

Should Local Governments Expect Benefits from Special Economic Zones? The Case of Poland

R. Pastusiak, M. Jasiniak, A. Kaźmierska

Abstract—The impact of Special Economic Zones (SEZs) has been analyzed for many years by researchers. There are lot of theoretical studies proving the SEZs importance for regional development, however, there is lack of empirical studies (and they are mainly focused on China market) that are based on available data. The theoretical studies indicate the various impacts of enterprises operating within SEZs on the economy. The article proves that, in case of Poland, locating SEZs in municipalities is an important part of increasing municipalities' income. Therefore SEZs have a positive impact on regional development. Municipality income is understood as taxes paid by taxpayers who depend on SEZ companies' performance. The analysis includes the Corporate Income Tax (CIT), Personal Income Tax (PIT) and real estate tax. The effects of SEZs on regional development were narrowed to a few variables that are most significant for the financial system. The analysis indicates the significant impact of SEZs on the amount of taxes influencing the municipality budget.

Keywords—Government, local finance, municipal finance, Special Economic Zones.

I. INTRODUCTION

SPECIAL Economic Zones (SEZs) are defined as economic enclaves created by government in order to attract domestic and foreign investors, and to stimulate the economy growth and the regional development. The history of SEZs is long; however, last 40 years are the most important for this issue. The development of SEZs indicates the opportunities and threats inherent in such a form of regional development support in the following countries: South Korea, China, Malaysia, the Philippines, Mexico, and other Latin American countries.

The influence of SEZs on host country economy, presented in the research studies, is not unequivocal. There are some examples presenting the positive influence (South Korea, China, Poland) and many others indicating no impact on the economy or even where this influence is negative (Philippines, Malaysia). The companies performing within SEZs benefit from many economic or administrative privileges, especially

Publication financed from National Science Centre, project title: The Evaluation of Special Economic Zones effectiveness, UMO-2013/09/B/HS4/01514.

Radosław Pastusiak is with University of Lodz, Faculty of Economy and Sociology, Corporate Finance Department, Rewolucji 1905 r No 39, 90-214 Lodz, Poland (corresponding author to provide phone: 0048 426355189, e-mail: radoslaw.pastusiak@uni.lodz.pl).

Magdalena Jasiniak is with University of Lodz, Faculty of Economy and Sociology, Corporate Finance Department, Rewolucji 1905 r No 39, 90-214 Lodz, Poland (e-mail: magdalena.jasiniak@uni.lodz.pl).

Anna Kaźmierska is with University of Lodz, Faculty of Economy and Sociology, Chair of Econometrics, Rewolucji 1905 r No 39, 90-214 Lodz, Poland (e-mail: anna.kazmierska@uni.lodz.pl).

tax advantages. As a result, SEZs operating in a given municipality through tax advantages (non or little benefits from income tax, real estate tax) and other public subsidies should not positively affect local government finances and overall economic condition in a given region. However, as it is proved in this article, SEZs have a positive impact on local governments' financial condition what states in contrast to arguments raised by SEZs opponents. The main goal of this article is to prove that SEZs have a positive impact on local governments' financial condition and regional economy growth basing on the Polish example.

The activity of SEZs in Poland is convergent with the economy growth. Therefore it is difficult to state objectively that SEZs are the effective instrument of the economic policy, especially while there are studies proving that most foreign companies would invest in Poland with no tax advantages anyway [21].

The impact of zone enterprises on municipality may have multidimensional character - in this context gathering such a wide variety of empirical data and proving the real dependencies is difficult. Authors decided to concentrate the analysis on most important sources of municipality finances in Poland that are directly related to the costs incurred by zone enterprises. Additionally Authors verify whether the SEZs influence poviats as well as municipalities.

In order to accomplish the aim of this article the following hypothesis were formulated:

- The municipalities with SEZs are characterized by higher tax income per capita: CIT, PIT and real estate tax.
- The total incomes of municipalities with SEZs are higher than income achieved by municipalities without SEZs.
- Poviats with SEZs are characterized by higher tax income per capita: CIT, PIT and real estate tax.
- The total incomes of poviats with SEZs are higher than income achieved by poviats without SEZs.

Municipalities generate revenues from income tax paid by enterprises and individuals and from real estate tax. If the companies perform within the SEZ, they have some tax advantages. As a result, the local government is charged for example infrastructure investment and has lower profits from taxes since the zone enterprises do not pay them to some extent. On the other hand it may be observed that local authorities in Poland are willing to create SEZs in the area of their influence hoping for the long-term revenues from the investments located there. Are their expectations reasonable?

