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THE STABILITY OF TAX REVENUE IN LOCAL GOVERNMENT UNITS IN YEARS 2005-2014

Summary
Implementation of tasks assigned to local governments requires assigning them to sources of funding to finance expenses associated with their performing. Revenues generated from assigned to local government sources, in accordance with the tax rules, should be efficient and stable. The aim of the study, which was summed up in this paper, was therefore to analyse the stability of the own revenues of local government units. The study was conducted using methods of statistical analysis of indicators of tax revenues per capita of municipalities, counties and voivodeships.

Key words: *stability, tax revenue, local government*

Introduction

The function and development of local government units of each level requires efficient and first of all stable sources of budgetary income. The term stability with reference to public finances is difficult to define[1]. The essence of stability of public finances has not been defined precisely. The definition by J. Sulmicki, who claims that "by the notion of financial stability we should understand the absence of the threat of financial crises", is the closest to the concept of this paper[2]. Avoiding a crisis in terms of public finances means the state capability to extinguish various

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[1] K. Łaski, *Mity i rzeczywistość w polityce gospodarczej i nauczaniu ekonomii*, INE PAN, Warszawa 2009, p. 66.
[2] K. Łaski, *Mity i rzeczywistość w polityce gospodarczej i nauczaniu ekonomii*, INE PAN, Warszawa 2009, p. 66.

financial liabilities, especially the capability to subsidize the legal persons who implement public tasks[3].

When it comes to local government units founding of their activities is based on four pillars[4]:

- their own incomes,
- tax shares which are state budget revenue (PIT and CIT) 5,
- subsidies,
- grants.

The basic group of the income of local government units are the own revenues which consist mainly of taxes and local fees. Pursuant to Act on local government income (art. 3 point 2) this group should also include the share in PIT and CIT which raises common doubt because:

- tax revenues are not transferred to the account of local government units,
- local governments do not have any power of taxation relating to those taxes.

K. Surówka describes shares in PIT and CIT as a kind of subsidies, dependent on total economic situation[6], which are offered to the local government instead of the statutory subsidies[7]. The element which cannot be ignored is the issue of political influence on the structures of those impositions.

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[3] J. Sulmicki, *Stabilność rynków finansowych a wejście Polski do strefy euro*, Warsaw School of Economics, Warszawa 2005, p. 7.

[4] K. Znaniecka, A. Walasik, *Zasady budżetowe w warunkach kryzysu finansów publicznych* [in:] Owsiak S. (ed.) *Nowe zarządzanie finansami publicznymi w warunkach kryzysu*, PWE, Warszawa 2011.

[5] Act of 13 November 2003 on revenue of local government units (Journal of Laws 2003, No. 203 item 1966 as amended).

[6] Revenues from PIT and CIT demonstrate significantly higher fluctuations than revenue from property tax which is the main source of municipalities' own incomes, see. A. Żabka, *Wpływ cyklicznych wahań koniunktury na dochody JST* [in:] *Polityka rozwoju regionu. Koncepcja- procedury administracyjne – finansowanie,* K. Malik [editor], Wydawnictwo Naukowe "Akapit", Opole 2010. Compare: J. Neneman, P. Swianiewicz, *Koncepcje, warianty i konsekwencje wprowadzenia PIT-u komunalnego w Polsce,* Ekspertyza BGK, Warszawa 2013, p. 15.

[7] See: K. Surówka, *Koncepcje zasilania finansowego poszczególnych szczebli samorządu terytorialnego w Polsce*, Samorząd Terytorialny, 1997, No. 12.

Local governments' own incomes are replenished with transfers from the state budget in the form of subsidies or grants. The amount of those transfers is to the largest extent dependent on the financial situation of the local government unit, determined on the basis of tax income rate per capita. In this paper such incomes will not be discussed because they are derivative incomes in relation to local governments own incomes.

Stability of incomes generated from particular sources becomes truly meaningful during the period of economic downturn when the dynamics of economic development is stemmed.

1. Tax revenue rates for local government units

The basis for determining the dynamics of change of local governments own incomes were values of tax revenue rates per capita, determined obligatorily for all local government units on the basis of the Act on tax revenues of local government units. Tax revenue indicators are designated via dividing the tax revenues by the number of residents of a municipality (indicator G), county (indicator P) or voivodeship (indicator W) respectively. The value of the indicator is determined on the basis of the budget implementation statement of the local government units on the basis of the revenues that a unit may obtain by fully[8] exploiting the potential of the income sources mentioned above. This provision refers only to municipalities because the local taxes, the amount of which is determined by the district council[9] (so called limited power of taxation), constitute only the source of municipalities' incomes. The notion of the tax revenue is specified by the Act on local government incomes for municipalities, counties and voivodeships separately.

As far as municipalities are concerned, the combined incomes from the following sources[10] are the basis for determining the tax revenues:

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[8] In order to determine tax revenue, the income that a unit might obtain, having determined local tax rates at their highest level, decided by the Decree of the Minister of Finance annually without tax reliefs and liability breaks, is assumed [art. 32 of the Act on revenue of units of local governments …, Journal of Laws of 2003 No. 203 item 1966 as amended].

[9] Act of 12 January 1991 on taxes and local fees (Journal of Laws1991 No. 9 item 31, art. point 1).

[10] Art. 20 of the Act on revenue of units of local governments …(Journal of Laws of 2003 No. 203 item 1966 as amended).

- property tax,
- agricultural tax,
- forest tax,
- vehicle registration tax,
- tax on civil law transactions,
- personal income tax paid in a form of tax card,
- stamp duty revenues,
- incomes from maintenance fees,
- natural persons tax revenue share,
- corporate income tax share.

