

Change of municipal finances due to suburbanization as a development challenge on the example of Poland

Jan Smutek^{CDFMR}

University of Szczecin, Faculty of Geosciences, Department of Urban Research on Cities and Regions, Mickiewicza 18, 70-383 Szczecin, Poland; phone: +48 881 455 622, e-mail: jan.smutek@univ.szczecin.pl

How to cite:

Smutek, J., 2017: Change of municipal finances due to suburbanization as a development challenge on the example of Poland. In: Środa-Murawska, S. and Szymańska, D. editors, *Bulletin of Geography. Socio-economic Series*, No. 37, Toruń: Nicolaus Copernicus University, pp. 139–149. DOI: <http://dx.doi.org/10.1515/bog-2017-0030>

Abstract. The article summarizes the results of a study of the impact of suburbanization on the budgets of Polish gminas existing in the zones of influence of big cities. The study covers the 2001–2010 period and examines the zone of influence of 12 most important cities, following the National Spatial Development Concept 2030. Revenues, and therefore expenditures of gminas, are increasing due to the process of suburbanization. That growth is concentrated in a relatively small number of administrative units. One of the most important results is the increase in gminas' income from their shares in PIT. The second consists in higher incomes from the property taxes, mostly on commercial property. Higher incomes on assets are concentrated in the areas that were formerly developed. Transfer incomes are lower in suburbanizing areas. Suburbanization results in higher expenditure on transport (mostly road infrastructure) and lower on education (postponement of investments), and social assistance. Higher expenditures on housing are concentrated in the areas that were developed in the past.

Article details:

Received: 27 February 2016
Revised: 05 September 2016
Accepted: 23 June 2017

Key words:

suburbanization,
budget,
Poland,
metropolitan area,
contingency table.

© 2017 Nicolaus Copernicus University. All rights reserved.

Contents:

1. Introduction	140
2. Materials and research methods.	140
3. Suburbanization in Poland	141
4. General structure of budgets.	143
5. Higher probability of investments	145
6. Discussion.	146
7. Conclusions	147
References	147

1. Introduction

Suburbanization is a phenomenon which, after the political changes at the beginning of the 1990s has increased in importance in Poland (Lisowski, Grochowski, 2009; Masik, 2010; Kajdanek, 2011; Kowalewski et al., 2013; Staszewska, 2013). It is also a process that is accelerating in Poland (Szymańska, Biegańska, 2011). Its importance results from its universality and general occurrence. Modern mass-migration of population and businesses in the suburban areas first started in the USA, in the middle of the 20th century (Mills, Price, 1984; Mieszkowski, Mills, 1993). Then, it spread further into other countries (Lisowski, Grochowski, 2009; Staszewska, 2013).

Suburbanization could be understood as decentralization in an urban region or urbanization of a suburban zone (Dziewoński, 1987; Lisowski, Grochowski, 2009; Vesselinov, Le Goix, 2012; Staszewska, 2013). Referring to decentralization in an urban region, the urban cycle consisting of the following stages must be mentioned: (a) urbanization, (b) suburbanization, (c) deurbanization, (d) reurbanization. In numerous studies, that approach also refers to a decrease of the density gradient in an urban region in the sense of C. Clark's equation (Clark, 1951). In a more systemic approach, suburbanization is a result of concentration and deconcentration forces within the urban region (Dziewoński, 1987). Suburbanization is also described by many scholars, in a less sophisticated way, as the urbanization of a suburban zone. In this approach, it is mostly understood as, among others, the migration and growth of the population, changes in social structure and the style of living, economic development and housing development (Staszewska, 2013).

The research on the influence of suburbanization on the economic situation of local administrative units has started after the WWII (Mills, Price, 1984; Orfield, 2002). It is a rather well-known fact that suburbanization generally has a negative impact on the economic and budgetary situation of central cities (Mills, Price, 1984; Mieszkowski, Mills, 1993; Pacione, 2001; Brueckner, Hyun-a, 2003; Caruthers, Ulfarsson, 2003; Lin, 2014). Recent research deals with the budgetary situation of local administrative units that are under the suburbanization

pressure (Orfield, 2002; Wixforth, 2009; Hendrick, 2011), although publications about the influence of suburbanization on budgets in Poland are quite limited and focus mainly on specific issues rather than on the general situation (e.g. Miszczuk, 2003, 2009; Kubejko, 2007; Raźniak, 2011; Węgrzyn, Surówka, 2011; Smutek, 2011, 2012a, 2012b). Research results in this article are based on the author's PhD thesis (Smutek, 2016). The article intends to determine how suburbanization affects the system of local finances in Poland, and how it could endanger the development of metropolitan areas.

2. Materials and research methods

The research methods used in the study are: hierarchical and non-hierarchical grouping – Ward and K-means methods, contingency tables and chi-square test. Ward method was chosen because it is about 40% more effective than other agglomerative methods of classification (Machowska-Szewczyk, Sompolska-Rzechuła, 2012). The study was conducted in three stages. Firstly, gminas were grouped into types according to the intensity of their suburbanization. Secondly, the same gminas were grouped into classes according to the characteristics of their budgets. Thirdly, it was examined whether there is a correlation between those two classifications. Chi-square test and the value of its components were used to assess the results' significance. $\alpha=0.01$ was chosen as the level of significance. 3 and 5 were chosen as important values of χ^2 components. The procedure was multileveled, as it enabled a comparison between the classification and a test to see whether the relations are significant. The use of the following statistic indicators (Cramer's V and Tschuprow's T) also enabled the comparison of relationships' significance.

