The investment activity of cities in the context of their administrative status: A case study from Poland

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THE INVESTMENT ACTIVITY OF POLISH CITIES

Abstract: The article attempts to identify and assess the investment activity of major Polish cities, taking into account the division into voivodship cities, remaining the regional capitals, and also the ones which, as a result of public administration system reform, carried out in Poland in the 1990s, lost this function. Based on the group of diagnostic features (city investment expenditure per capita, capital expenditure of cities in relation to their total expenditure, capital expenditure of cities in relation to their own revenues), taxonomic synthetic measures for the studied cities were constructed. The research covered the years 2004 – 2015 – the period of particular investment intensity caused by the inflow of EU funds. It was concluded that even though the city status and revenue potential is, to some extent, determined by its investment activity, there are, however, clear examples showing that the appropriate local policy can modify these determinants.

Key words: voivodship cities, investment local government, administrative reform

1. Introduction

As a result of public administration system reform, carried out in Poland in the 1990s of the 20th century, the significant changes were implemented in the country territorial division, along with restoring the three-tier division of local government[1]. Local government units acquired legal personality, were provided with adequate property and revenues and simultaneously were made responsible for the implementation of a wide range of public services. Their objective is to meet the collective needs, improve life quality of the residents and provide better conditions for the functioning of business entities. The implementation of these tasks is related not only to the obligation of performing their current tasks, but also to investment activities, which include processes related to upgrading standards, renewal, purchase or establishment of the new material base. This generates the need for incurring certain expenditure on fixed assets and fixed assets under construction from the self-governments' budgets, which can be defined as local government investments (Kachniarz 2014, 112).

The purpose of the article is an attempt to identify and assess investment activity of major Polish cities, taking into account the division into voivodship cities (remaining the regional

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[1] For more details see: (Przybyła, Kachniarz, 2017)

capitals) and also the ones which, as a result of the aforementioned public administration system reform, lost this function. In this way the hypothesis, that administrative changes have a significant impact on the form of city development process and the loss of voivodship capital status results in their marginalization will be investigated. The twelve year research period (2004-2015), adopted for the study, represents the time of spectacular development of Poland. It went along with Polish accession to the European Union structures (1st May 2004) and the transfer of substantial aid funds within the framework of the EU cohesion policy. It is estimated that Poland received the EU support amounting to net 65 billion Euro (71 billion USD). The nominal GDP value almost doubled, at that time, and in terms of the purchasing power standard (per capita) it increased from 50 to 75% of the EU average. In the discussed period Poland, as the only EU Member State, maintained positive dynamics of its economy.

Poland is often referred to as one of the largest regional policy laboratories in the world. Over the past 15 years it faced the decentralization of development processes, both in management and financing. As a result local governments became the beneficiaries of the substantial part (about 33%) of the aid funds (The Ministry of Development 2016, 4). Taking advantage of this assistance was of competitive nature, local governments - including the studied cities – were competing for funds along with the provision of their own adequate resources. The efficiency of resources acquisition was, thus, associated with the quality of the development policy carried out by the particular cities and the need for adapting adequate financial policy to it. As a result, a diverse picture of local government activity was created and the presented research is one of the attempts to diagnose it.

2. Background

The subject literature is dominated by a strong conviction that there is a close correlation between the level of municipal investment and the dynamics of local development (Swianiewicz, Łukomska 2004, 31; Leigh, Blakely 2012, 331). Accurately selected investments improve infrastructure base by increasing the city's economic competitiveness and upgrading the living standards of its residents. According to K. Dasher (2000, 391), in the conditions of competition for limited investment funds capital cities hold a privileged position, because in line with Christaller's central place theory, hierarchical levels also determine the power of access to goods (including investment funds). The capitals of countries, regions, etc. experience a specific handicap against other centres within their zone of influence. This effect has been empirically

confirmed in e.g. R.G. Carolla and J. Meyer (1982) studies, who showed that the expenditures of state authorities in the USA were relatively higher in the capitals of these states. A similar opinion can be found in the work by L.J.C. Ma (2005) on the situation in China. Paddison (1983) and the aforementioned L.J.C. Ma (2005) draw attention to the fact that such dependence is the stronger the greater role is played by the public sector in economy.