The term population means the number of residents who actually live on the territory of a given local government unit or the territory of state according to the state of 31st December of the year preceding the base year, determined by the chairman of the Central Statistical Office[11].

The way of determining the tax revenue indicator that was adopted for municipalities has one essentials drawback from the point of view of the purpose of this study, it does not account for the incomes from municipality properties management, so mainly the sales, perpetual usufruct or property leasing classified in section 700 of budget classification[12]. When it comes to municipalities which have at their disposal properties attractive for investors, their revenue can form a significant part of the budget[13].

As far as counties and voivodeships are concerned, the definition of the notion: tax revenue is definitely shorter due to the smaller range of the own income of the budgetary units mentioned above. They do not possess the sources of budgetary incomes in a form of local taxes, however, the revenues generated from fees which are the source of income for counties and voivodeships represented respectively 13.12% in 2014 and 5.96% of

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[11] Art. 2 of the Act on revenue of units of local governments …, Journal of Laws of 2003 No. 203 item 1966 as amended.
[12] The Decree of the Minister of Finance of 2 March 2010 on detailed classification of revenue, expenditures, expenses and incomes and financial means from foreign sources. (Journal of Laws of 2010, No. 38 item 207).
[13] The following municipalities can be cited as examples: Rewal (24%), Karpacz (18%), Ustronie Morskie (15%). Source: the municipalities' budget execution statement.

the budgetary revenues of those units[14]. The shares in taxes representing state budget revenues: PIT and CIT are significant sources of the counties and voivodeships revenues, apart from the external transfers. When it comes to both described units the total revenues from personal income tax share and corporate income tax share are referred to as tax revenues for the sake of calculation of indicators P[15] and W[16].

The most important disadvantage of the construction of indicators G, P and W, is the way of calculating them which is based on "revenues shown for the year preceding the base year in reports form the local government units"[17]. It means that tax revenue indicators are two year delayed with respect to the financial situation of the local government unit, because the value of indicators for 2016 is determined on the basis of the budget implementation statement for 2014. In the case of the retrospective analysis the significance of this fact is of minor importance.

2. Analysis of revenue situation of municipalities

The tax revenue indicators of 2477 municipalities have been analysed. The municipalities which do not have their full history of the period studied i.e. those which were established after 2005 were omitted.

The overall assessment of the revenue situation of municipalities can be made on the basis of the tax revenue indicator calculated for all the municipalities together, so the indicator Gg. The dynamics of the value of indicator Gg in the studied period have been presented in line graph 1.

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[14]State budget implementation statement for the period from 1st January to 31st December 2014. Information concerning the budgets of local government units implementation, Warszawa 2015.

[15] Art. 22 point 4 of the Act on revenue of units of local governments …

[16] Art. 24 point 5 of the Act on revenue of units of local governments …

[17] Art. 32 point 1 of the Act on revenue of units of local governments …

Line graph 1. Dynamics of the value of indicator Gg
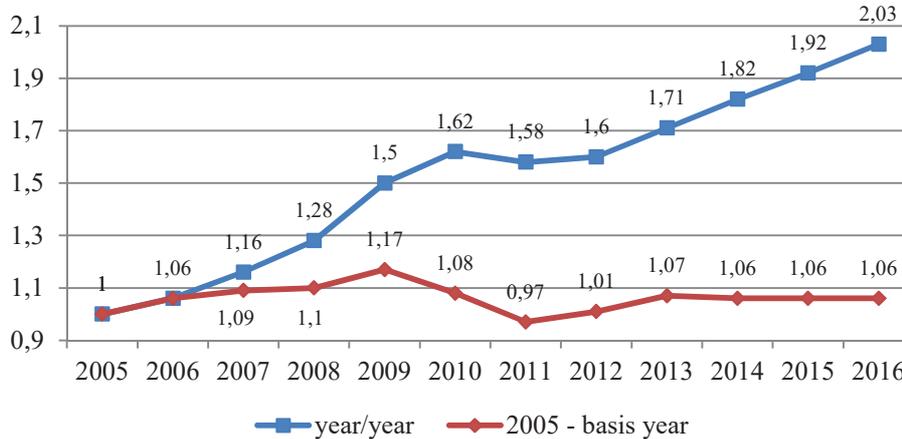
Source: The author's own elaboration on the basis of the statistics of the Ministry of Finance www.mf.gov.pl

It should be remembered that the value of the indicator of tax revenue per capita is determined on the basis of the budget implementation statement in year n-2, therefore, the situation presented in the diagram 1 for year 2011, covers the financial situation of the municipality in 2009. The downturn of the dynamics of tax revenue[18] of municipalities can be noticed in 2008, i.e. the first year of economic collapse. During the following year, only once in the period of time studied, 3% of tax revenue decrease was noted measured year by year. Taking into account the changes of economic environment exerted by the crisis and relatively high base values in the preceding years, it should be claimed that tax revenues are sensitive to economic fluctuations. During the period prior to economic downturn the indicator had shown higher dynamics of an increasing tendency. Occurrence of economic downturn affected the decrease of the indicator. However, it is important to note that since 2011 (taking into account two year shift of the value of indicator in relation to the income drawn) the dynamics of the value of indicator Gg is running at a very stable level. It is confirmed by the rating

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[18] For the values of indicators G and Gg the population of a given municipality is vital. This is, however, a parameter of much less fluctuation, and in the case of indicator Gg, where the tax revenue is divided by the total number of residents of a country, its fluctuation is practically irrelevant from the point of view of the results.

grades of the municipalities in Poland awarded by Fitch Ratings agency. In most cases these are BBB grades[19], which means greater likelihood that the changes of factors and economic conditions may influence the ability to fulfil financial obligation timely[20].