The limitations of that approach include the method's complexity and the fact that the interpretation of the results should be taken with higher caution, as for particular units and their variables, the average value for class might not exactly represent the value for that unit. Because of that, the chosen level of significance was higher than it usually is in socio-economic research ($\alpha=0.05$) and conclusions regarding the relation between suburbaniza-

tion and municipal finances were drawn only when the relation was significant for more than one pair of classes.

The research covers the 2001–2010 period. The study was conducted for the zone of influence of the 12 most important cities according to the National Concept for Spatial Development 2030. They are: (a) Warsaw, (b) Silesian Conurbation, (c) Gdańsk, Gdynia and Sopot, (d) Wrocław, (e) Poznań, (f) Kraków, (g) Łódź, (h) Szczecin, (i) Lublin, (j) Białystok, (k) Rzeszów, (l) Bydgoszcz with Toruń. In that article, gminas located in the zone of influence were understood as those units which were accessible by car in less than 45 minutes from the city centre (as at December 2011). For Warsaw, that area was extended to 1 hour. For five cities below 400 thousand inhabitants it was only 30 minutes. Within that area, there are 373 municipalities included in the study. Time distance from the centre of big cities (as at December 2011) was chosen as a delimitation of those areas.

Other important aspects are parts of budgets that are subject to the analysis. Table 1 presents the categories of the budgets that were chosen for analysis. They were chosen according to the importance and availability of data. The selected categories represent the most important sources of revenues in the majority of Polish gminas and the most important categories of spending.

Table 1. Analysed parts of budgets

Revenues	Expenditures
<ul style="list-style-type: none"> • total income [I.T], • income from assets [I.A], • share in taxes from PIT [I.PIT], • share in taxes from CIT [I.CIT], • property tax [I.PT.], • agricultural tax [I.AT.], • general subsidies [I.GS], • targeted subsidies [I.TS.]. 	<ul style="list-style-type: none"> • total expenditures [E.T.], • investments [E.I.], • running expenditures [E.R], • expenditures on education [E.ED.], • administration [E.A.], • public utilities and protection of environment [E.EN.], • housing [E.HS.], • culture and heritage protection [E.HP.], • social assistance [E.SA.], • transport [E.TR.], • healthcare [E.HC.].

Source: Own compilation

3. Suburbanization in Poland

For the purpose of the research, a typology of Polish gminas in the area of influence of big cities was prepared. This typology, described in detail by Smutek (2016), is based on the assessment of suburbanization used for the following indices: (a) number of finished dwellings in 2001–2010 per square km; (b) change in the number of registered business entities in 2001–2010 per square km; (c) change in the number of employees (in business entities hiring more than 9 people) in 2001–2010 per square km; (d) migration balance in 2001–2010 per square km.

The Ward method for grouping was used to identify seven types of gminas. Their characteristics grouped by their average values (normalised) can be seen in Fig. 1. Spatial distribution is presented in Fig. 2.

The first type of gminas has only four elements. It includes gminas with a town status that are neighbouring a metropolitan city. The second type are gminas where the development of businesses, especially connected with a huge number of jobs, is concentrating, while the migration is, on average, quite low. Among these gminas are the ones where foreign direct investments, sometimes due to the existence of special economic zones, are located. Gminas in which mining activities are taking place are also included in this type. The third type of gminas is characterised by high intensity of suburbanization, but mostly by the migrations of people (and therefore new dwellings and registered business entities). The fourth type of gminas is characterised by average intensity of suburbanization. The fifth type of gminas is characterised by low intensity of suburbanization. The sixth type of gminas contains mostly old industrial or urban gminas that are facing troubles with economic restructuring. Therefore, people or big enterprises are moving out of those areas. The last type of gminas are those in which the level of suburbanization is mostly non-existent, therefore this type was named a “no urbanization process”. It is the biggest group, which includes nearly half of the surveyed gminas.