It seems that this situation is experienced in Poland, where the stream of EU funds constitutes the main source for public investments financing. Hence, the well-founded conviction in Poland that the reduction of capital functions in many cities contributed to the slowdown of their development. It is confirmed by the study covering the social perception of changes carried out by W. Dziemianowicz (2000) and D. Krysiński (2013). Interviews with politicians, entrepreneurs, social activists and ordinary residents of these cities diagnosed the sense of discomfort and the belief that the loss of administrative status determines the decline in the city's economic development.

Interpreting the reform as a source of degradation of former voivodship cities is not, however, fully reflected in quantitative research. While J.W. Komorowski (2013) is inclined to conclude that such dependence does exist (although not very strong statistically), J. Łukomska (2011) does not put forward such generalizations. Komorowski's findings indicate that, in terms of the level of economic development, the group of current capital cities moves away from the ones which lost this status. In turn, Łukomska diagnosed a heterogeneous picture of the development processes dynamics. According to her research, apart from the cities which recorded their socio-economic condition deterioration after their status had been changed, some managed their new situation very well. The most comprehensive study was presented in this subject matter by A. Kurniewicz and P. Swianiewicz (2016). In the opinion of these authors, attributing the encountered difficulties to the loss of regional capital status is a subjective feeling, not strongly confirmed by the objective socio-economic indicators. The actual reasons of economic collapse in some cities have to be sought elsewhere and cannot be reduced to the effects of the reform only. Despite an extensive debate, the number of reliable analyses of this phenomenon is surprisingly small. The ambition behind the hereby study is to fill in this gap and determine whether administrative changes have a significant impact on the form of city development process (expressed in investment expenditure) and if the loss of voivodship capital status results in their marginalization.

3. The research subject characteristics

As a result of the reform sixteen new voivodships were established in place of the former 49, and simultaneously eighteen cities started functioning as their capitals - voivodship cities. They are as follows: Białystok, Bydgoszcz, Gdańsk, Gorzów Wielkopolski, Katowice, Kielce, Kraków, Lublin, Łódź, Olsztyn, Opole, Poznań, Rzeszow, Szczecin, Torun, Warszawa and Zielona Góra (marked in grey in tab. 1 and tab. 4). Fourteen of these cities are also the seats of the voivodship governor (delegated by the state government administration, having supervisory and inspection powers) and the seat of local government authorities (responsible for the socio-economic policy of the region). In two voivodships these functions were separated. In Kujawsko-Pomorskie voivodship Bydgoszcz is the seat of the governor, while Toruń the seat of the regional parliament and marshal's office. Similarly, in Lubuskie voivodship: Gorzów Wielkopolski is the seat of the governor, while Zielona Góra of the local government bodies. Later in the study these cities will be referred to as "dual capitals".

Tab. 1. Population number in the analysed cities in 2015.

No.	City	Population	No.	City	Population	No.	City	Population
1	Warszawa	1 744 351	18	Bielsko-Biała	172 591	35	Piotrków Trybunalski	75 183
2	Kraków	761 069	19	Zielona Góra	138 711	36	Piła	74 140
3	Łódź	700 982	20	Gorzów Wielkopolski	123 762	37	Suwałki	69 370
4	Wrocław	635 759	21	Płock	121 731	38	Zamość	64 788
5	Poznań	542 348	22	Elbląg	121 642	39	Leszno	64 559
6	Gdańsk	462 249	23	Opole	118 931	40	Chełm	64 270
7	Szczecin	405 657	24	Wałbrzych	115 453	41	Łomża	62 737
8	Bydgoszcz	355 645	25	Włocławek	113 041	42	Przemyśl	62 720
9	Lublin	340 727	26	Tarnów	110 644	43	Biała Podlaska	57 414
10	Katowice	299 910	27	Koszalin	107 970	44	Ostrołęka	52 571
11	Białystok	295 981	28	Kalisz	102 808	45	Skierniewice	48 388
12	Częstochowa	228 179	29	Legnica	100 886	46	Tarnobrzeg	47 816
13	Radom	216 159	30	Słupsk	92 496	47	Krosno	46 775
14	Toruń	202 689	31	Nowy Sącz	83 903	48	Ciechanów	44 506
15	Kielce	198 046	32	Jelenia Góra	81 010	49	Sieradz	42 890
16	Rzeszów	185 896	33	Siedlce	76 942			
17	Olsztyn	173 444	34	Konin	75 875			