An additional analysis of the revenue changeability in relation to its direction allows to claim that in the vast majority of cases the increase of revenue of municipalities is faced. The confirmation of this statement has been show in graph 1.

Graph 1. The directions of changeability of the dynamics of tax revenue indicators of municipalities during the studied period.
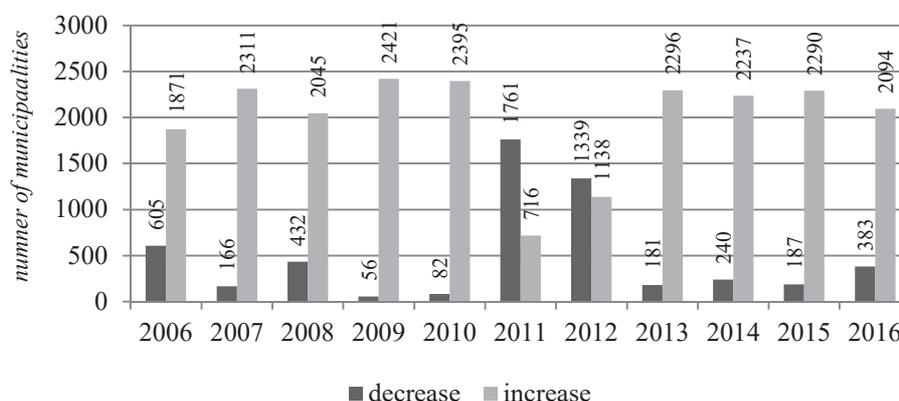
Source: The author's own elaboration on the basis of the statistics of the Ministry of Finance www.mf.gov.pl

During the analysed period there was only twice a situation when the tax revenue indicators were lower then during the previous year, namely in 2011 and 2012. This reflects the situation in matters of the revenues of municipalities in the years 2009 and 2010, i.e. the initial years of the economic downturn and results from the decline of the personal income tax share[21]. The factor which additionally influenced the decline of income from this source was the reduction of the tax progression by introduction of two threshold tax scales. In the remaining years the vast

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[19] http://www.fitchpolska.com.pl/pl/ratings-and-research/public-finance/issuers.html
[20] https://www.fitchratings.com/web_content/ratings/fitch_ratings_definitions_and_ scales.pdf; p. 9.
[21] Source: The author's own elaboration on the basis of the budget implementation statement of the local government units in the period 2005-2014.

majority of municipalities increase their tax revenue in comparison with the previous year.

The detailed analysis of the fluctuation value of the indicator of tax revenue for particular municipalities show that for the vast majority of units the dynamics of tax revenue fluctuate ranging from (1 – 1.2). The detailed data was presented in table 1.

Table 1. The structure of municipalities according to the criterion of the value of dynamics of fluctuation of indicators G

		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
		Percentage of municipalities [%]										
Dynamics of tax revenue indicator	**1.4 – 1.5**	0.2	0.4	0.3	0.8	1.3	0.2	0.7	0.6	4.0	0.8	0.2
	1.3 – 1.4	0,9	1.6	0.9	3.5	5.9	0.2	1.0	1.6	7.3	1.2	1.1
	1.2 – 1.3	3.1	6.9	3.8	18.3	18.9	0.8	1.8	6.4	15.1	3.1	1.6
	1.1 – 1.2	14.0	36.9	26.8	56.1	42.2	2.8	6.3	36.7	30.3	20.1	12.7
	1.0 – 1.1	56.6	47.0	50.5	18.2	27.3	24.7	32,7	46.8	28.7	66.1	68.4
	0.9 – 1.0	21.7	5.2	14.7	1.8	2.7	62.9	37,3	6.0	4.8	6.0	13.3
	0.8 – 0.9	2.1	1.1	2.1	0.3	0.4	7.4	10,7	0.8	1.3	1.1	1.5
	0.7 – 0.8	0.4	0.3	0.5	0.1	0.1	0.5	2.7	0.1	1.6	0.2	0.4
	total	**99.0**	**99.4**	**99.6**	**99.1**	**98.8**	**99.5**	**93.2**	**99.0**	**93.1**	**98.6**	**99.2**

Source: The author's own elaboration on the basis of the statistics of the Ministry of Finance www.mf.gov.pl

The analysis of data concerning the changeability of tax revenue indicators during the studied period shows that the vast majority of municipalities demonstrate stable tax revenue. Except three years: 2006 (statement from 2004), 2011 (statement from 2009) and 2012 (statement from 2010) the revenue of majority of municipalities (71 – 83% of all municipalities except the period 2011-2012) is characterized by the dynamics ranging from 1 – 1.2. The detailed analysis for the particular municipalities shows that range[22] of indicators of tax revenue per capita fluctuates from 0.02 to 4.52. In the set of municipalities studied there are some municipalities where a sudden (year by year) and significant decrease was noted (even 14 times) or decrease (by 81% in comparison with the previous year) of the tax revenue indicator. The average value of the fluctuation of the tax revenues determined as the median of the

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[22] Measured by the standard deviation of the value of indicators G in the studied period.

standard deviation of the dynamics of indicators G during the analysed period was merely 0.11; which means that the average fluctuation of the dynamics of revenue amounted to 11 % annually. The fluctuation for 25% of all the municipalities studied (1st quartile) was determined at the level 0.08, and 3rd quartile at the level of 0.15. The results obtained show that the municipalities were equipped with the stable sources of financing. Larger fluctuations can be observed in minority of units, therefore in the case of the vast majority of municipalities we can talk about stability of their revenue during the analysed period.

