

# Economic vitality of Polish suburbs

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**Abstract**— Since 1989, Poland has been undergoing major political, social and economic transformations. The effects of these changes are visible on several levels, including the field of urban planning, where they manifested themselves as the birth of the suburbanization process. In the field of economics, it could be noticed that since 1989, the SME sector has been awakening very dynamically.

Correlation of the parallel development of these two phenomena has led the authors to pose a question about the emerging potential links between the occurring processes i.e. - the process of the urban sprawl and the development of the SME sector. In this context, a thesis was established about emergence of the so-called "entrepreneurship nests", made up of a dispersed urban tissue with residential functions intermixed and high intensification of economic entrepreneurship, in the Polish suburb areas.

To identify the research problem, a two-pronged research in the fields of urban planning and economic research was adopted. The Tricity Metropolitan Area (TMA), consisting of three central cities and 31 towns and adjacent municipalities, was the subject of research. Municipalities with the highest suburbanization rate were established on the basis of the migration balance. Subsequently, business entities in those areas were identified with their business activity measured by the location quotient (LQ).

The results of the classification of the units within TMA (cities, town village communities, village communities) according to the migration rate and the construction activity index indicated 7 communities with the highest intensity of the suburbanization process. Our analysis of LQ in all units within TMA (cities, town village community, village communities) and its core cities allowed identification of the communities with the highest SME activity. Additionally, based on statistical data of selected suburban areas, 2 municipalities (Chwaszczyno, Straszyn) with the highest entrepreneur potential were found, which we refer to as the nests of entrepreneurship.

Our study confirms that communes characterized by the highest intensity of the suburbanization processes present higher business activity than other communes. However, this is just preliminary study, which offers incomplete explanation of the suburbanization process in a metropolitan area in Poland and will be further developed, using the CATI method, in additional studies.

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**Keywords:** suburbanization, Poland, SME sector, transformation, Gdansk Metropolitan Area

## I. INTRODUCTION

The urban dimension of civilizational advancement is obvious. The issues related to development of metropolitan areas have been the subject of political debate as well as of numerous studies commissioned by the local and regional authorities [Markowski, Marszał, 2006]. It seems, however, that it is the edges of metropolitan areas which generate giant potential for local economies. This work aims to indicate the relations between modern metropolises and the activity of the small and medium enterprise (SME) sector.

The core of the focus on these business entities stems from the fact that currently they constitute over 99% of all enterprises in Poland, while their number, as opposed to large entities, continues to grow. Large flexibility, high level of innovation as well as the tendency to risk are characteristic for this sector of entities. These companies are the driving force of modern economy. In recent years, their share in the formation of GDP in Poland was almost 50%. Perceived as entities creating new job positions and healthy competition, these companies also play an important role by forcing high quality of the manufactured products and provided services.

The paper presents only partial results of the empirical studies conducted under a contract with the National Center of Science UMO-2013/09/B/HS4/01175. The research was

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carried out in 2014 on an example of the Tricity Metropolitan Area (TMA). Determination of rate of development of the suburban area was presented on the basis of population migration and construction activity. Economic activity was determined based on the statistical data on SMEs.

The Authors of this work wanted to depict interdependencies between the development of entrepreneurship and the process of suburbanization. The research combines the Authors' experience in the fields of macroeconomics and spatial planning. The results of the study on economic activity in the suburban zone are intended to describe the individual, characteristic for the situation in Poland process of suburbanization, which stimulates the development of entrepreneurship in the suburban areas.

## II. CHARACTERISTICS OF THE SUBURBANIZATION PROCESS IN POLAND

Since 1990, Polish cities have been experiencing radical spatial changes. Migration of their residents led, among others, to an increased activity in their suburban areas. There is ample evidence that this new phenomenon of suburbanization had significant impact on the shape of modern Polish cities [Lorens, 2005; Liskowski, Grochowski, 2009; Kajdanek, 2011]. Urban sprawl has become the primary form of spatial development in the suburban areas, which consequently fruited emergence of the central-area urban functions in the peripheries.

Today, suburbanization is a common phenomenon occurring throughout the world. Uncontrolled city expansion (urban sprawl) is also an important element of the studies on cities [Gillham, 2002; Bruegmann, 2006; Kanapie, Leonitidou, Petschel-Held 2007; Clapson, Hutchison, 2010]. However, the Polish suburbanization process has its own characteristics and can be compared with Eastern-European countries [Stanilov, Sykora, 2014].