II. SPECIAL ECONOMIC ZONES IN POLAND

In 2002 – 2013 on the area of Polish SEZs more than 1400

enterprises created about 130 thousands of workplaces. The total value of zone investments achieved 54 mln zlotys. The manufacturing and automotive sectors are dominant.

Since the Special Economic Zones establishment in Poland (on the base of the act of Special Economic Law from 20th October 1994) the discussion about the economic consequences in relation to enterprises and local society affected by SEZs has been vital.

The premise to create SEZs was to stimulate the growth of regions characterized by the lowest level of economic development within the country. Creation of the special area for the enterprises was to encourage business development, activate the unemployed and improve the infrastructure. The statutory privileges for enterprises operating within the zone guaranteed tax advantages depending on investment costs incurred (for perpetual land renting, construction and modernization of fixed assets and purchase of intangible assets). Also up to 2 – years costs of hiring new employees could be included in investment incentives. Zone enterprises, using the tax advantages (PIT, CIT) do not pay taxes. As a result, municipalities with SEZs in their area do not receive rightful part of tax income that would be paid otherwise by zone enterprises. These are lost benefits due to subsidies that seem to be unfavourable for the municipality finances.

However, the investments of zone enterprises usually initiate the co-operators network on a given area, i.e. subcontractors, what stimulate the entrepreneurship development and as a consequence, generate additional profits from local taxes that flow to the municipality budget. Another incentive for stimulating regional economy is the infrastructure that is created around SEZ. The most important effect of that is the decrease of unemployment, influencing the overall economic situation of local society and also municipality finances as the tax profits from non – zones enterprises and households are discharged into the municipality budget. Does the presence of SEZ have indeed a positive impact on municipality budget? Are the costs of establishing the SEZs higher or lower than potential benefits?

In order to answer these questions authors decided to analyse the municipality revenues in relation to the share in total tax from individuals, legal entities and real estate taxes. The existing research results indicate the financial effects of SEZs on the municipality area. The similar study will be provided in poviats in order to verify the influence of SEZs on the larger scale of the area.

III. LITERATURE REVIEW

The analysis of economic enclaves and their impact on the economy have been conducted since the 60s of 20th century. The studies might be divided into several topics, mainly depending on uprising period of research. K. Hamada [11] was the first who analyzed the financial aspects of SEZ. Hamada [11] in his analysis concentrated on zone enterprises investment decisions based on financial motives but he did not explain clearly the impact of SEZ on the economy. Then [30], [16], [17] presented models based on the effects of SEZs basing on China, other Asian and Caribbean countries and the

United States.

Warr [24]-[26] presented model of effectiveness of SEZs on the basis of real cash flows. He used the influence of various micro and macroeconomic factors that have impact on decisions related to investment and its location in SEZ. He indicated when SEZ had brought or not the benefits for the national economy and succeeded as an instrument of economic policy.

SEZ issue modelling has an evolutionary character. The more empirical data characterizing the SEZs activity is available, the more detailed studies and the more variables are implemented in models. Often variables related to SEZs activity in particular economy are not suitable for another one.

Over time, the range of analysis related to the effects of SEZs activity continues to widen. However, studies are very extensive and multithreaded. It has been noticed that the zone investments influence significantly the economic growth, attract foreign direct investments (FDI) and cause spill over effects in high – tech industries. The main research trends in the area of the relation between SEZs and economic growth are represented by [29] which analysed the Caribbean SEZs and [12], [9] and [18] which studied SEZs in China. Rolfe et al. [20] analysed the privileges of operating in Kenyan SEZs. Aggarwal, Hoppe and Walkenhorst [2], Aggarwal [3], Shah [22] compared the operating conditions in Indian, Sri Lanka and Bangladesh SEZs. Devereux [8] studied the relations between taxes and investment localization. Litwack and Qian [13] developed the theory of economies in transition on China example where the development strategy was based on SEZs.

There are important studies concentrating on analysing the impact of various determinants - among other SEZs - attracting foreign direct investments, as well. It is worth mentioning: [28], [15], [7], [29]. Other studies concentrated on FDI and especially on spillover effect are inter alia: [6], [14], [10], [1]. The studies related to the impact of SEZs on China economy are presented by [27], [5]. Above studies have a general character and is focused on overall principles of SEZs performance.

