or uncertainties resulting from the specificity of the market itself, as well as the specificity of the subject (real estate)." In the systemic (network) approach, the real estate market is defined as "a system composed of several interconnected various relations of subsystems . . . , each composed of different subjects, relations between them, and rules of functioning" (Bryx 2006).

The residential real estate market fulfils three functions, including:
- development of supply of flats for sale and to rent, satisfying residential needs, whereas the useful value of the real estate is important (Myna and Białach 2011, 132–144),
- offer of the possibilities of accumulation, multiplication and transfer of capital (capital investment), and therefore the development and multiplication of the exchange value of real estate (Kucharska-Stasiak 2016), and
- influencing the localization of functions and spatial land use (allocation function), and therefore the functional-spatial structure and spatial development of cities (Alonso 1964).

The conditions and mechanisms of functioning of real estate markets are explained by the theories of: transaction costs, agencies, property rights or portfolios. The leading theoretical basis of this paper is, however, the theory of the real estate market as a growth machine. The theory of the growth machine was developed by Molotch (2011) and Logan and Molotch (1987) who differentiated the exchange (economic) value and useful value of real estate. According to the growth machine theory, developers and other investors strive for an increase in the exchange value of real estate through the intensification of land use of areas of urbanization. They establish growth coalitions whose participants are also local authorities interested in multiplying the tax base and income of

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1. See: Ustawa z dnia 23 kwietnia 1964 r. — Kodeks cywilny. DzU z 1964 r. nr 16 poz. 93, z późn. zm.

2. See: Obwieszczenie Prezesa Rady Ministrów z dnia 8 sierpnia 2000 r. w sprawie ogłoszenia jednolitego tekstu ustawy o własności lokali. DzU z 200 r. nr 80 poz. 903, ze poźn. zm.

local budgets. The growth of intensity of land use, understood as permanent material changes in the ground surface, constitutes a source of positive externalities generated in the vicinity of a given real estate property, for inhabitants and entrepreneurs. Therefore, it "translates" into an increase in the exchange value of real estate.

However, the literature argues that the real estate growth machine influences social segregation (Miron 2000) and increases chaotic suburbanization (Gorzym-Wilkowski 2009; Theobald 2001). Cities with very high real estate investment force land urbanization to generate income (Ye and Wu 2014) and the built-up environment is manipulated to conjure a kind of a good life (Shen and Wu 2012). The literature (Wyly et al. 2010) stresses the tensions between the function of multiplication of capital (exchange value of real estate) and the function of development of supply of residential premises (useful value of real estate). Buildings or infrastructure constructed in the surroundings of residential real estate properties generate an increase in their exchange value, however, excessively intensive land use of urban areas can lead to an increase in negative externalities and a decrease in the useful value of real estate. Generally, the literature argues that the real estate markets influence development of cities and their suburbanization or metropolitan areas, while the article focuses both on the local consequences of real estate markets development, as well as their impact on regional development.

2 Data and methodology

The analyses use data from county registers of prices and values of transactions in real estate markets for the years 2013–2016. The registers include information from notarial deeds concerning sale and purchase transactions regarding residential and non-residential premises. Registered transactions refer to the sale of real estate in the free market, in tenders and without tender. For the purpose of assessment of the quality of registers of prices and values of real estate, interviews were conducted with employees of the Centre of Residential Statistics and Municipal Management of the Statistical Office in Lublin, verifying data provided to public statistics concerning prices, numbers and values of real estate transactions. It was found that in the conditions of insufficient number of employees entering data to the registers in 2013 and 2014, data on real estate transactions for the years are incomplete. Data for 2015 and 2016 were collected for particular quarters, as well as supplemented for a given year and therefore are complete. The source materials used in the paper also cover data from demographic yearbooks and statistical yearbooks of voivodships of the Central Statistical Office of Poland.

The collected quantitative information was organized in the form of tables and subject to analyses with the application of average measures and relative values. Dependencies between the analyzed phenomena and processes were presented by means of correlation and regression analysis. The value of transactions concerning residential premises in the free market, constituting the explained variable, was calculated per 1 inhabitant. The adopted variables explaining the conditions of the transaction values in local real estate markets were the gross domestic product (GDP) and the related phenomena: number of students, average monthly salary and number of completed dwellings expressed in the form of relative values (per 1 inhabitant or per 1 000 inhabitants).

The analysis of the impact of markets of residential premises on regional development considered the following variables: GDP of voivodships per 1 resident, number of completed dwellings in voivodships per 1 000 residents, number of persons providing economic activity in voivodships per 10 000 inhabitants, share of employees of the service sector in voivodships (in %), own revenue of communes per 1 inhabitant and share of own revenue of communes in total income (in %). The analysis covered data for 2015.