Source: author's compilation based on the Local Data Bank of the Central Statistical Office.

All the analysed locations, in accordance with the adopted typological classification (cf. Przybyła, Kulczyk-Dynowska, Kachniarz, 2014, 181-182), can be classified as medium-sized

cities, however, there are significant differences in their size, measured by the number of residents (tab. 1). The smallest of them - Sieradz has less than 43 thous. residents, whereas the largest - Warszawa over 1 744 thous. residents. The largest cities, which do not play the role of voivodship capitals are Czestochowa and Radom. In both cases their population exceeds 200 thous. At the same time much smaller Opole, with less than 120 thous. residents, did maintain such functions.

The rule is that in the newly created regions, their capitals are simultaneously the largest cities, attracting most of the development processes within their area. The cities which lost their voivodship function most often play the role of sub-regional centres.

4. Research method. The construction of investment activity measure of the analysed cities

The first research stage consisted in the selection[2] and in the preliminary analysis of the value of features typical for the investment expenditure in municipalities. The analysis covered:

1. Capital expenditure per capita in municipalities - expenditure size relativization allows comparing units covered by the study and seems indispensable due to the considerable differences in size (measured by residents' number) of the analysed cities.

2. Investment expenditure incurred by the cities in relation to their total expenditure - the indicator shows the scale of local government pro-development involvement, within the existing financial capacity of a territorial unit.

3. Investment expenditure of the cities in relation to their own revenues - the indicator allows determining which part of the municipality own revenues is allocated to investment. Low indicator value, especially in case of wealthier municipalities, can indicate the tendency for current consumption.

The second, essential stage was focused on analysing investment activity level in cities using the non-model synthetic measure h_i. The application of synthetic indicator measures allows effective characteristics of the socio-economic transformations occurring in the investigated area (Świąder et al., 2016, 1598). Synthetic measures allow performing quantifications, using just one number, regarding the development condition of the studied phenomenon, the description of which usually requires applying many diagnostic features. As a result, it is possible to conduct comparative analyses and to rank objects in terms of their development level (Stanisławski, 2010,

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[2] For the selection of features for the study see: (Kachniarz 2014, 114).

86). An overview of the studied problem, i.e. investment activity of cities, becomes more complex. The size of investment expenditure per capita is not so much the evidence of a particular municipality activity, but rather of its wealth, i.e. the wealthier the municipality, the higher its investment expenditure. Without an indicator covering also other features the information whether e.g. investment expenditure goes up along with revenue increase, is missing, etc. (Kachniarz 2014, 115). The application of indicator assessments allows using the decision support systems to integrate multiple aspects of development management, thus providing a broader perspective in the decision-making process (Kazak et al., 2017).

h_i indicator is the arithmetic mean of normalized variables. The obtained measures are normalized in the interval <0; 1>. The higher the value of the measure, the higher the position of an object in the developed ranking.

In order to standardize measure units of individual features and their order of magnitude, normalization was performed according to formula no. 1:

$$z_{ij} = \frac{x_{ij}}{\max\limits_{i} x_{ij}} \quad (i = 1, \dots, n \; j = 1, \dots, p) \quad (1)$$

where:

z_{ij}– normalized value of i-th object for X_j

x_{ij}– i-th object value for X_j

The applied procedure allows preserving a varied variance of features and proportions between normalized and primary values, and thus assigning them with differentiated significance (Kunasz 2006).