3. Analysis of the situations of cities with county rights

Cities with county rights are special units of administrative division of a country; therefore an individual research was conducted for them. Due to the differentiation, frequently encountered in the statistics, the analysis will be carried out for ten cities with more than 300 000 inhabitants and for 55 cities with a number of inhabitants below this quantity separately. To keep the accuracy of the analysis, it is important to stress the fact that in the case of cities with county rights only the indicator of incomes generated from sources assigned to municipalities was analysed; the indicator corresponding to the revenue of the county part was omitted. According to the scheme adopted, the analysis begins with a presentation of dynamics of directions of tax revenue fluctuation per capita. The value of this amount for the cities with a number of residents up to do 300 thousand was shown in graph 3.

Graph 211. Directions of fluctuation of tax revenue indicators of the cities with county rights with up to 300 thousand residents during the analysed period.
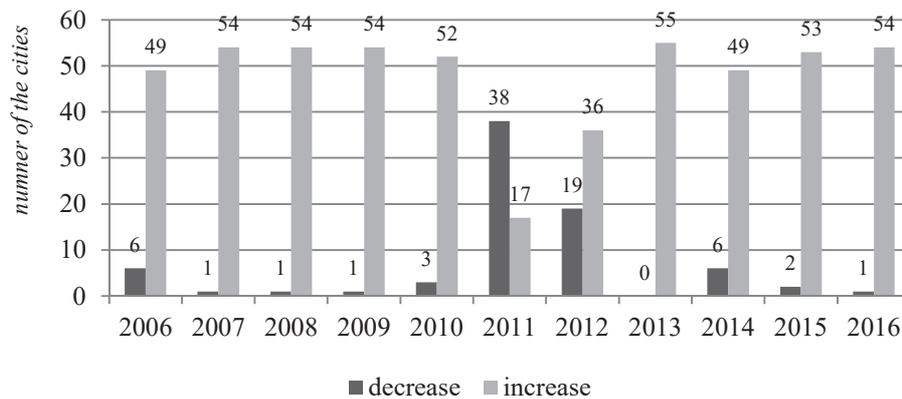
Source: The author's own elaboration on the basis of the statistics of the Ministry of Finance www.mf.gov.pl

The numbers presented in the graph allow drawing a conclusion that cities with the county rights generate more stable revenue from tax sources than the municipalities. In vast majority of cases the increase of tax revenue per capita can be noted. Only in 2011 the majority of such units noted the decrease of the indicator in a proportion almost corresponding to the municipalities: 69% of cities with county rights noted the decrease of the indicator, whereas in the case of municipalities the amount was 71%. In the case of the units which were analysed, there was only one year when the majority of them noted the decrease of the indicator. In the following year 2012 the cities whose indicator increased in comparison with the previous year overwhelmed. This may result from the fact that the cities with county rights are usually bigger units, with more developed entrepreneurship than municipalities. They often function as local socio-economic centres.

Table 2. Structure of cities with county rights with up to 300 thousand residents according to the criterion of the dynamics of fluctuation of indicators G

		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
		Percentage of cities with county rights with a number of residents up to 300 thousand [%]										
Dynamics of tax revenue indicator	**1,4 - 1,5**	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	1,3 - 1,4	0,0	0,0	1,8	3,6	1,8	0,0	0,0	0,0	1,8	0,0	0,0
	1,2 - 1,3	3,6	0,0	3,6	16,4	1,8	0,0	0,0	1,8	5,5	0,0	0,0
	1,1 - 1,2	16,4	52,7	40,0	63,6	21,8	0,0	5,5	38,2	9,1	9,1	7,3
	1,0 - 1,1	69,1	45,5	52,7	12,7	69,1	30,9	60,0	60,0	69,1	87,3	90,9
	0,9 - 1,0	7,3	1,8	1,8	1,8	5,5	63,6	27,3	0,0	9,1	1,8	0,0
	0,8 - 0,9	1,8	0,0	0,0	0,0	0,0	3,6	1,8	0,0	1,8	1,8	1,8
	0,7 - 0,8	1,8	0,0	0,0	0,0	0,0	1,8	5,5	0,0	0,0	0,0	0,0
	total	**100**	**100**	**100**	**98,2**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: The author's own elaboration on the basis of the statistics of the Ministry of Finance www.mf.gov.pl

Both the analysis of fluctuation dynamics of the tax revenue indicators of cities with county rights with up to 300 thousand residents and the analysis of municipalities lead to similar conclusions. In this case there is even greater concentration of the indicators. During the period of relative economic stability, which correspond to data from 2014-2016[23] in the table, the parameters of tax revenue fluctuation indicators of the vast majority (69.1-90.9%) were placed within one range. This shows their significant homogeneity as far as their ability to generate tax revenue is concerned.

The situation of cities with county rights with less than 300 thousand inhabitants is very similar as far as the directions of dynamics of the indicators value are concerned. Data presenting the directions of the dynamics fluctuation of the tax revenue indicator per capita is presented in graph 4.

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[23] The value of the indicators from this period is determined on the basis of the budget implementation statements in the period 2012-2014.