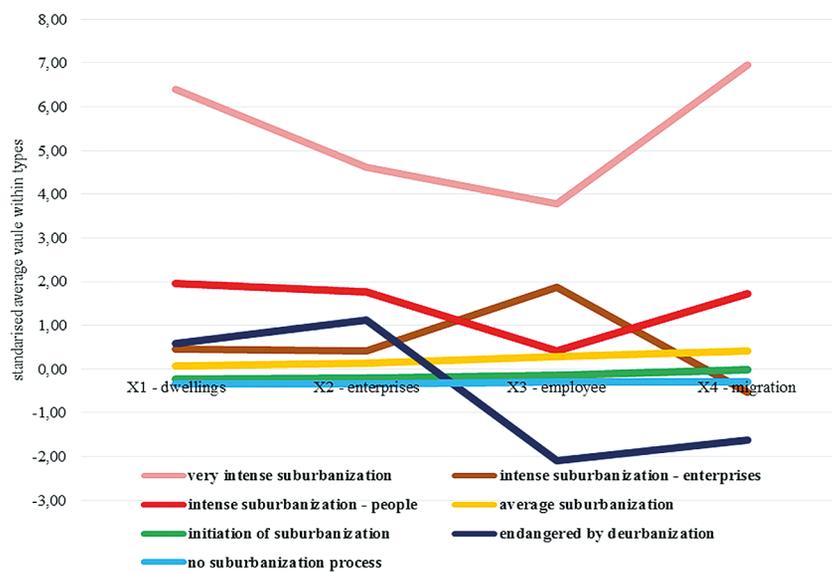
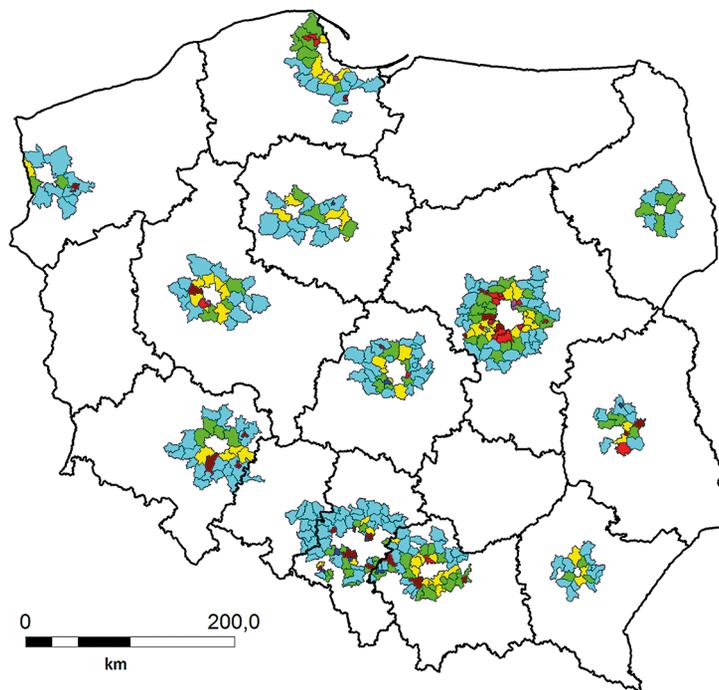


Fig. 1. Average values (normalised for the whole group of analysed entities) of indices of suburbanization within gmina types according to suburbanization

Source: Smutek, 2016



Types of gminas according to intensity of suburbanization in years 2001-2010

I - very intense suburbanization	(4)
II - intense suburbanization - enterprises	(23)
III - intense suburbanization - population	(17)
IV - average suburbanization	(60)
V - initiation of suburbanization	(75)
VI - endangered by deurbanization	(10)
VII - no suburbanization process	(182)

Fig. 2. Types of gminas according to suburbanization in 2001–2010

Source: Smutek, 2016

4. General structure of budgets

In order to assess the differentiation of gminas in terms of the structure of their budgets, they were divided into 10 types using the k-means method. The number of types was firstly identified with the use of the Ward method. The average values per capita in the years 2001–2010 of all analysed categories in Tab. 1 were chosen as variables used for the identification of the budgets' structure. The characteristics of the identified types can be seen in Fig. 3. In general, the number of richer gminas is much smaller than the number of poorer gminas. Such concentration of wealth in suburban areas can be also observed in other countries (Orfield, 2002; Macešková, Ouředníček, 2008; Wixforth, 2009; Goffette-Nagot, Hendrick, 2011; Schaeffer, 2011).

The types of gminas according to their structure of budgets depend on the types of gminas defined by the intensity of suburbanization. χ^2 test amounts to 219.1 while 0.01 significance level is 81.1. The contingency table which was used to calculate the test can be seen in Table 2. The spatial distribution of gminas' types according to their budget structure is presented in Fig. 4.

The first type, "rich, industrial" gminas, has only 5 elements: Kobierzyce, Lesznowola, Nadarzyn, Suchy Las and Tarnowo Podgórne. These gminas are a good example of intensive suburbanization and development of businesses (Matykowski, Tobolska, 2005; Warczevska, Przybyła, 2012). Such local gminas which generate large revenues from taxes especially from businesses, can be also observed in the USA or Germany (Orfield, 2002; Wixforth, 2009). In the second type, "rich, elite", there are only 5 elements as well: Izabelin, Konstancin-Jeziorna, Michałowice, Piaseczno and Podkowa Leśna. All of these gminas are in the neighbourhood of Warsaw. Their high revenues come from the shares in PIT.

In the comparison of the first two types, it has to be mentioned that gminas of a "rich, industrial" type (correlated with businesses) spend more money on education than gminas in the "rich, elite" type (correlated with migration of population). The financial situation of both types of gminas, characterised by low spending on social assistance and low level of transfers, is good (although the financial

mismatch can influence their currently poor financial situation). Such concentration of wealth is an object of critique in other countries (Pacione, 2001; Orfield, 2002; Wixforth, 2009; Hendrick, 2011).

The wealth of the third type of gminas stems mostly from the location of specific large-scale infrastructure within their territory (e.g. a military compound, large logistic enterprises, mining, an artificial lake). Usually, such an area is not highly urbanized. Among the 23 gminas classified within this type, nine were identified as gminas where suburbanization is in the initiation phase. It has to be mentioned that their improved financial situation "is not a result of their effort" and is also an object of critique from other local authorities (Gołembiewski, 2014).

Type VII, "agricultural", and type VIII, "poor, high level of transfers", are connected with a rural characteristic of the area. Gminas in type VII are in a better situation due to the high quality of soils and high tax revenues which result from being assigned to high agricultural district tax (Ganc, 2011). They are spatially concentrated in Lower Silesia (in the areas near Wrocław). In all gminas of this type suburbanization could hardly be seen. Gminas of type VIII are more dependent on transfers. Their economic situation is worse, and they spend more money on social assistance. Suburbanization in those gminas is not occurring or it appears only at the initial stage.