Next, using formula no. 2 h_i measures for the analysed cities were calculated:

$$h_i = \frac{1}{p} \sum_{j=1}^{p} z_{ij} \quad (i = 1, \dots, n) \quad (2)$$

where:

h_i – value of non-model synthetic measure in i-th object

p – number of features.

The cities were also classified according to the level of their investment activity. Two synthetic measure parameters were used for the classification, i.e. arithmetic mean and standard deviation. The following classes (groups) were identified:

A class (the highest activity level)

$h_i > \bar{h} + s_h$

B class (medium-high activity level)

$$\overline{h} + s_h > h_i \geq \overline{h}$$

C class (medium-low activity level)

$$\overline{h} > h_i \geq \overline{h} - s_h$$

D class (the lowest activity level)

$$h_i \leq \overline{h} - s_h$$

where:

h_i - synthetic measure value

$\overline{h}$ - arithmetic mean of h_i synthetic indicators for objects,

s_h - standard deviation of h_i synthetic indicators for objects.

In the course of research procedure, using Mann-Whitney U test[3], the following hypotheses were verified:

H_0: the level of investment activity is the same in voivodship and former-voivodship cities

H_1: the level of investment activity is different for the group of voivodship and former-voivodship cities.

Spearman's rank correlation coefficient[4] was used to analyse the strength of the relationship between city size measured by the population number and the value of the synthetic measure h_i. The following scale was used to assess dependencies between variables:

$|0,00 - 0,3|$ – weak dependence,

$|0,31 - 0,6|$ – moderate dependence

$|0,61 - 1,0|$ – strong dependence (Sobczyk 2010, 118).

The study used the sums of property values of investment expenditure for the entire studied period, i.e. the years 2004-2015. The data were collected from the Local Data Bank of the Central Statistical Office. They are aggregated from the standardized system of financial statements issued by the local government units. The information about city investment expenditure, presented in this way, meets the comparability condition.

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[3]This test is used to verify the hypothesis about the insignificance of differences between mean values of the analysed variables in two populations, assuming that the distributions of the variable are close to each other (cf. Mann and Whitney, 1947; Wilcoxon, 1949).

[4] This coefficient takes numbers in the closed interval from -1 to +1. If r_S=0, the ranks are linearly uncorrelated (no interdependence of features). If r_S=1 then a full positive linear function is present for the measurable features, r_S=-1 full negative functional linear relationship.

5. Research results

Preliminary analysis of the values of features collected in the study (tab. 2) reveals that the volume of local government investments in cities varies considerably. Thus, the value of investment expenditure per capita in Chełm is less than 20,1% of its value for Toruń. The ratio of investment expenditure against total expenditure for Toruń is 30,9%, whereas for Chełm only 7,6%. Investment expenditure of the top ranked Krosno accounted for 62,5% of the city's own revenue, while Chełm's expenditures amounted to only 19,1% of its own revenue. Such extensive variations in the analysed values can be attributed both to the investment policy of local authorities and to the prosperity level of individual cities.

It is interesting that the capital of Poland - Warszawa, characterized by the highest level of own revenues (tab. 3), featured a relatively low, against the ranking leaders, investment expenditure in relation to total expenditure and also in relation to its own revenues. It is worth observing that although Warszawa is a thriving socio-economic centre, its infrastructural needs are far from being fully met. A different situation of the voivodship cities in Kujawsko-Pomorskie region (dual capitals) is striking. In two of the three categories Toruń is the ranking leader, Bydgoszcz has definitely worse results, as it is ranked below the fortieth position in each category. It is noteworthy that the difference in own revenues per capita of these cities (tab. 3) is far from radical (17th and 18th positions). The situation of voivodship cities in Lubuskie region - the second of the voivodships where the capital function was divided into two centres - is less varied. Both Zielona Góra and Gorzów Wlkp. (dual capitals) are characterized by below average results in each ranking.