Summarizing the review of existing studies the analysis describing Polish SEZs are also worth mentioning, especially the findings of [23], who conducted a survey among Polish SEZs focused on SEZs influence on local economy. However, these studies cannot be considered as statistically significant. Pastusiak [19] analysed the effectiveness of SEZs using enclaves model by [24]. It was concluded that Polish SEZs are highly effective on local level as well as national. Ambroziak [4] studied legal regulations of SEZs in Poland.

Current studies presented in the literature are still preliminary and insufficient in describing SEZs performance, and its effect on economy.

The analysis proposed by the authors is focused on particular issue related to municipality and poviats finances in Poland and brings added value to studies concentrating on the effects of SEZs on regional economy.

IV. RESEARCH METHODS AND RESULTS

Since 1999 local government in Poland has a three level

structure and consist of 16 voivodships divided into poviats, composed of municipalities.

To analyse the impact of SEZs on local government finance, municipalities and poviats were chosen by authors. Municipalities and poviats were divided into those with and without SEZs.

TABLE I
THE DESCRIPTIVE STATISTICS – MUNICIPALITIES [IN PLN PER CAPITA]

Municipalities without SEZs			
Variables	Mean	Median	Standard Deviation
Total income in 2009	2 658,83	2 545,63	902,99
Real estate tax 2009	276,88	205,47	476,54
PIT 2009	290,82	231,62	211,07
CIT 2009	12,98	3,07	37,05
Total income 2010	2 910,57	2 731,60	851,72
Real estate tax 2010	291,46	224,11	299,53
PIT 2010	293,47	238,11	203,11
CIT 2010	12,01	3,03	35,55
Total income 2011	3 081,13	2 918,47	958,43
Real estate tax 2011	322,36	243,13	510,55
PIT 2011	335,84	277,98	211,67
CIT 2011	13,78	3,44	37,98
Total income 2012	3 195,58	3 021,45	1 219,07
Real estate tax 2012	353,44	266,45	585,52
PIT 2012	361,01	300,98	218,02
CIT 2012	13,56	3,77	39,53
Municipalities with SEZs			
Variables	Mean	Median	Standard Deviation
Total income in 2009	2 787,88	2 508,21	1 949,85
Real estate tax 2009	470,16	363,82	1 039,60
PIT 2009	466,39	430,23	220,11
CIT 2009	50,97	22,60	193,56
Total income 2010	3 112,75	2 727,21	2 586,27
Real estate tax 2010	505,60	391,50	1 070,51
PIT 2010	463,56	424,12	213,69
CIT 2010	52,17	21,18	299,62
Total income 2011	3 213,11	2 839,96	2 361,23
Real estate tax 2011	535,27	419,83	1 083,78
PIT 2011	516,90	480,73	221,44
CIT 2011	58,96	24,47	232,42
Total income 2012	3 346,48	2 930,01	2 837,00
Real estate tax 2012	591,02	450,96	1 288,18
PIT 2012	548,61	513,95	227,17
CIT 2012	59,70	24,19	249,87

Source: own elaboration on the basis of Local Bank Data [31].

The municipality analysis was conducted among 2478 units including 350 municipalities with SEZs operating on their area. The empirical data has been obtained from Local Data Bank – the Main Statistical Office public database. The following variables were taken into consideration under the period from 2009 – 2012:

- Total municipality income per capita – the total income of given municipality in relation attributable to 1 inhabitant in a given year;
- Municipality income from real estate tax per capita – the municipality income from real estate tax, attributable to 1 inhabitant in a given year;
- Municipality income from corporate tax per capita – the municipality share in state budget income from corporate income tax, attributable to 1 inhabitant in a given year;
- Municipality income from personal income tax per capita

– the municipality share in state budget income from personal income tax, attributable to 1 inhabitant.

Table I presents the values of descriptive statistics for chosen variables for municipalities with and without SEZs.

In 2009 – 2012 the tax income in municipalities with SEZs, presented as mean and median values, are higher what suggests that the financial condition of municipalities with SEZs is better. However, it should be mentioned that standard deviation of tax income in municipalities with and without SEZs differ. In case of municipalities with SEZs the standard deviation is relatively higher than in case of municipalities without SEZs what indicates that there is a large diversity in tax income in municipalities with SEZs. In case of municipalities without SEZs the results is more homogeneous.