Graph 3. Directions of the dynamics fluctuations of the tax revenue indicators of cities with county rights with the number of inhabitants up to 300 thousand during the analysed period.
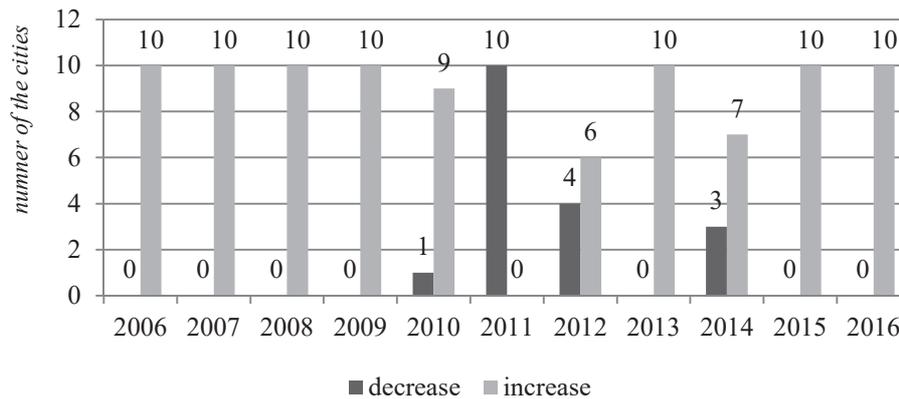
Source: The author's own elaboration on the basis of the statistics of the Ministry of Finance www.mf.gov.pl

The first compelling observation is prevalence of increase of the tax revenue indicator per capita. During the period under consideration there were eight years when practically all units noted the increase of revenue[24]. However, in the case of year 2011 all units of this kind noted the decrease of the indicator. It may result from the fact that the biggest enterprises which are CIT payers, are most frequently located on the territory of metropolis, and precisely the corporate income tax is the subject of the biggest fluctuations caused by disruptions of dynamics of economic situations. As for the cities with the number of inhabitants up to 300 thousand the majority (in this case all) units noted a decrease of the indicator for only one year. It shows the ability of these units to return promptly to the increase path.

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[24] Year 2010 was also included, when one of the cities noted the increase of the indicator.

Table 3. Structure of the cities with county rights with more than 300 thousand residents according to the criterion of the dynamics of fluctuation of indicators G

		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
		Percentage of cities with county rights with more than 300 thousand residents [%]										
Dynamics of tax revenue indicator	1,4 - 1,5	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	1,3 - 1,4	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	1,2 - 1,3	0,0	0,0	0,0	50,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	1,1 - 1,2	0,0	20,0	90,0	50,0	10,0	0,0	0,0	20,0	0,0	0,0	0,0
	1,0 - 1,1	100,0	80,0	10,0	0,0	80,0	0,0	60,0	80,0	70,0	100,0	100,0
	0,9 - 1,0	0,0	0,0	0,0	0,0	10,0	100,0	40,0	0,0	30,0	0,0	0,0
	0,8 - 0,9	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	0,7 - 0,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
total		100	100	100	100	100	100	100	100	100	100	100

Source: The author's own elaboration on the basis of the statistics of the Ministry of Finance www.mf.gov.pl

The comparison of the cities with county rights with a number of residents exceeding 300 thousand leads to drawing conclusions concerning even greater homogenization of those units than in the case of the cities with county rights with a number of residents up to 300 thousand. Partially it results from a small number of such cities. However, in the case of four years studied, all units fell into one range of the dynamics fluctuation of changes of indicator G. Tax revenues of local government units of this type show a considerable stability.

4. Analysis of revenue situation of counties.

379 counties possessing a full history of indicators P in the studied period were analysed. Similarly to the municipalities the study began with the analysis of the general situation of counties on the basis of the research of the dynamics of indicators Pp during the period under consideration. The graphic depiction of the dynamics of the counties' tax revenue indicator was show in line graph 5.

Line graph 2. The dynamics of the value of indicator Pp
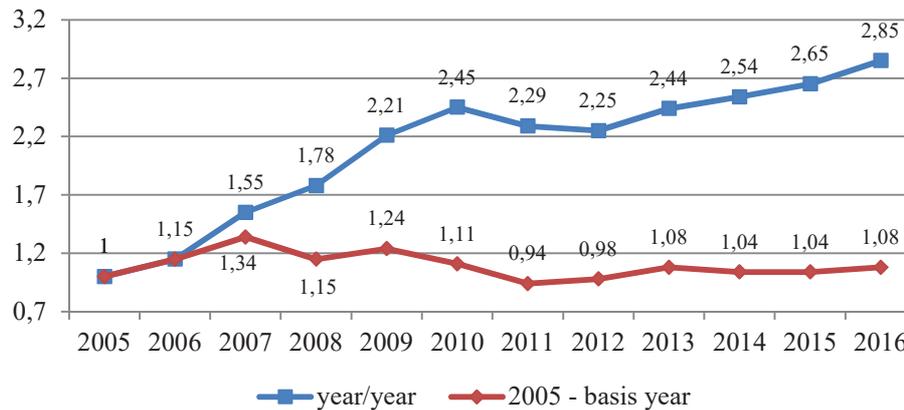
The tax revenue of counties is more changeable than the tax revenue of municipalities analysed before. This results form the fact that the notion of tax revenue in the case of counties is definitely a narrower notion than in the case municipalities and the revenues included in the definition of this term (PIT and CIT share) are characterised by changeability caused by fluctuation of business cycle[25]. This causes achievement of relatively high dynamics of indicator Pp during the period of prosperity and significant decreases during economic downturn. The average tax revenue indicator per capita during the period under consideration almost tripled (2.85). It is significantly more than in the case of municipalities (2.03). It should be emphasized that whereas in the case of municipalities the increase of indicator on the 203% figure means the increase of its nominal value by 767.15 PLN, when it comes to counties the increase by 285% means the increase of tax revenue per capita by 129.60 PLN. The biggest dynamics of the tax revenue growth of counties took place during the period 2005-2008 (having regard to two year time shift between the values of indicator Pp and the revenue achieved). During this period the value of indicator increased by 245% in