3 Results

The paper presents the analysis of sales and purchase transactions concerning flats. In the years 2013–2016, the number of this type of transactions in the free market was more than 100 times higher than the number of transactions regarding residential houses. Dwellings are built by developers

and other entities, for example housing cooperatives, mainly for sale, whereas single-family houses are usually built by natural persons for their own needs, or developers at the direction of natural persons. In other words, single-family houses newly built by natural persons, frequently by means of their "economic system," are mostly not intended for sale, because they satisfy the needs of the investor and their family.

For the purpose of verification of the formulated hypotheses, the analysis covered the mean value of a single transaction concerning flats and the average price of a flat in transactions in the free market in county cities with more than 200 000 inhabitants, in the remaining county cities, and in areas outside the boundaries of cities. In the years 2013–2016, both the mean value of a single transaction and average price of 1 square meter of a flat were substantially (usually approximately twice) higher in county cities with a population of more than 200 000 than in the remaining county cities and areas outside the boundaries of cities (tab. 1). Then, the number and value of transactions concerning flats in the free market per 1 inhabitant was analyzed (tab. 2). In large county cities, the number of transactions concerning flats in the free market was more than six times higher and the value of transactions per 1 inhabitant was more than 11 times higher than in the remaining county cities. In areas located outside cities, this type of indicator reached more than 13 and more than 24 times lower value than in large county cities.

In the years 2015–2016, cities accounted for more than 91% of transactions concerning flats in the free market. Thus, the conditions of development of residential real estate markets in cities

Tab. 1. Average transaction value and flat price in free market in the years 2013–2016

	Average transaction value (PLN thousand)				Average price of 1 m^2 (PLN)			
	2013	2014	2015	2016	2013	2014	2015	2016
Total	219,9	232,1	246,1	250,1	4 104,9	4 322,9	4 586,5	4 655,1
Within cities	222,7	237,1	250,5	254,5	4 201,0	4 448,4	4 721,2	4 797,9
County cities with a population of more than 200 000	285,2	312,1	318,6	322,3	5 289,6	5 710,7	5 912,3	6 005,3
County cities with a population of less than 200,000	161,7	162,9	175,6	175,8	3 079,0	3 126,5	3 346,6	3 343,9
Outside cities	184,2	173,9	184,8	190,1	3 090,2	3 007,6	3 109,6	3 151,7
Unknown location	248,4	239,0	271,4	280,7	3 869,3	3 914,4	4 324,0	4 049,6

Source: Own calculations based on county registers of prices and values of real estate in 2015 and 2016
[In the journal European practice of number notation is followed — for example, 36 333,33 (European style) = 36 333.33 (Canadian style) = 36,333.33 (US and British style). — Ed.]

Tab. 2. Transactions concerning sold flats and non-residential premises in the free market in the years 2015–2016

	Flats and non-residential premises (thousands)		Sold flats					
			Number (thousands)		Number per 1000 inhabitants		Value[b] per 1 inhabitant (PLN)	
	2015	2016	2015	2016	2015	2016	2015	2016
Total[a]	165,8	181,6	148,2	162,7	3,9	4,2	1 058,3	949,0
Within cities	152,2	167,3	135,4	149,4	5,8	6,5	1 640,9	1 466,3
County cities with a population of more than 200 000	86,6	95,4	76,2	84,4	10,0	11,0	3 559,9	3 174,6
County cities with a population of less than 200,000	27,5	27,8	24,6	24,9	1,6	1,6	281,1	278,6
Outside cities	11,2	12,6	10,6	11,8	0,7	0,8	146,4	128,2

Source: Own calculations based on county registers of prices and values of real estate 2015 and 2016, and Demographic Yearbook (Rozkrut 2016a)
[a] Includes also "Unknonw location" flats, although not shown in tha table as a separate category.
[b] Transaction value.

were determined. A strong correlation was observed ($r = 0{,}561$) between the value of transactions concerning flats in the free market in large cities in 2015 and value of GDP of voivodships, constituting a synthetic measure of the level of socio-economic development (tab. 3). The correlation coefficient, however, was not statistically significant, which can be explained by the small sample covering only 11 voivodships (no large cities occurred in the remaining five). The gross domestic product showed a strong statistically significant correlation with average monthly salary ($r = 0{,}903$). A strong correlation was also determined between GDP and number of students per 1 000 inhabitants ($r = 0{,}570$), generating demand for rental and purchase of flats in the free market. Students sometimes purchase flats, as well as single-family houses, with the purpose of renting them to other students.