The poviats analysis was conducted among 379 units consisting of these with and without SEZs (the number of poviats with SEZs – 184 units). However, only three variables were analysed¹: total income per capita, income from CIT per capita and income from PIT per capita. Table II presents the descriptive statistics of chosen variables in poviats.

TABLE II
THE DESCRIPTIVE STATISTICS – Poviats [IN PLN PER CAPITA]

Poviats without SEZs			
Variables	Mean	Median	Standard Deviation
Total income in 2009	2 679,35	2 567,64	466,99
PIT 2009	384,54	307,57	217,33
CIT 2009	23,14	15,68	25,36
Total income 2010	2 937,00	2 789,96	622,91
PIT 2010	384,45	308,30	212,16
CIT 2010	24,17	13,53	37,69
Total income 2011	3 099,65	2 924,01	622,83
PIT 2011	435,14	352,25	222,54
CIT 2011	27,24	14,4 7	36,99
Total income 2012	3 217,66	3 029,01	622,48
PIT 2012	459,56	382,66	221,60
CIT 2012	29,23	15,28	60,72
Poviats with SEZs			
Variables	Mean	Median	Standard Deviation
Total income in 2009	2 805,83	2 556,56	605,30
PIT 2009	498,92	381,78	271,59
CIT 2009	40,51	24,16	52,18
Total income 2010	3 082,73	2 840,44	687,69
PIT 2010	495,76	388,50	265,01
CIT 2010	36,17	21,41	46,50
Total income 2011	3 213,17	2 932,74	706,04
PIT 2011	549,94	430,16	272,53
CIT 2011	43,57	25,56	70,60
Total income 2012	3 358,48	3 027,78	808,12
PIT 2012	579,85	458,33	277,05

Source: own elaboration on the basis of Local Bank Data [31].

In case of poviats similar relations as in case of municipalities might be noticed but the values are more flattened. There are not so much differences between poviats without SEZs and poviats with SEZs. This indicates that the impact of SEZs on poviats is relatively lower than in case of municipalities. It may be related to the fact that poviats are characterized by much larger administrative area, higher

¹Due to regulations of Polish local government poviats do not achieve income from real estate tax.

number of inhabitants and the fact that they concentrate more investors on their area – as a result the impact of SEZs on poviats finance is lower.

Table III presents the comparison of municipalities with SEZs (1) and without SEZs (0) in terms of the average values of chosen variables: total income, CIT, PIT, real estate tax.

In any case the differences between the mean value for given variable in municipality with SEZs and the municipality without SEZs are positive. It means that municipalities with SEZs on average achieve better financial effects than municipalities without SEZs.

TABLE III
THE NOMINAL DIFFERENCES BETWEEN AVERAGE INCOME VALUES AND MUNICIPALITIES WITH AND WITHOUT SEZs OF [IN PLN PER CAPITA]

Year	Total income	CIT	PIT	Real estate tax
2009	129,04	38	175,57	193,28
2010	202,17	40,15	170,09	5 203,15
2011	131,99	45,17	181,06	212,92
2012	150,9	46,14	187,6	237,59

Source: own elaboration on the basis of Local Bank Data [31].

The statistical data presented in Table III may suggest that SEZs are localized in more developed municipalities. In order to verify this relation all municipalities (with and without SEZs) were divided into subgroups by total income (per capita) criteria to have comparable samples. The municipalities were ranked according to the total income (from the lowest to the highest). Next, from each group 25% municipalities were selected (those with and without SEZs). The sampling was systematic and every k municipality was selected. The extreme values (related to i.a. relatively young municipalities or municipalities located in extreme poor or rich regions) were omitted.

In result, 3 subgroups of municipalities were selected in each year. The number of municipalities with SEZs was almost equal in each subgroup. Next the percentage of taxes in total municipalities' income was estimated (appendix, tables XII-XIII). Findings indicate that municipalities with SEZs achieve higher tax income than municipalities without SEZs.

Afterwards, the cross – sectional series on the sample of 25% of total municipalities were analysed in the context of normal distribution. Shapiro – Wilk test was used to verify whether the samples are normally distributed. The results of Shapiro – Wilk test reject the zero hypothesis of normal distribution. The non – parametric Mann – Whitney test was conducted to verify the statistical significance of differences between 2 averages. Mann – Whitney test is use instead of t – Student test. It is dedicated for non – normally distributed data and is use for two independent samples.