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[25] See: Żabka A., *Wpływ cyklicznych wahań koniunktury na dochody JST* [in:] *Polityka rozwoju regionu. Koncepcja – procedury administracyjne – Finansowanie* edited by K. Malika, Wydawnictwo Naukowe „Akapit", Opole 2010.

comparison with the year 2003. The analysis of the dynamics year by year confirms the conclusions concerning significant changeability of the studied parameter. In comparison with the municipality indicator the growths during the initial period as well as the falls in the period of economic downturn reach higher amplitudes. It is difficult to speak of stability of indicator, Pp in the post-crisis period, as was the case with indicator Gg. The next stage of the analysis of counties revenue, as happened with municipalities will be conducting a research on directions of fluctuation of these units' revenue. The results of the examination were presented in graph 6.

Graph 4. Directions of fluctuation of the dynamics of indicators of counties tax revenue in the analysed period.
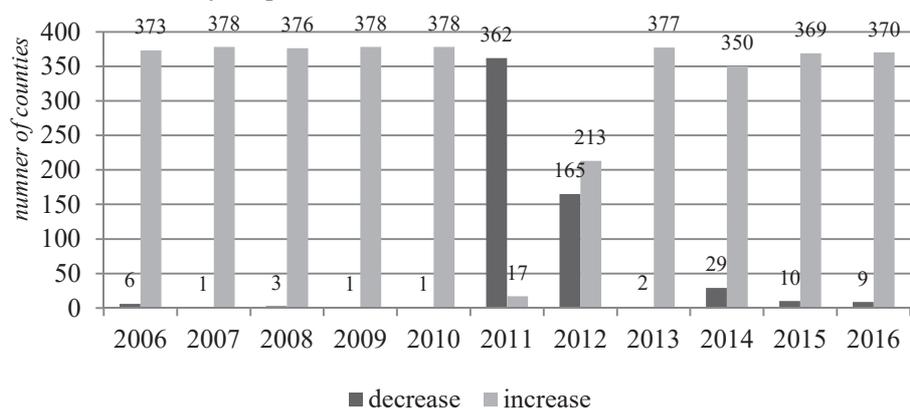
Source: The author's own elaboration on the basis of the statistics of the Ministry of Finance www.mf.gov.pl

The analysis of directions of fluctuation, the direction of fluctuation dynamics of the amount of counties' tax revenues shows quite a considerable "unambiguousness" of directions of such dynamics, understood as conformity of the directions of changes determined for the overwhelming majority of counties. In the period of prosperity practically all units note increase of tax revenue in comparison with the previous year, when it comes to economic downturn (year 2011, which corresponds to the situation of counties in 2009) in the case of 96% of counties there was a decrease of tax revenue in comparison with the previous year, whereas in the case of municipalities there were 71% of such units. This results from a narrow catalogue of counties revenue in comparison with municipalities, especially the revenue taken into

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account for determining the value of tax revenue indicators. This causes more vulnerability of the counties' own income to the fluctuation of economic situation. It should be emphasised that the analysis of revenue of counties shows their high stability, which results from a big share of subsidies and grants in the structure of counties revenue[26].

Table 4. Structure of counties according to the criterion of value of fluctuations dynamics of indicators P

		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
		Percentage of counties [%]										
Dynamics of tax revenue indicator	**1,4 - 1,5**	1,3	33,2	0,3	0,5	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	1,3 - 1,4	1,8	52,0	1,1	8,7	0,5	0,0	0,0	0,5	0,3	0,0	0,0
	1,2 - 1,3	7,7	9,0	22,7	76,8	12,7	0,0	0,3	5,5	0,5	0,3	0,0
	1,1 - 1,2	62,0	1,6	63,6	13,2	61,5	0,8	0,8	59,9	11,6	12,1	29,6
	1,0 - 1,1	25,1	0,5	11,6	0,5	25,1	3,7	54,9	33,5	79,7	85,0	68,1
	0,9 - 1,0	1,3	0,0	0,3	0,3	0,3	50,9	41,7	0,5	7,4	2,1	1,6
	0,8 - 0,9	0,3	0,3	0,5	0,0	0,0	43,8	2,1	0,0	0,0	0,0	0,8
	0,7 - 0,8	0,0	0,0	0,0	0,0	0,0	0,8	0,0	0,0	0,3	0,5	0,0
	total	99,5	96,6	100	100	100	100	99,7	100	99,7	100	100

Source: The author's own elaboration on the basis of the statistics of the Ministry of Finance www.mf.gov.pl

The analysis of data concerning the fluctuation of tax revenue in the period under consideration shows a bigger dispersion of counties' tax revenue than was the case with municipalities. The spread of the dynamics of the indicator of counties' tax revenue for the majority of units has fluctuated within the range of 0.8 – 1.5, whereas in the case of municipalities has fluctuated within the range of 0.9 – 1.2.