From the perspective of metropolitan areas management, type VI, "average, big assets", is also important. Those gminas are usually not connected with the process of suburbanization, although some of them are within the borders of different delimitations of metropolitan areas in Poland (e.g. Smętkowski et al., 2009; Śleszyński, 2013). The specificity of those gminas is connected with their long-lasting urban character resulting in large accumulated, or to some extent devastated, assets (including municipal housing stock). This results in high revenues from assets, quite high from property tax and very high expenditures on housing and social assistance. Therefore, the financial standing of those gminas is, to some extent, endangered. The examples of gminas within this type are: Będzin, Mikołów, city Oława, Police, Wejherowo and Zgierz.

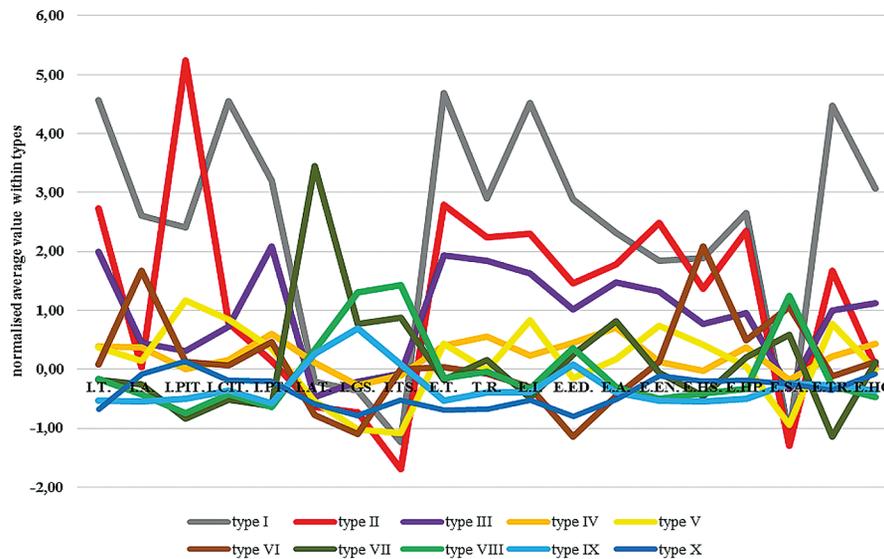


Fig. 3. Average values of the separate types of gminas in Poland in the zone of influence of big cities according to their revenues and expenditures in the years 2001–2010

Explanation: Type of gminas: I – rich industrial; II – rich, elite; III – rich, bigger property tax incomes; IV – average, less active; V – average, higher PIT incomes; VI – average, big assets; VII – agricultural; VIII – poor, high level of transfers; IX – poor, high social assistance; X – poor, self-dependent; Budget categories: [I.T] total income, [I.A] income from assets, [I.PIT] share in taxes from PIT, [I.CIT] share in taxes from CIT, [I.PT.] property tax, [I.A.T.] agricultural tax, [I.GS] general subsidies, [I.TS.]targeted subsidies, [E.T.] total expenditures, [E.I.] investments, [E.R] running expenditures, [E.ED] expenditures on education, [E.A.] administration, [E.EN] public utilities and protection of environment, [E.HS.] housing, [E.HP] culture and heritage protection, [E.SA.] social assistance, [E.TR.] transport, [E.HC.] healthcare

Source: Smutek, 2016

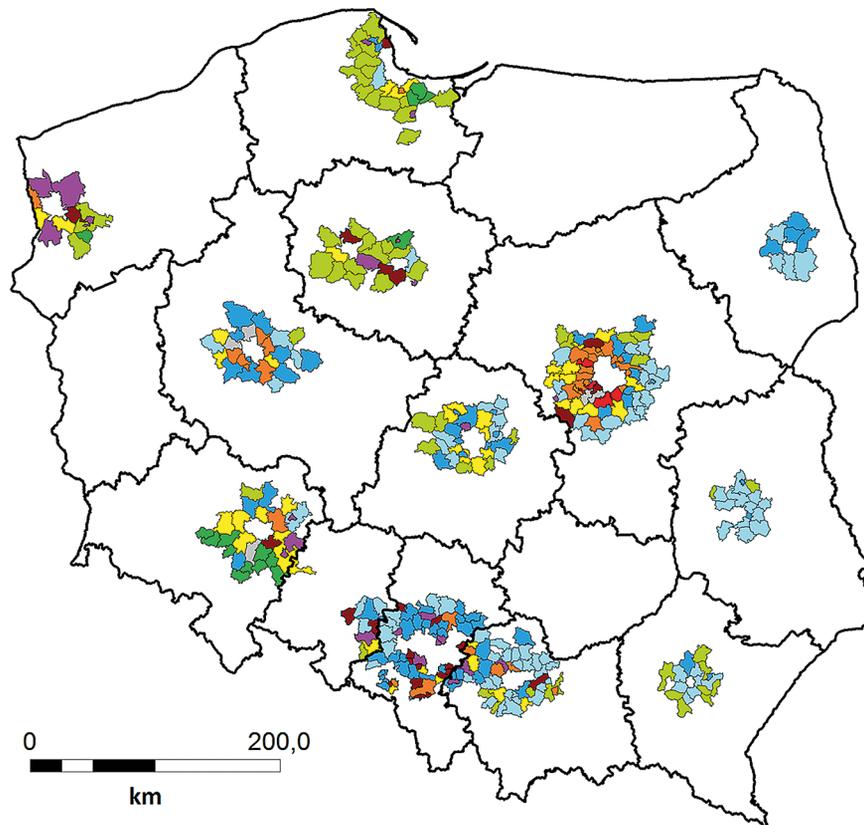
Table 2. Type of gminas' structure of budgets and type of gminas' suburbanization