Tables IV-VII present the test results for particular variables. "NO" in tables means that there is no statistically significant difference between average values of municipalities with and without SEZs in a given subgroup. The results of Mann – Whitney test indicate that the differences between averages are statistically significant for the CIT, PIT and real estate tax income. Municipalities with SEZs have on average higher income from the real estate tax

and from CIT and PIT taxes.

TABLE IV
THE MANN – WHITNEY TEST RESULTS FOR STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN AVERAGES IN 2009 - MUNICIPALITIES

Variables	Total income	Real estate tax	PIT	CIT
Statistically significant differences for the 1st group	NO	YES	YES	YES
Statistically significant differences for the 2ndgroup	NO	YES	YES	YES
Statistically significant differences for the 3rd group	YES	YES	YES	YES

Source: own elaboration on the basis of Local Bank Data [31].

TABLE V
THE MANN – WHITNEY TEST RESULTS FOR STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN AVERAGES IN 2010 - MUNICIPALITIES

Variables	Total income	Real estate tax	PIT	CIT
Statistically significant differences for the 1st group	NO	YES	YES	YES
Statistically significant differences for the 2ndgroup	NO	YES	YES	YES
Statistically significant differences for the 3rd group	NO	YES	YES	YES

Source: own elaboration on the basis of Local Bank Data [31].

TABLE VI
THE MANN – WHITNEY TEST RESULTS FOR STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN AVERAGES IN 2011 - MUNICIPALITIES

Variables	Total income	Real estate tax	PIT	CIT
Statistically significant differences for the 1st group	NO	YES	YES	YES
Statistically significant differences for the 2ndgroup	NO	YES	YES	YES
Statistically significant differences for the 3rd group	YES	YES	YES	YES

Source: own elaboration on the basis of Local Bank Data [31].

TABLE VII
THE MANN – WHITNEY TEST RESULTS FOR STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN AVERAGES IN 2012 - MUNICIPALITIES

Variables	Total income	Real estate tax	PIT	CIT
Statistically significant differences for the 1st group	NO	YES	YES	YES
Statistically significant differences for the 2ndgroup	NO	YES	YES	YES
Statistically significant differences for the 3rd group	YES	YES	YES	YES

Source: own elaboration on the basis of Local Bank Data [31].

The statistical insignificance of the differences between total income averages may be related to the subgroups selection. Each subgroup was chosen by value of total income per capita and these values should be close to one another within the subgroups of municipalities with and without SEZs.

In order to verify this relation on larger scale the same procedure verifying the statistical significance of differences between averages was conducted among poviats.

Tables VIII-XI present the conclusions for given variables in each group. In case of poviats it cannot be unequivocally stated whether the poviats with SEZs have statistically significantly higher income from PIT per capita in comparison to poviats without SEZs. In case of total income and income

from CIT the differences between averages are not statistically significant.

TABLE VIII
THE MANN – WHITNEY TEST RESULTS FOR STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN AVERAGES IN 2009 - POWIATS

Variables	Total income	PIT	CIT
Statistically significant differences for the 1st group	NO	YES	NO
Statistically significant differences for the 2ndgroup	NO	YES	NO
Statistically significant differences for the 3rd group	NO	NO	NO

Source: own elaboration on the basis of Local Bank Data [31].

TABLE IX
THE MANN – WHITNEY TEST RESULTS FOR STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN AVERAGES IN 2010 - POWIATS

Variables	Total income	PIT	CIT
Statistically significant differences for the 1st group	NO	NO	NO
Statistically significant differences for the 2ndgroup	NO	YES	NO
Statistically significant differences for the 3rd group	NO	NO	NO

Source: own elaboration on the basis of Local Bank Data [31].

TABLE X
THE MANN – WHITNEY TEST RESULTS FOR STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN AVERAGES IN 2011 - POWIATS

Variables	Total income	PIT	CIT
Statistically significant differences for the 1st group	NO	NO	NO
Statistically significant differences for the 2ndgroup	NO	NO	NO
Statistically significant differences for the 3rd group	NO	NO	NO

Source: own elaboration on the basis of Local Bank Data [31].

TABLE XI
THE MANN – WHITNEY TEST RESULTS FOR STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN AVERAGES IN 2012 - POWIATS

Variables	Total income	PIT	CIT
Statistically significant differences for the 1st group	NO	NO	NO
Statistically significant differences for the 2ndgroup	NO	NO	YES
Statistically significant differences for the 3rd group	YES	YES	NO

Source: own elaboration on the basis of Local Bank Data [31].