The detailed analysis for particular counties shows that the spread[27] of tax revenue indicators per capita fluctuates within the range of 0.1 to 0.41. The tax revenues of counties have much greater stability in a long period of time than municipalities, in spite of the fact that the range of

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[26] In 2015 the share of counties own income was 33.3%. An analogue indicator for municipalities was 49.6%. Source: the budget implementation of the local government units for the year 2015: www.mf.gov.pl

[27] Measured by the standard deviation of the dynamics of the value of indicators P in an analysed period.

fluctuation of tax revenue indicators is greater in short periods of time (as data in table 2 presents). As for counties no such spectacular annual dynamics of tax revenue fluctuation can be noted as in the case of municipalities. The highest annual tax revenue indicator which has been noted amounted to 2.35. The average value of tax revenue fluctuation determined as a median of standard deviation of the dynamics of indicators P in the analysed period was merely 0.13; which means that the average fluctuation of dynamics of revenue amounted to 13 % per year. The fluctuation for 25% of all municipalities examined (1st quartile) was determined at the level of 0.12, whereas 3rd quartile at the level of 0.14. The results obtained show that the tax revenues of counties are characterised by the greatest stability. It should be emphasised that the revenues analysed which are the basis for calculation of tax revenue indicator P, make less than 30% of counties tax revenues, therefore the revenues from these sources do not determine to the largest extent the total revenues of those local government units.

5. Analysis of the situation of local government voivodeships

As far as the territory is concerned the biggest local government units are voivodeships. As a result of administrative reform, instead of the existing forty nine voivodeships, sixteen voivodeships of regional nature were created. Similarly to the units that have been analysed so far, they heave been equipped with the sources of tax revenue in a form of Personal Income Tax share (PIT) and Corporate Income Tax share (CIT). The amount of tax revenue of counties per capita is measured by indicator W, which is different for each voivodeship. The average value of tax revenue per capita set down for all voivodeships determines the value of indicator Ww. The dynamics of indicator Ww in the analysed period was presented in line graph 3.

Line graph 3. Dynamics of the value of indicator Ww
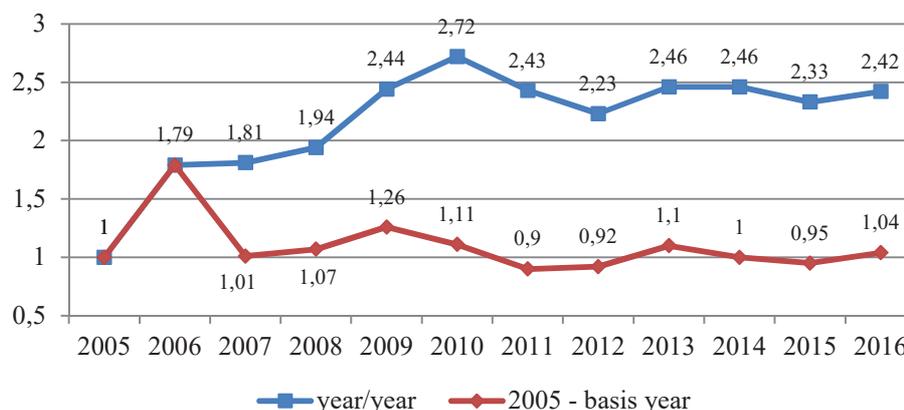
Having analysed the data presented in the graph it can be noticed that the tax revenue of the voivodeships undergoes the highest fluctuation of all local government units. The dynamics of the increase of tax revenue of voivodeships after a significant increase until year 2010, declined and have proceeded in so called lateral trend. When it comes to municipalities and counties the increase trend was clearly marked after a slight collapse of dynamics in 2011. The observation that in the case of voivodship we deal with three periods of the decrease of the indicator values measured year by year is equally important. In the remaining cases there were only two of them. However, the current values of indicator of tax revenue per capita in voivodeships should be placed between municipalities (indicator 2.03 in relation to year 2005), and counties (indicator 2.85 in relation to year 2005). The dynamics of the increase of the indicators studied expressed in relative terms however, gives a misleading picture of the situation because the increases of the indicators value measured in absolute values show that the municipalities indicators gain most value 767.15[28]; the corresponding figures are 129.6 for counties and 80.83 for voivodeships respectively.

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[28]Measured as a difference in values of the indicator between years 2016 and 2005. As in the case of counties and voivodships.

The next stage of analysis is the study of directions of fluctuation of the tax revenue indicators per capita of the voivodeships in the analysed period. The results were presented in graph 5.

Graph 5. Directions of fluctuation of the dynamics of indicators of voivodeships' tax revenue in the analysed period.
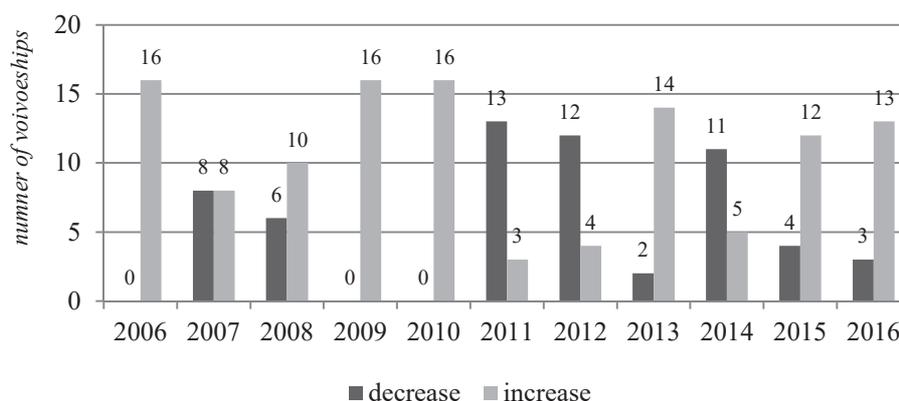
Source: The author's own elaboration on the basis of the statistics of the Ministry of Finance www.mf.gov.pl

As it could be observed in graph 5, the voivodeships are characterised by the least stability of revenue of all the local government units analysed. During the analysed period in the case of municipalities as well as the counties, the years when the revenue increased prevailed in the vast majority of units. As far as voivodeships are concerned there are fewer periods of this kind. Additionally, when it comes to voivodeships there is no regularity in directions of the fluctuation of dynamics of revenue. The most glaring example of these phenomena is the period from 2012 to 2014, when the situation changed radically within a relatively short period of time. The magnitude of changes that the tax revenue of voivodeships underwent in an analysed period should be looked at more closely. This data was presented in table 5.