Tab. 2. The classification of cities by the level of: investment expenditure per capita (X), investment expenditure in relation to total expenditure (Y), investment expenditure in relation to own revenues (Z). Data for the period 2004-2015.

No.	City	X [USD]	No.	City	Y [%]	No.	City	Z [%]
1	Toruń	4005,8	1	Toruń	30,9	1	Krosno	62,5
2	Krosno	3915,1	2	Krosno	25,6	2	Przemyśl	61,8
3	Gdańsk	3488,6	3	Gdańsk	25,2	3	Toruń	60,0
4	Wrocław	3368,1	4	Rzeszów	24,0	4	Łomża	56,5
5	Płock	3293,0	5	Ciechanów	23,6	5	Rzeszów	50,5
6	Poznań	3287,9	6	Katowice	23,5	6	Suwałki	48,1
7	Katowice	3256,2	7	Poznań	23,3	7	Zamość	48,0

No.	City	X [USD]	No.	City	Y [%]	No.	City	Z [%]
8	Warszawa	3166,1	8	Olsztyn	22,7	8	Olsztyn	42,7
9	Olsztyn	3005,5	9	Wrocław	22,3	9	Elbląg	41,6
10	Rzeszów	2997,3	10	Białystok	22,0	10	Lublin	41,5
11	Przemyśl	2898,0	11	Łomża	21,5	11	Ciechanów	41,3
12	Opole	2770,3	12	Lublin	21,2	12	Białystok	40,7
13	Kielce	2733,2	13	Sieradz	20,4	13	Jelenia Góra	40,5
14	Białystok	2657,8	14	Jelenia Góra	20,3	14	Kielce	40,3
15	Lublin	2634,9	15	Szczecin	20,1	15	Gdańsk	39,3
16	Łomża	2518,4	16	Przemyśl	20,1	16	Skierniewice	37,7
17	Łódź	2475,2	17	Kielce	20,0	17	Tarnobrzeg	37,6
18	Jelenia Góra	2471,3	18	Suwałki	19,8	18	Kalisz	36,7
19	Suwałki	2370,2	19	Bielsko-Biała	19,8	19	Piotrków Trybunalski	36,2
20	Bielsko-Biała	2312,0	20	Opole	19,5	20	Koszalin	35,6
21	Konin	2301,4	21	Płock	19,4	21	Poznań	35,5
22	Elbląg	2261,6	22	Łódź	19,4	22	Radom	35,3
23	Szczecin	2229,6	23	Skierniewice	19,0	23	Katowice	35,1
24	Włocławek	2197,3	24	Elbląg	19,0	24	Siedlce	34,3
25	Kalisz	2189,6	25	Koszalin	19,0	25	Częstochowa	34,2
26	Piotrków Trybunalski	2186,6	26	Kalisz	18,7	26	Leszno	33,9
27	Zamość	2161,3	27	Piła	18,4	27	Opole	33,6
28	Kraków	2157,0	28	Wałbrzych	18,0	28	Szczecin	33,3
29	Słupsk	2137,5	29	Piotrków Trybunalski	17,9	29	Płock	32,9
30	Koszalin	2105,7	30	Włocławek	17,2	30	Sieradz	32,8
31	Leszno	2073,0	31	Częstochowa	17,1	31	Biała Podlaska	32,7
32	Skierniewice	2016,9	32	Zielona Góra	17,1	32	Konin	32,4
33	Siedlce	1988,4	33	Leszno	17,0	33	Bielsko-Biała	32,4
34	Tarnobrzeg	1980,0	34	Zamość	16,9	34	Wałbrzych	32,2
35	Częstochowa	1945,8	35	Warszawa	16,6	35	Zielona Góra	31,8
36	Ciechanów	1943,7	36	Kraków	16,5	36	Włocławek	31,8
37	Radom	1883,2	37	Tarnobrzeg	16,4	37	Łódź	31,7
38	Wałbrzych	1852,8	38	Konin	16,4	38	Słupsk	31,4
39	Ostrołęka	1823,6	39	Siedlce	16,2	39	Tarnów	31,3
40	Tarnów	1781,5	40	Radom	16,1	40	Wrocław	31,2
41	Zielona Góra	1748,5	41	Słupsk	15,8	41	Ostrołęka	30,7
42	Bydgoszcz	1702,3	42	Bydgoszcz	15,5	42	Piła	28,5
43	Piła	1590,9	43	Gorzów Wielkopolski	14,7	43	Gorzów Wielkopolski	28,5
44	Gorzów Wielkopolski	1548,0	44	Ostrołęka	14,2	44	Bydgoszcz	26,0
45	Sieradz	1480,4	45	Tarnów	14,0	45	Nowy Sącz	25,9
46	Legnica	1460,5	46	Biała Podlaska	13,2	46	Kraków	24,9