The impact of SEZs at the municipality level indicates clearly that there is a huge diversification between the economic development and prosperity of the units with and without SEZs. On the basis of achieved results it may be concluded that there are positive effects of SEZs performance on the municipalities area.

According to period analysed the research results indicate that:

- The municipalities with SEZs achieve 553% higher CIT income per capita (based on 4 years average) in comparison to municipalities without SEZs;
- The municipalities with SEZs achieve 56% higher PIT income per capita (based on 3 years average) in comparison to municipalities without SEZs;
- The real estate tax income is also much higher in

municipalities with SEZs, by 275% on 4 years average in comparison to municipalities without SEZs;

- The highest disproportion in total income per capita was observed in group of the wealthiest municipalities - about 535 PLN on average;
- Moreover, the additional studies based on Local Bank Data indicate that:
- In period analysed, the highest number of new job advertisements was observed in municipalities with SEZs (53 more on average);
- In municipalities with SEZs there were 722 more operating enterprises on annual average basis what confirms that in municipalities with SEZs higher level of vocational activation and entrepreneurship than in municipalities without SEZ is observed.

The influence of SEZs on larger scale is not unequivocal. Powiats with SEZs achieve higher average tax income however these differences are not statistically significant. Therefore SEZs have greater impact at municipality level. Powiats incomes are probably affected by other determinants what might be a presumption for further analysis.

V. CONCLUSION

Achieved results support the balance search between financial incentives and real benefits created by SEZs and clearly indicate the effects of SEZs performance in Polish economy.

The analysis is related to on period 2009 – 2012. The research results indicate that in each group of studied units the municipalities and powiats with SEZs achieved higher income from taxes. A great difference in the income coming from real estate, PIT and CIT taxes is observed making zone municipalities and powiats more advantageous. The CIT income differ mostly in the studied units – in case of wealthiest group of municipalities and powiats this difference is almost twice as big as in the rest of units therefore it confirms the strong economic stimulation on that area. PIT income has higher impact on local government budget in units with SEZs, as well. The disproportion PIT and CIT per capita is the greatest and the difference is about 50% according to non – zone units in group of wealthiest units.

The statistical data analysis indicates that SEZs have a positive impact on the regional development by activating the local society, increasing the budget income and investment attractiveness of the region. Moreover the results suggest that the positive activation effect is noticeable in each studied group of local government units regardless the income group. However, the strongest influence is observed in the wealthiest units group and that probably the results of their economic position helping them to create more favourable investment conditions.

The results of analysis indicate the positive impact of investments in SEZ on municipality finances and thus contradict the arguments raised by the SEZ opponents about sterilization of the economy by zone investments.

However, the determinants of investment location choices should be analysed. Do the zone investors choose particular

zone because of its dynamic development and good infrastructure or that choice is made regardless these factors. Perhaps there is a peculiar effect of verification that investors perform – investments are made in zone municipalities as there are better perspectives for development and favourable labour market conditions.

Additionally, it seems to be necessary to study the local governments' income before and after Special Economic Zones was established. It is worth considering whether there is a positive impact of SEZs on local finances if local governments' income were relatively high before SEZs were established. In that case the argument for positive relation between SEZs and local finances seems to be weak.

APPENDIX

TABLE XII

THE DIVISION OF MUNICIPALITIES IN TERMS OF TOTAL INCOME PER CAPITA IN 2009 – 2011 [IN PLN PER CAPITA]

Year	Groups	From	To
2009	1 group	-	2 361,80
	2 group	2 361,81	2 709,86
	3 group	2 709,87	37 206,14
2010	1 group	-	2 522,28
	2 group	2 522,29	3 008,66
	3 group	3 008,67	48 325,24
2011	1 group	-	2 616,52
	2 group	2 616,53	3 108,31
	3 group	3 108,32	44 563,21
2012	1 group	-	2 739,62
	2 group	2 739,63	3 235,20
	3 group	3 235,21	53 685,05

Source: own elaboration on the basis of Local Bank Data [31].