Table 5. The structure of voivodeships according the criterion of the value of the dynamics of the fluctuation of indicators W

		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
		Percentage of voivodships [%]										
Dynamics of tax revenue indicator	**over 1,8**	31,25	0	0	0	0	0	0	0	0	0	0
	1,7 - 1,8	25	6,25	0	0	0	0	0	0	0	0	0
	1,6 - 1,7	6,25	0	0	0	0	0	0	0	0	0	0
	1,5 - 1,6	18,75	0	0	0	0	0	0	0	0	0	0
	1,4 - 1,5	18,75	0	0	12,5	0	0	0	0	6,25	0	0
	1,3 - 1,4	0	0	0	37,5	12,5	0	0	6,25	0	0	0
	1,2 - 1,3	0	0	12,5	37,5	0	0	0	18,75	0	6,25	0
	1,1 - 1,2	0	6,25	12,5	12,5	43,75	0	0	31,25	0	18,75	6,25
	1,0 - 1,1	0	37,5	37,5	0	43,75	18,75	25	31,25	25	50	75
	0,9 - 1,0	0	37,5	25	0	0	31,25	18,75	12,5	43,75	12,5	6,25
	0,8 - 0,9	0	12,5	6,25	0	0	50	43,75	0	25	6,25	12,5
	0,7 - 0,8	0	0	6,25	0	0	0	6,25	0	0	6,25	0
	0,6 - 0,7	0	0	0	0	0	0	6,25	0	0	0	0

Source: The author's own elaboration on the basis of the statistics of the Ministry of Finance www.mf.gov.pl

In the case of voivodeships the table was extended to include additional values of the dynamics of fluctuations of the indicator studied for two reasons: to include all voivodeships and due to the wide range of the dynamics of indicators W. As in the case of the analysis of the directions of the dynamics of the fluctuations, it is difficult to point out any regularity. There is a wide range of the dynamics of fluctuations. Such a situation would be explicable when it comes to numerous municipalities which have many sources of tax revenue at their disposal; therefore their potential to generate revenue differs greatly. As far as voivodeships are concerned such a great range should not take place. Tax revenue of voivodeships shows a greater instability in a long period of time than in the case of municipalities and counties. The analysis of data in table 3 shows the greatest range of the most frequent fluctuations of the tax revenue indicators of all local government units. The highest annual tax revenue indicator amounted to 1.96. The average value of the fluctuation of tax revenue determined as a median of standard deviations of the dynamics of indicators W in a studied period, however amounted to 0.028; which means that average fluctuation of the dynamics of

revenue was 13 % per year. This is the highest indicator among the units analysed. The fluctuations for 25% of the studied community of municipalities (1st quartile) was determined at the level of 0.32, and 3rd quartile at the level of 0.22 – these are the highest results of the local government units.

Conclusions

The analysis carried out in his paper allowed drawing a number of conclusions concerning the tax revenues of local government units. The most important conclusion is the one concerning the purpose of this paper i.e. the title stability of local government units' tax revenue. It should be noted that when it comes to municipalities and cities with county rights, it is possible to talk about the stability of tax revenue. With the rise in the number of inhabitants and therefore the socio-economic potential of the municipality, its tax revenue stability increases and thus cities with county rights are characterised by more stable revenue than municipalities, and metropolises (cities with county rights with the number of residents over 300 thousand) outbalance, in terms of their stability, cities with the number of residents up to 300. It may result from the fact that the cities with county rights frequently perform a function of local development centres, thanks to this they cumulate diversified activities both social as well as economic internally. It leads to the increase of resistance to all economic disturbances, it does not, however, totally eliminate their influence. This situation is similar in the case of metropolises, with even higher intensity because they act as regional centres.

The analysis of tax revenue indicators of counties and voivodeships per capita shows that those units demonstrate significantly greater fluctuations of revenue than municipalities and cities with county rights. This situation may result from a very narrow catalogue of revenue recognised for tax revenue indicators calculation and great sensitivity of revenue, earned from Personal Income share (PIT) and to a larger extent Corporate Income Tax share (CIT), to the fluctuations of economic situations.

Legal Acts

[1.]   Act of 13 November 2003 on revenue of local government units (Journal of Laws 2003, No. 203 item 1966 as amended).

[2.] Act of 12 January 1991 on taxes and local fees (Journal of Laws1991 No. 9 item 31).

[3.] The Decree of the Minister of Finance of 2 March 2010 on detailed classification of revenue, expenditures, expenses and incomes and financial means from foreign sources. (Journal of Laws of 2010, No. 38 item 207).

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[2.] Sulmicki J, *Stabilność rynków finansowych a wejście Polski do strefy euro*, Warsaw School of Economics, Warszawa 2005, p. 7.

[3.] Surówka K, *Koncepcje zasilania finansowego poszczególnych szczebli samorządu terytorialnego w Polsce*, Samorząd Terytorialny, 1997, No. 12.

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Others

[1.] State budget implementation statement for the period from 1st January to 31st December 2014. Information concerning the budgets of local government units implementation, Warszawa 2015.

[2.] Information of the Ministry of Finance on the tax revenue indicators for particular municipalities, counties and voivodeships for the period from 2005 - 2016, www.mf.gov.pl

[3.] http://www.fitchpolska.com.pl

[4.] www.mf.gov.pl