No.	City	X [USD]	No.	City	Y [%]	No.	City	Z [%]
47	Nowy Sącz	1432,1	47	Legnica	13,0	47	Legnica	24,9
48	Biała Podlaska	1390,4	48	Nowy Sącz	11,1	48	Warszawa	21,1
49	Chełm	805,3	49	Chełm	7,6	49	Chełm	19,1

Source: author's compilation based on the Local Data Bank of the Central Statistical Office.

Tab. 3. Cumulative own revenues of the analysed cities per capita

No.	City	[USD]	No.	City	[USD]	No.	City	[USD]
1	Warszawa	14988	18	Bydgoszcz	6540	35	Nowy Sącz	5532
2	Wrocław	10778	19	Białystok	6529	36	Zielona Góra	5492
3	Płock	10007	20	Lublin	6347	37	Elbląg	5442
4	Katowice	9270	21	Krosno	6266	38	Gorzów Wielkopolski	5438
5	Poznań	9263	22	Leszno	6111	39	Skierniewice	5344
6	Gdańsk	8871	23	Jelenia Góra	6105	40	Radom	5335
7	Kraków	8664	24	Piotrków Trybunalski	6049	41	Tarnobrzeg	5270
8	Opole	8255	25	Kalisz	5971	42	Suwałki	4924
9	Łódź	7819	26	Rzeszów	5940	43	Ciechanów	4710
10	Bielsko-Biała	7147	27	Ostrołęka	5939	44	Przemyśl	4688
11	Konin	7098	28	Koszalin	5910	45	Sieradz	4507
12	Olsztyn	7045	29	Legnica	5873	46	Zamość	4503
13	Włocławek	6906	30	Siedlce	5799	47	Łomża	4461
14	Słupsk	6813	31	Wałbrzych	5763	48	Biała Podlaska	4248
15	Kielce	6785	32	Tarnów	5692	49	Chełm	4222
16	Szczecin	6703	33	Częstochowa	5688			
17	Toruń	6677	34	Piła	5578			

Source: author's compilation based on the Local Data Bank of the Central Statistical Office.

The next research stage consisted in calculating h_i measures for the analysed cities. Later the cities were classified according to their investment activity level. Four groups of cities (A, B, C, D), characterized by diverse values of this indicator, were identified (tab. 4). Class A includes overachievers, whereas class D – outsiders.

Tab. 4. The values of non-model synthetic measure h_i for the examined cities with the division into classes by the level of investment activity

Class A	h_i	Class B	h_i	Class C	h_i	Class D	h_i
Toruń	0,99	Olsztyn	0,72	Łódź	0,58	Bydgoszcz	0,45
Krosno	0,94	Poznań	0,71	Szczecin	0,58	Gorzów Wielkopolski	0,44
Przemyśl	0,79	Katowice	0,71	Kalisz	0,58	Biała Podlaska	0,43
Rzeszów	0,78	Wrocław	0,69	Bielsko-Biała	0,58	Legnica	0,39
Gdańsk	0,77	Białystok	0,68	Skierniewice	0,57	Nowy Sącz	0,38