Finally, the impact of residential real estate markets of large cities (with a population of more than 200 000) on local and regional development was investigated. The value of transactions in markets of flats in large cities showed a strong correlation ($r = 0{,}870$, see tab. 3) with the number of completed dwellings in voivodships ($r = 0{,}523$).

Results of the regression analysis, between number of completed dwellings and value of sale and purchase transactions of flats on the free market in cities with a population of more than 200 000 in 2015, are presented in table 4. The value of transactions in markets of flats in large cities explains the variability of the number of completed dwellings by voivodships in 73,4% (R^2 coefficient). In the conditions of rate of return on investments in the construction of residential premises, often exceeding 30%, the "demonstration effect" of large cities occurs. The real estate market in large cities affects residential building development in large and remaining cities, and residential building development in areas outside the boundaries of cities, which particularly refers to areas of suburbanization. The more dwellings that were completed (that found a buyer almost immediately in 2015 as well as in 2016–2017), the higher the value of transactions that was recorded in real estate markets.

Tab. 3. Correlation coefficients

	GDP[a]	Value[b]
GDP of voivodship per 1 inhabitant		0,561
Number of students in voivodship per 1 000 inhabitants	0,570	0,967**
Average monthly salary in voivodship	0,903**	0,556
Number of completed dwellings in voivodship per 1 000 inhabitants	0,536	0,870**
Number of persons performing economic activity in voivodship per 10 000 inhabit	0,666*	0,523
Share of employees in the service sector in voivodship (in %)	0,658*	0,431
Own revenue of communes per 1 inhabitant	0,532	0,013
Share of own revenue of communes in total income (in %)	0,557	0,123

Source: Own calculations based on county registers of prices and values of real estate 2015, Statistical Yearbook of the Regions—Poland (Rozkrut 2016b), and Demographic Yearbook (Rozkrut 2016a).
[a] GDP of voivodship per 1 inhabitant
[b] Value of transactions concerning flats in the free market in large county cities per 1 inhabitant
* $p < 0{,}05$; ** $p < 0{,}01$

Tab. 4. Number of completed dwellings and value of sale and purchase transactions of flats on the free market in cities with a population of more than 200 000 in 2015—regression estimators

Variable	Coefficient	Standard error	T-statistic
Intercept	2,2795	0,3809	5,98***
Value of sale and purchase transactions	0,0006	0,0001	4,98***

Source: Own calculations based on county registers of prices and values of real estate 2015, Statistical Yearbook of the Regions — Poland (Rozkrut 2016b), and Demographic Yearbook (Rozkrut 2016a)
*** $p < 0{,}001$

Conclusions

The paper confirms hypotheses No. 1 and No. 2 that markets of residential premises are strongly variable in terms of supply and demand. They are highly developed in large cities fulfilling central functions with supraregional importance, and weakly developed in the remaining cities and outside cities, where supply of flats for sale and to rent and effective demand for flats are very limited. The higher the rank of the city, according to Christaller's theory, reflected by higher order services, and particularly number of students per 1 000 inhabitants, the higher demand and supply of residential real estate.

The number of completed dwellings is strongly correlated with the value of transactions in markets of flats in cities with a population of more than 200 000. Therefore, the residential real estate market generates residential building development (confirmation of the theory of real estate market as a growth machine). The more dwellings that are completed, the higher the number and value of transactions in markets of flats in cities with a population of more than 200 000, and therefore the higher possibilities of multiplication of capital exists, although the example of Spain shows that real estate markets and residential building development can be subject to a significant downturn related to the cyclical character of development of this type of market.

The value of transactions on the markets of flats in cities with a population of more than 200 000 proved strongly correlated with the number of natural persons performing economic activity in voivodships, and share of employees in the service sector in total number of employees, which would suggest regional development. With an increase in transactions in markets of residential premises, the demand for construction and renovations of apartments and houses increases, including works leading to an increase in the useful value of real estate: finishing works, production, and assembly of fences, hardening of land surface or establishment of gardens. A question arises, however as to whether natural persons providing economic activity and other economic entities perform this type of work particularly in cities with a population of more than 200 000 and in the surrounding suburbanization areas (local development hypothesis), or the external effects of real estate markets as a growth machine have supraregional range, "sprawling" outside areas of large cities and zones of their suburbanization (regional development hypothesis). The occurrence of a strong correlation itself, even when it is statistically significant, is not sufficient to verify such hypotheses. Thorough questionnaire surveys are therefore necessary.

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