TABLE XIII

THE PERCENTAGE OF CHOSEN TAXES IN TOTAL INCOME FOR EACH GROUP OF MUNICIPALITIES, GROUP SIZE IN 2009 – 2011

Year	Groups	SEZs	Real estate tax (%)	PIT (%)	CIT (%)	Number of municipalities
2009	1 group	0	10,07	14,18	0,48	579
		1	15,12	19,10	0,98	116
	2 group	0	8,52	10,02	0,31	854
		1	14,56	15,69	1,24	116
	3 group	0	12,45	9,96	0,67	695
		1	19,45	16,04	2,73	118
2010	1 group	0	9,90	13,03	0,38	580
		1	14,60	17,05	0,95	116
	2 group	0	8,67	9,51	0,32	925
		1	15,25	15,55	0,92	116
	3 group	0	11,56	8,97	0,54	695
		1	17,76	13,31	2,54	118
2011	1 group	0	10,40	14,82	0,44	511
		1	15,34	18,61	0,96	116
	2 group	0	8,93	10,68	0,34	903
		1	15,14	16,33	1,15	116
	3 group	0	11,94	9,31	0,56	714
		1	18,38	14,52	2,76	118
2012	1 group	0	11,22	15,92	0,45	495
		1	16,12	19,53	0,94	116
	2 group	0	9,20	10,99	0,33	906
		1	15,31	16,24	0,95	116
	3 group	0	12,75	9,52	0,50	727
		1	20,01	14,78	2,78	118

Source: own elaboration on the basis of Local Bank Data [31].

TABLE XIV

THE DIVISION OF POVIATS IN TERMS OF TOTAL INCOME PER CAPITA IN 2009 – 2011 [IN PLN PER CAPITA]

Year	Groups	From	To
2009	1 group	-	2 449,71
	2 group	2 449,72	2 738,11
	3 group	2 738,12	5 911,14
2010	1 group	-	2 679,31
	2 group	2 679,32	3 009,12
	3 group	3 009,13	6 157,69
2011	1 group	-	2 789,68
	2 group	2 789,68	3 181,97
	3 group	3 181,98	6 616,22
2012	1 group	-	2 888,56
	2 group	2 888,56	3 292,51
	3 group	3 292,52	6 977,66

Source: own elaboration on the basis of Local Bank Data [31].

TABLE XV

THE PERCENTAGE OF CHOSEN TAXES IN TOTAL INCOME FOR EACH GROUP OF POVIATS, GROUP SIZE IN 2009-2011

Year	Groups	SEZs	PIT (%)	CIT (%)	Number of municipalities
2009	1 group	0	14,05	0,63	55
		1	16,27	0,88	61
	2 group	0	12,55	0,73	86
		1	13,48	1,05	61
	3 group	0	16,88	1,20	54
		1	21,89	2,11	62
2010	1 group	0	12,70	0,52	73
		1	15,26	0,75	61
	2 group	0	12,07	0,69	66
		1	12,21	0,67	60
	3 group	0	14,39	1,22	56
		1	19,31	1,79	63
2011	1 group	0	13,67	0,56	60
		1	16,36	0,89	60
	2 group	0	12,66	0,62	84
		1	13,90	0,78	61
	3 group	0	16,09	1,46	51
		1	19,88	2,06	63
2012	1 group	0	14,26	0,59	56
		1	16,64	0,79	61
	2 group	0	12,95	0,53	84
		1	14,50	0,81	62
	3 group	0	15,88	1,58	55
		1	19,67	2,14	61

Source: own elaboration on the basis of Local Bank Data [31].

REFERENCES

- [1] Abraham, F., J. Konings, and V. Sloodmaekers (2010), FDI spillovers in the Chinese manufacturing sector, *The Economics of Transition*, vol 18 (1), 143-182
- [2] Aggarwal, A., M. Hoppe, and P. Walkenhorst (2008), Special Economic Zones and Economic Diversification: Same Evidence from South Asia, in Richard Newfarmer, William Shaw and Peter Walkenhorst (eds.), *Breaking into New markets: Emerging Lessons for Export Diversification*, Washington DC: World Bank.
- [3] Aggarwal, A. (2005), Performance of Export Processing Zones: A Comparative Analysis of India, Sri Lanka, and Bangladesh, Working Paper No 155, Indian Council for Research on International Economic Relations, New Delhi.
- [4] Ambroziak A., National regional aid in special economic zones in Poland, SGH, Warsaw 2009 (polish)
- [5] Cheng, L. K., and Y. K. Kwan (2000), What are the Determinants of the Location of Foreign Direct Investment? The Chinese Experience, *Journal of International Economics*, vol 51(2), 379-400
- [6] Coe, D. T., E. Helpman, and A.W. Hoffmaister (2009), International R&D Spillovers and Institutions, *European Economic Review*, vol 53(7), 723-741.