Type of gmina suburbanization	Type of gmina structure of budget										Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	
I – very intense suburbanization	0	0	0	0	<u>2</u>	0	0	0	0	2	4
II – intense suburbanization – enterprises	<u>2</u>	0	3	2	2	<u>9</u>	0	0	<i>1</i>	4	23
III – intense suburbanization – population	1	1	0	0	<u>9</u>	1	0	0	1	4	17
IV – average suburbanization	2	2	5	12	<u>14</u>	3	0	<i>1</i>	12	10	60
V – initiation of suburbanization	0	1	9	15	4	0	0	12	22	13	75
VI – endangered by deurbanization	0	0	1	0	0	<u>3</u>	0	0	0	<u>6</u>	10
VII – no suburbanization process	0	1	5	14	3	7	<u>15</u>	<u>42</u>	54	41	182
Total:	5	5	23	43	34	23	15	55	90	80	373

Explanation: Type of gminas: I – rich industrial; II – rich, elite; III – rich, bigger property tax incomes; IV – average, less active; V – average, higher PIT incomes; VI – average, big assets; VII – agricultural; VIII – poor, high level of transfers; IX – poor, high social assistance; X – poor, self-dependent.

dark grey, bold and underlined – χ^2 component above 5 and more occurrences than expected value; dark grey, bold – χ^2 component between 3 and 5 and more occurrences than expected value; light grey, italics and underlined – χ^2 component above 5 and fewer occurrences than expected value; light grey, italics – χ^2 component between 3 and 5 and fewer occurrences than expected value;

Source: Smutek; 2016; own compilation



Types of gminas according to structure of budgets 2001-2010

■ I - rich, industrial	(5)
■ II - rich, elite	(5)
■ III - rich, bigger property tax incomes	(23)
■ IV - average, less active	(43)
■ V - average, higher PIT incomes	(33)
■ VI - average, big assets	(23)
■ VII - agricultural	(15)
■ VIII - poor, high level of transfers	(55)
■ IX - poor, high social assistance	(90)
■ X - poor, selfdependent	(80)

Fig. 4. Location of gminas' types according to their structure of budgets

Source: Smutek, 2016

5. Higher probability of investments

New residents and enterprises result in new investment needs when the capacity of existing infrastructure is exceeded. It is a rather simple statement, and in suburban areas the increase in the density of population of businesses is high (Gutsche, 2009). Therefore, the investment needs are a particular challenge for further development of suburbanizing local self-governments (Wixforth, 2009; Hendrick, 2011; Kowalewski et al., 2013). In situations when present development is financed from future

revenues, it can be a dead end for suburban development (Hendrick, 2011). Some Polish studies are highlighting this threat (e.g. Kowalewski et al., 2013), and sometimes the local authorities notice it (Nowocin-Kowalczyk, 2014), but most of them do not see the differences between their gminas and other rural ones (Drejska et al., 2014). One of the reasons for this situation is the weakness of Polish planning system which allows temporary, substandard solutions (Kowalewski et al., 2013).

High intensity of suburbanization results in higher probability of big (in terms of gminas' budgets) investments. As presented in table 4, gminas that

were suburbanizing intensively were also more often conducting large investments in road infrastructure. Similar results were achieved for the investments in education, public utilities and environment, and housing (Smutek, 2016). Although it is emphasized

that gminas are not required to build new roads, schools and so on (Kowalewski et al., 2013), they are in fact forced (with some delay) to do that due to the pressure from society (Masik, 2010).

Table 3. The number of gminas where investments in transport exceed PLN 10 million (in 2012 prices) in research period 2001–2012

Type of gminas – suburbanization	Occurred	Did not occur	Total gminas	Share of gminas with big investment, %
I – very intense suburbanization	<u>2</u>	2	4	50.0 %
II – intense suburbanization – enterprises	<u>12</u>	11	23	52.2 %
III – intense suburbanization – population	<u>9</u>	8	17	52.9 %
IV – average suburbanization	<u>11</u>	50	61	18.0 %
V – initiation of suburbanization	<i>1</i>	75	76	1.3 %
VI – endangered by deurbanization	0	10	10	0.0 %
VII – no suburbanization process	<i>5</i>	177	182	2.7 %
Total:	40	333	373	10.7 %

Explanation: Dark grey, bold and underlined – χ^2 component above 5 and more occurrences than expected value; Dark grey, bold – χ^2 component between 3 and 5 and more occurrences than expected value; Light grey, italics and underlined – χ^2 component above 5 and fewer occurrences than expected value;

Source: Smutek, 2016

6. Discussion

The inflow of new residents and new businesses generally results in the improvement of the socio-economic situation of the destination area and the worsening of situation in the source area. It is one of the main foundations for the hypothesis of suburban exploitation of the central city (Pacione, 2001). The study focused only on the destination area (suburban area), therefore it was impossible to verify this hypothesis in the case of Poland, although the results seem to confirm it rather than reject it. An improvement of the financial situation of municipalities that are suburbanizing was observed. This is shown in the fact that gminas with highest budgets and most favourable structure of budgets (chapter 4) are those that are suburbanizing the most (chapter 3). At the same time, the

relative worsening of the financial standing of gminas which are not suburbanizing could be observed. A similar situation, especially associated with the growth of businesses, was observed by other authors for Poland and other countries (Wixforth, 2009; Masik, 2010; Hendrick, 2011; Lin, 2014).