Class A	h_i	Class B	h_i	Class C	h_i	Class D	h_i
Łomża	0,74	Lublin	0,67	Koszalin	0,57	Chełm	0,25
		Suwałki	0,67	Piotrków Trybunalski	0,57		
		Płock	0,66	Warszawa	0,55		
		Kielce	0,66	Tarnobrzeg	0,54		
		Jelenia Góra	0,64	Konin	0,54		
		Ciechanów	0,64	Włocławek	0,54		
		Opole	0,62	Leszno	0,54		
		Zamość	0,62	Częstochowa	0,53		
		Elbląg	0,61	Siedlce	0,52		
				Wałbrzych	0,52		
				Sieradz	0,52		
				Radom	0,52		
				Słupsk	0,52		
				Zielona Góra	0,50		
				Kraków	0,49		
				Piła	0,48		
				Ostrołęka	0,47		
				Tarnów	0,47		

Source: author's compilation.

It can be noticed that the level of investment activity for individual cities, measured by the synthetic measure, varies considerably. The highest level of the studied phenomenon was observed in Toruń (measure value was 0,99) and the worst one in Chełm, where it amounted to 25,3% of the value for Toruń.

Six units were qualified in class A, covering the cities featuring the highest activity level: Toruń, Krosno, Przemyśl, Rzeszów, Gdańsk, Łomża. Three of them: Toruń, Rzeszów and Gdańsk are the regional capitals. It should be observed that the largest of these cities – Gdańsk – is the sixth largest city in Poland. Krosno, Przemyśl and Łomża, previous voivodship capitals, have less than 63 thous. residents, which places them in the group of smaller cities among the analysed ones, yet they hold the position of the ranking leaders. In this group only Gdansk and Toruń are characterized by above average own revenues level per capita (the average for all cities is 6516 USD), but it can be noticed that the revenues of Gdańsk accounted for only 59,2% of Warszawa, or 82,3% of Wroclaw respectively (cf. tab. 3). Rzeszów is the capital city of Podkarpackie voivodship, located in eastern Poland, characterized by below average values of socio-economic development measures, against the entire country, (the voivodship GDP per capita in 2014 was 70,9% of the national average). It can be concluded that the cities included in

group A represent centres which have deliberately decided to invest in order to increase their competitive position and increase their future development opportunities.

Class B (medium-high activity level) covered fourteen units and was dominated by the regional capitals (eight out of fourteen cities). The situation of Olsztyn, Białystok, Lublin, Kielce is interesting. These are the capitals of eastern, economically poorest voivodships in Poland (the aforementioned Podkarpackie voivodship is directly adjacent to them). GDP of the best of them i.e. Świętokrzyskie voivodship amounts to 72,8% of the average for Poland. The values of other socio-economic development measures (unemployment rate, remuneration level) are also unsatisfactory. The cumulative own revenues per resident of Olsztyn were only 47% of that for Warszawa, or 65,4% of Wrocław (cf. table 3), for the other three cities (Bialystok, Lublin, Kielce) they were lower. At the same time, these cities held high positions in the developed ranking. Thus, the prospective and development oriented attitude of these centres, reflected even in the relation of investment expenditure to total expenditure is well visible.

The largest group of cities was classified as class C, which includes units characterized by medium-low level of investment activity. These cities are strongly diverse in terms of population number and their area size, and also their locations do not indicate any spatial regularity. Five of the twenty-three cities in this group remain regional capitals. The relatively weak position of Warszawa is surprising. The capital of Poland is characterized by far the highest level of own revenues per capita in the group of analysed cities and, at the same time, only their small part (21,1%) is spent on investments. Investment expenditure also accounts for only 16,6% of total expenditure. Thus, the scale of city authorities' pro-development involvement, taking into account the existing financial potential of the unit is very low.