- [7] Desai, M. A., C. F. Foley and J.R. Hines Jr. (2009), Domestic Effects of the Foreign Activities of US Multinationals, *American Economic Journal: Economic Policy*, vol. 1(1), 181-203
- [8] Devereux, M. P. (2007), The Impact of Taxation on the Location of Capital, Firms and Profit: A Survey of Empirical Evidence, Working Paper, Oxford University Center for Business and Taxation.
- [9] Ge, W. (1999), *Special Economic Zones and the Economic Transition in China*, Singapore and River Edge, NJ: World Scientific.
- [10] Hale, G. and C. X. Long (2007), Are There Productivity Spillover from Foreign Direct Investment in China, The Federal Bank of San Francisco Working Paper No 2006-13.
- [11] Hamada K., (1974), An Economic Analysis of the Duty free zone, "Journal of International Economics", vol. 4, 241-255,
- [12] Kung, K. S. (1985), The Origins and Performance of China's Special Economic Zone, *Asian Journal of Public Administration*, vol. 7(1), 198-215.
- [13] Litwack, J. M., and Y. Y. Qian (1998), Balanced or Unbalanced Development: Special Economic Zones as Catalysts for Transition, *Journal of Comparative Economics*, vol. 26(1) 17-141.
- [14] Liu, Z. Q. (2008), Foreign Direct Investment and technology spillovers: Theory and evidence, *Journal of Development Economics*, vol. 85(1-2), 176-193.
- [15] McGrattan, E., and E. C. Prescott (2009), Openness, Technology Capital and Development, *Journal of Economic Theory*, vol. 44(6), 2454-2476.
- [16] Miyagiwa K., A Reconsideration of the Welfare Economics of a Free Trade Zone, "Journal of International Economics" 1986, No 21 s. 337-350.
- [17] Miyagiwa K., Young L., Unemployment and the formation of duty free zones, "Journal of Development Economics" 1987, Vol. 26.
- [18] Park, J. D. (1997), *The Special Economic Zones of China and Their Impact on its Economic Development*, Praeger, London
- [19] Pastusiak R., *Special economic zones as a stimulator of economic development*, Editing by University of Lodz, Lodz 2011, (polish)
- [20] Rolfe, R. J., D. P. Woodward, and B. Kagira (2004), Footloose and Tax Free: Incentive Preferences in Kenyan Export Processing Zones, *South African Journal of Economics*, vol. 72(4): 784-807.
- [21] Różański J. (2010), *International companies in Poland*, PWE, Warsaw 2010, (polish)
- [22] Shah, S. (2008), *Special Economic Zones in South Asia: Comparative Analysis of Bangladesh, Sri Lanka, and India*, Harvard University.
- [23] Siudak P., Wątopek B., *Special Economic Zones in Poland in the years 1995 - 2009*, PWSZ in Legnica, Legnica 2011, (polish)
- [24] Warr P.G., *Export Processing Zones. The economics of Enclave Manufacturing*, IBRD/World Bank, Research Observer, January 1989, vol 4, No 1,
- [25] Warr P.G., *Export Processing Zones in the Philippines*, "ASEAN-Australia Economics Papers" 20, Australian National University, Canberra, 1985, p. 12.
- [26] Warr P.G., *Jakarta Export Processing Zone: Benefits and Costs*, "Bulletin of Indonesian Economic Studies", 1983, no 3, s. 28-49.
- [27] Wei, S. J. (1995), The Open Door Policy and China's Rapid Growth: Evidence from City Level Data, in Takatoshi Ito and Anne O. Kruger (eds), *Growth Theories in Light of The East Asian Experience*, NBER-EASE vol. 4, University of Chicago Press.
- [28] Whalley, J., and X. Xin (2006), China's FDI and Non-FDI Economies and the Sustainability of Futures High Chinese Growth, *China Economic Review*, vol. 21(1), 123-135.
- [29] Willmore, L. (1996), *Export Processing in the Caribbean: Lessons from four case studies*, Working Paper No 42, United Nations Economic Commission for Latin America and the Caribbean, Santiago.
- [30] Young L., *Intermediate goods and the formation of Duty Free Zones*, "Journal of Development Economics" 1987, Vol. 25.
- [31] Local Bank Data, www.stat.gov.pl, 10.10.2014