To some extent, the hypothesis regarding suburban exploitation is confirmed when we concentrate on the situation of gminas that are old industrial towns (chapter 3 discusses mostly gminas belonging to the “endangered by deurbanization” type). Their incomes are quite high, but they spend a lot on social assistance and housing. A similar situation can be observed in the case of big cities (Pacione, 2001) and this type of expenses is not pro-growth (Masik, 2010). Due to this, the differences between gminas might even grow in the future. Within the context of pro-growth investments, it is also important that the growth of public investments in infrastructure

is a result of suburbanization. This was observed (chapter 5) for transport (roads), education, public utilities and environment and housing. Investments in road infrastructure, but also in public utilities, are attracting investments. The old industrial gminas rarely conduct these kinds of investments and therefore their relative attractiveness might decrease in the future.

7. Conclusions

Suburbanization is a strong force that influences budgets of gminas in the suburban zones of big cities in Poland. In the research, it was observed that revenues and expenditures are generally higher in suburbanizing gminas (chapter 4). It is especially important for the efficient sources of income: share in PIT tax, share in CIT tax, property tax. They are also incurring more pro-growth expenditures: investments in general, transport, public utilities and protection of the environment and expenditures on education. The same was observed in other researches on the suburbanization of Polish gminas (Miszczuk, 2009; Raźniak, 2011; Smutek, 2016), and it is, to some extent, a similar situation to that in other countries (Pacione, 2001; Orfield, 2002; Wixforth, 2009; Hendrick, 2011). The changes of budget structure are associated with that growth. These changes are especially favourable for gminas in which the number of businesses is growing. The self-reinforced process of some gminas improving their financial standing may result in gminas which are in an unfavourable position being unable to provide a satisfactory level of public services. It will significantly decrease the quality of life in Polish metropolitan areas, as well as their attractiveness.

Changes in the budget structure are also a threat to the management of the metropolitan areas. The first threat is the division of gminas into very wealthy ones which are able to spend money on different amenities, and gminas with high spending needs regarding social assistance (rural areas and old cities) and housing (old cities). Such division is created also due to the fact that rural gminas are mostly financed by agricultural tax which generates small revenue, while urban (as well as suburban) gminas are financed mostly from the shares in

PIT and property tax which generate higher revenue (Miszczuk, 2009). This type of division can be found in other countries (Orfield, 2002; Wixforth, 2009). The second threat is associated with investment needs. It was observed, in chapter 5 that suburbanization is connected with higher probability of big (in terms of gminas' budgets) investments. Future investments in infrastructure (especially in transport and education) induced by suburbanization are a danger to the financial stability and development of Poland (Kowalewski et al., 2013). A situation in which financial stability of gminas is provided only when they are growing is observed in other countries (e.g. USA) (Hendrick, 2011), and it can also be a threat to Polish gminas in the future.

References

- Brueckner, J.K. and Hyun-a, K.**, 2003: Urban Sprawl and the Property Tax. In: *International Tax and Public Finance*, Vol. 10, pp. 5–23.
- Carruthers, J.I. and Ulfarsson, G.F.**, 2003: Urban sprawl and cost of public services. In: *Environment and Planning B: Planning and Design*, Vol. 30, pp. 503–522.
- Clark, C.**, 1951: Urban population densities. In: *Journal of the Royal Statistical Society Series A*, Vol. 114, pp. 490–496.
- Drejerska, N., Chrzanowska, M. and Pomianek, I.**, 2014: Rozwój społeczno-gospodarczy strefy podmiejskiej Warszawy z perspektywy samorządu lokalnego (Socio-economic development of suburban zone of Warsaw from the perspective of local government – in Polish). In: Drejerska, N. editor, *Strefa podmiejska Warszawy. Wybrane zagadnienia*, Warszawa: Wydawnictwo SGGW, pp. 52–76.
- Dziewoński, K.**, 1987: Strefa podmiejska - próba ujęcia teoretycznego (Suburban zone – attempt for theoretical approach – in Polish). In: *Przegląd Geograficzny*, Vol. 59 (1–2), pp. 55–63.
- Ganc, M.**, 2011: Podatek rolny w relacji do produkcji, przychodów i przepływów pieniężnych w gospodarstwach prowadzących rachunkowość rolną FADN (Rural tax in relations of production, revenues and cash flow in farms carrying accounting within FADN standards – in Polish). In: *Zeszyty Naukowe Uniwers-*