Class D, which includes cities featuring the lowest measure level, covers six centres: Bydgoszcz, Gorzow Wielkopolski, Biała Podlaska, Legnica, Nowy Sącz, Chełm. Two of them are voivodship cities, but with reduced administrative functions (dual capitals). These cities are significantly different, in terms of investment activity measured by the aforementioned characteristics, from the cities holding top ranking positions. This situation may be due to the weak, at the background of other cities, economic base (e.g. Chełm), as well as the lack of pro-investment attitudes of their authorities (Bielsko-Biała).

Based on the adopted level of $\alpha = 0.05$ and the Mann-Whitney U test statistics (p = 0,021), H_0 hypothesis can be rejected and other statistically significant differences between the group of

current voivodship cities and former voivodship cities can be adopted due to h_i measure value. These differences consist in the fact that the level of investment activity in voivodship cities is higher than in case of former voivodship ones. The average measure value for the current voivodship cities is 0,64 and 0,56 for the former ones.

Using Spearman's rank correlation coefficient, the strength of the relationship between a city size, measured by its population number and the values of h_i synthetic measure was analysed. This coefficient takes numbers in the closed interval from -1 to +1. Since $r_S=0,193$, it can be stated that there occurs weak, but positive relationship between these values. It should be stipulated, however, that such conclusion refers to the group of analysed major Polish cities only.

6. Conclusions

In the light of the presented research, administrative status can contribute to higher capital expenditure. The cities which maintained the voivodship status are generally characterized by slightly higher investment expenditure than the centres which lost this status. In this respect, the results of our research are generally consistent with other studies (cf. Caroll and Meyer 1982; Ma 2005; Paddison 1983; Komorowski 2013). It should, however, be added that the method used in the presented research showed smaller differences than it appears in other studies.

The aforementioned relationships are so weak that they may result from other reasons than just the capital function. One of them could be the city size and its importance in the polarized development model. The centres which remained voivodship capitals are, on average, more populated than the ones which lost this function. As it is possible to confirm the statistical correlation between the synthetic measure of investment expenditure and its magnitude (even though it is weak), it is quite likely that such correlation may be the reason for city's advantage, rather than its status. In other words - it is the role which a city plays in its settlement system that determines its higher investment activity and not the secondary, in relation to it, capital function. In this regard, our research has provided a complementary element to the current state of knowledge, leaning towards the main conclusions from the study by Kurniewicz and Swianiewicz (2016).

It is important to emphasize that there are several significant exceptions to the diagnosed weak regularities – in cases when the cities without capital status outrun regional centres. The group of classification leaders is made up, to the same extent, of capital cities (Toruń, Rzeszów, Gdańsk) as of small centres, which lost this function (Krosno, Przemyśl, Łomża). In addition, they

represent peripheral centres – located in less developed regions (Podlasie and Podkarpacie). These cases clearly show the role of appropriate local government policy. By taking advantage of the occurring opportunities it can lead to breaking from the marginalization resulting from the polarization of development processes.

It also seems that the duality of capitals (marshal's and voivodship offices located in different cities) does not enhance their development. The exception is Toruń, which belongs to the group of leaders, whereas much larger Bydgoszcz (both cities in Kujawsko-Pomorskie voivodship) as well as Zielona Góra and Gorzów Wielkopolski (Lubuskie voivodship) represent the ranking outsiders.

The low position of Warszawa and Kraków - two largest Polish cities - is surprising. Although they represent high revenue potential, their investments are relatively small. In this respect they are ranked almost at the end of the list of capital cities. This raises the suspicion about a relatively high consumption level and an ineffective administrative structure. This problem can present an interesting field for further research exploration.

Finally, a more general conclusion of our research can be attempted. Although the city status and its revenue potential determine its investment activity to some extent, there are still clear examples showing that it is the local policy which can modify these determinants. The examples of good governance confirm that by taking proper advantage of the occurring opportunities, the existing developmental barriers can be overcome. There are, however, also negative cases where the potential of certain units is used very inefficiently.

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