- sytetu Szczecińskiego. *Finanse, Rynki Finansowe, Ubezpieczenia*. Vol. 38, pp. 51–60.
- Goffette-Nagot, F. and Schaeffer, Y.** 2011: Income Segregation and Suburbanization in France: A Discrete Choice Approach. In: *GATE Working Paper*, No. 1112, pp. 36.
- Gołembiewski, E.**, 2014: Finansowanie miast i gmin – najwyższy czas na zmiany (Financing cities and gminas – high time for changes – in Polish). In: *Finanse komunalne*, Vol. 2014/1-2, pp. 114–119.
- Gutsche, J.M.**, 2009: Siedeln kostet Geld. Kostenstrukturen und Rahmenbedingungen der Baulandentwicklung (Settle costs money. Cost structures and conditions for land development – in German). In: Preuß, T. and Floeting, H. editors, *Folgekosten der Siedlungsentwicklung Bewertungsansätze, Modelle und Werkzeuge der Kosten-Nutzen-Betrachtung*, Berlin: Deutsches Institut für Urbanistik GmbH (Difu), pp. 31–42.
- Hendrick, R.**, 2011: Managing the Fiscal Metropolis: The Financial Policies, Practices, and Health of Suburban Municipalities. Washington: Georgetown University Press, p. 302.
- Kajdanek, K.**, 2012: Suburbanizacja po polsku (Suburbanization in Polish – in Polish). Kraków: Wydawnictwo Nomos, p. 252.
- Kowalewski, A., Mordasiewicz, J., Osiatyński, J., Regulski, J., Stępień, J. and Śleszyński, P.**, 2013: Raport o ekonomicznych stratach i społecznych kosztach niekontrolowanej urbanizacji w Polsce (Report on economic loss and social costs of uncontrolled urbanization in Poland – in Polish). Warszawa: Fundacja Rozwoju Demokracji Lokalnej, IGPiPZ PAN, p. 35.
- Kubejko, E.**, 2007: Przestrzenne zróżnicowanie dochodów własnych gmin w Rzeszowskim Obszarze Metropolitalnym (Spatial differentiation of own revenues of gminas in Rzeszów Metropolitan Area – in Polish). In: *Biuletyn KPZK PAN*, Vol. 230, pp. 165–180.
- Lin, S.**, 2014: A comparative study of suburbanization in United States and China. In: *Journal of Geography and Geology*, Vol. 6(4), pp. 132–139.
- Lisowski, A. and Grochowski, M.**, 2009: Procesy suburbanizacji. Uwarunkowania, formy i konsekwencje (Suburbanization processes. Determinants, forms and consequences – in Polish). Ministerstwo Rozwoju Regionalnego (Ministry for Regional Development): Ekspertyzy do Koncepcji Przestrzennego Zagospodarowania Kraju, Tom I, pp. 217–281.
- Macešková, M. and Ouředníček, M.**, 2008: Dopad suburbanizace na daňové příjmy obcí (The impact of suburbanization on tax revenues of municipalities – in Czech). In: *Obec a finance*, Vol. 13(1), pp. 28–29.
- Machowska-Szewczyk, M. and Sompolska-Rzechuła, A.**, 2012: Wielowymiarowa analiza zgodności wyników badania ankietowego (Multidimensional analysis of the consistency of the research survey – in Polish). In: *Wiadomości Statystyczne*, Vol. 611(4), pp. 1–16.
- Masik, G.**, 2010: Wpływ polityki lokalnej na warunki i jakość życia. Przykład strefy suburbanizacji Trójmiasta (Impact of local policies on quality of life. Example of suburban zone of Tricity Agglomeration – in Polish). Warszawa: Wydawnictwo Naukowe Scholar, p. 288.
- Matykowski, R. and Tobolska, A.**, 2005: Nowe inwestycje przemysłowe i mieszkaniowe w gminie Tarnowo Podgórne (New industrial and residential investments in gmina Tarnowo Podgórne – in Polish). In: *Biuletyn KPZK PAN*, Vol. 216, pp. 98–111.
- Mieszkowski, P. and Mills, E.S.**, 1993: The causes of metropolitan suburbanization. In: *Journal of Economic Perspectives*. Vol. 7(3), pp. 135–147.
- Mills, E.S. and Price, R.**, 1984: Metropolitan suburbanization and central city problems. In: *Journal of Urban Economics*. Vol. 15, pp. 1–17.
- Miszczuk, M.**, 2003: Model finansów lokalnych w Polsce a potencjał finansowy gmin wiejskich (Model of local finances in Poland and potential for revenues in rural gminas – in Polish). In: *Biuletyn KPZK PAN*, Vol. 207, pp. 145–150.
- Miszczuk, M.**, 2009: Wpływ suburbanizacji na potencjał dochodowy gmin wiejskich (Impact of suburbanization on potential for revenues of rural gminas – in Polish). In: *Studia obszarów wiejskich*, Vol. 18, pp. 171–180.
- Nowocin-Kowalczyk, K.**, 2014: Wpływ demografii na budżet Gminy Piaseczno na przestrzeni ostatnich 10 lat (Impact of demography on budget of Piaseczno Gmina in recent 10 years – in Polish). Available at: <http://jozefoslaw24.pl/2014/03/wplyw-demografii-na-budzet-gminy-piaseczno-na-przestrzeni-ostatnich-10-lat/> DoA: 31.07.2015
- Orfield, M.**, 2002: American Metropolitics: The new suburban reality. Brookings Institution Press, p. 222.
- Pacione, M.**, 2001: Geography and public Finance: planning for Fiscal equity in a metropolitan region. In: *Progress in Planning*, Vol. 56, pp. 1–59.
- Rażniak, P.**, 2011: Procesy migracyjne a dochody gmin w wybranych obszarach metropolitalnych południo-

- wej Polski (Migration and gminas' revenues in selected metropolitan areas in Southern Poland – in Polish). In: Fatuła, D. editor, *Spoleczne, marketingowe i innowacyjne aspekty kreowania zmian w organizacjach*, Kraków: Oficyna Wydawnicza AFM, pp. 117–135.
- Smętkowski, M., Gorzelak, G. and Jałowiecki, B.**, 2009: Obszary metropolitalne w Polsce: problemy rozwojowe i delimitacja (Metropolitan Areas in Poland: development challenges and delimitation – in Polish). In: *Raporty i Analizy EUROREG*, Vol. 1/2009, p. 98.
- Smutek, J.**, 2011: Zmiany dystrybucji przestrzennej dochodów budżetów gmin z tytułu podatku od nieruchomości w obszarach aglomeracji miast wojewódzkich w latach 1995-2009 (Changes in spatial distribution of gminas' revenues from property tax in metropolitan areas in Poland for years 1995-2009 – in Polish). In: Skotarczak, T. editor, *Zmiany na rynku usług związanych z nieruchomościami. Studia Prawa i Gospodarki Nieruchomościami*, Szczecin: Instytut Gospodarki Nieruchomościami i Środowiska. Seria Monografia, Vol. 06, pp. 128-143.
- Smutek, J.**, 2012a: Suburbanizacja, rozwój niezrównoważony i jego konsekwencje dla wydatków gmin, na przykładzie obszarów oddziaływania miast wojewódzkich w Polsce (Suburbanization, unsustainable development and its implications for gminas expenditures on example of metropolitan areas in Poland – in Polish). In: Kryk, B. editor, *Trendy i wyzwania zrównoważonego rozwoju w XXI wieku*, Tom II, Handel Zewnętrzny, Vol. lipiec-sierpień 2012, pp. 142–153.
- Smutek, J.**, 2012b: Wpływ suburbanizacji w strefie oddziaływania wielkiego miasta na dochody gmin z tytułu udziału w podatku dochodowym od osób fizycznych w Polsce (Impact of suburbanization in zone of influence of big cities on gminas' revenues from share in PIT in Poland – in Polish). In: *Biuletyn IGSEiGP UAM Seria Rozwój Regionalny i Polityka Regionalna*, Vol. 20, pp. 103–121.
- Smutek, J.**, 2016: Wpływ suburbanizacji na budżety gmin w strefie oddziaływania wielkich miast (Impact of suburbanization on gminas budgets in zone of influence of big Polish cities – in Polish). PhD thesis defended on Faculty of Geosciences University of Szczecin, p. 360.
- Staszewska, S.**, 2013: Urbanizacja przestrzenna strefy podmiejskiej polskiego miasta (Suburbanization of suburban area of Polish cities – in Polish). Poznań: Bogucki Wydawnictwo Naukowe, p. 202.
- Śleszyński, P.**, 2012: Klasyfikacja gmin województwa mazowieckiego (Classification of gminas of Mazowieckie Region – in Polish). In: *Przegląd Geograficzny*, Vol. 84(4), pp. 559–576.
- Śleszyński, P.**, 2013: Delimitacja Miejskich Obszarów Funkcjonalnych stolic województw (Delimitation of Urban Functional Areas of Regional Capitals in Poland – in Polish). In: *Przegląd Geograficzny*, Vol. 85(2), pp. 173–197.
- Szymańska, D. and Biegańska J.** 2011: Obszary podmiejskie dużych miast w Polsce w świetle migracji stałych (Suburban areas of big cities in Poland in the light of permanent migrations – in Polish). In: Soja, M. and Zborowski, A. editor, *Człowiek w przestrzeni zurbanizowanej*, Kraków: Instytut Geografii i Gospodarki Przestrzennej UJ, pp. 83–98.
- Warczewska, B. and Przybyła, K.**, 2012: Implikacje wielofunkcyjnego rozwoju obszarów wiejskich w strefie podmiejskiej Wrocławia (Implications of multi-functional development of rural areas in suburban zone of Wrocław – in Polish). In: *Infrastruktura i ekologia terenów wiejskich. PAN Komisja Technicznej Infrastruktury Wsi*, Vol. 3/III/2012, pp. 89–100.
- Vesselinov, E. and Le Goix, R.**, 2012: From Picket Fences to Iron Gates: Suburbanization and Gated Communities in Phoenix, Las Vegas and Seattle. In: *GeoJournal* Vol. 77(2), pp. 203–222.
- Węgrzyn, J. and Surówka, M.**, 2011: Uwarunkowania i kierunki aktywności inwestycyjnej gmin w strefie podmiejskiej Krakowa (Frameworks and directions of investment activities of gminas in suburban area of Cracow – in Polish). In: Nalepka, A. editor, *Inwestycje i nieruchomości. Wyzwania XXI wieku*, Kraków: Fundacja Uniwersytetu Ekonomicznego w Krakowie, pp. 99-108.
- Wixforth, J.**, 2009: Kommunal Finanzen in Suburbia. Das Beispiel der Regionen Hamburg und Berlin (Municipal finances in suburban areas. The example of Hamburg and Berlin – in German). Wiesbaden: Verlag für Sozialwissenschaften, p. 408.



Ministry of Science
and Higher Education
Republic of Poland

The proofreading of articles, positively reviewed and approved for publishing in the 'Bulletin of Geography. Socio-economic Series', was financed from the funds of the Ministry of Science and Higher Education earmarked for activities popularizing science, in line with Agreement No 509/P-DUN/2016.