The reasons for such significant progress of suburbanization in Poland, particularly since the 90's of the 20th century, should be sought in the socio-economic and political transformations. The fall of the communist regime caused a shift away from central planning, which, in turn, has had a great impact on spatial development of the cities, and thus on their landscapes. As soon as in May 1990, first democratic elections for Polish local governments were held. For the first time, the elected authorities took over the matters of spatial development and had real and decisive influence on the shape of that development. The authorities, which unfortunately were, in majority, inexperienced in spatial development, began to interpret the land ownership law as 'freedom' to dispose the land in any desired manner. As a result, spatial planning was fragmented. In response to the negative connotations associated with central planning, the overall planning of settlement units was diverged from, in favor of filling the space with plans and decisions of a point nature. Local authorities mainly concentrated on meeting the requests and demands of land owners. Subsequently, the general need of the residents to live in a single-family house with a garden (an exclusive rarity during the time of regime) took the form of mass building permits issued for suburban

areas [Grochowski, Lisowski, 2008; Kajdanek, 2011]. Suburbs became the best location for this type of investments, since majority of the land was owned by natural persons. Meantime, problems with restitution and real estate privatization unfolded in the cities. Local authorities were not prepared for this type of compilation of legal and financial problems. In this context, undeveloped suburban areas seemed more attainable in terms of carrying out an investment. The demand for apartments was growing, while construction of multi-family buildings in the cities dropped sharply [Tsenkova, 2005; Grochowski, Lisowski, 2009]. The suburbanization process was further stimulated by internal competition between local authorities, who reinforced the trend of earmarking suburban areas for construction purposes, in order to attain new residents and investors.

These factors were the first impulse for the suburbanization process which has been developing in Poland for two decades. More information on the subject of the development process in post-socialist countries can be found in publications by numerous authors [Nuissl, Rink, 2007; Liskowski, Mantey, Wilk, 2014]. Most research on the issue of losing clear boundaries by the cities has diagnosed similar causes, in terms of the socio-economic transformations. A general trend of a search for better quality of life, which led to growing consumption and to emergence of new lifestyle models, has been noticed. This process, combined with the growth of motorization, facilitated the decision to move to the outskirts of the cities with the possibility to commute to work daily. Parallely, the disproportion in the residents' housing needs, associated with an intensifying demographic decline, has increased. The biggest outflow of city residents has been observed since 2004 [Dzialek 2012].

Economic transformations led to mass unemployment, which then led to development of the small and medium enterprise sector. Unfavorable formal, financial and location conditions, which often were identified with city centers, caused increasing interest in locating human activity on the outskirts. Moreover, free-market economy has led to radical reorganization of the system of services, the spatial forms of which have been imprinted on cities' landscapes. New trade structures in the form of hypermarkets and shopping malls begun to be located in the areas easily accessible, in terms of communication, for the clients from both the cities and the region.

In the late 90's of the 20th century, along with emergence of new forms of business parks and special economic zones, suburban areas assumed a diversified nature.

In terms of space management, lack of coordinated planning as well as lack of adequate tools and instruments for spatial planning were the specific effects of suburbanization at that time [Liskowski, Mantey, Wilk, 2014; Stanilov, Sykora, 2014]. These and other causes of the socio-economic and political transformations led to deformation of the urban tissue and to emergence of a new form of post-socialist cities.

Suburbanization, in the context of development of the cities ranked as strong regional centers, nowadays, in contemporary urbanism, is viewed as part of a broader transformation process called the process of metropolization, which currently is the

subject of political debate and numerous studies commissioned by the local and regional authorities [Gillham, 2002; Markowski, Marszał 2006]. In metropolitan areas, where increased tendency of a suburban sprawl can be observed, new forms of suburban spatial structure often emerge. It is a network of diffused, fuzzy systems, strongly inter-connected from the perspective of their functioning, but lacking the traditional urban compactness and not meeting the canon of spatial order. The paradigm of disjoint architecture has been identified by Duany, Plater-Zyberk, Speck [Duany, Plater-Zyberk, Speck, 2000]. It is composed of five elements, such as (1) housing subdivisions, living pods – fragmentation of the housing tissue, (2) malls, retail centers – hypermarkets and shopping malls, (3) office, business parks – office parks (4) civil institutions, no public space - public institutions without public space (in Poland, however, this form often is missing), (5) roads – the streets, roads, highways.

The character of the Polish suburbanization process refers to global examples, however, it is not their pure reflection. The outline of this process, in the context of development of housing and service trends, has been widely discussed in the specialized literature [Zuziak, 2005; Markowski, T. Marszał, 2006; Lisowski, Grochowski, 2009; Kajdanek, 2011; Liskowski, Mantey, Wilk, 2014]. The Authors' findings indicate that the Polish suburbs formed during the last two decades are areas of specific economic activity. This characteristic distinguishes them from their European and American counterparts. The field of research on the issue of suburbanization is lacking studies describing the SME sector and its share in shaping the structure of suburbs. The common cause of development of these two phenomena in Poland provokes undertaking an interdisciplinary research on the mutual relations occurring between them. The local character of the SME sector as well as strong social and economic ties with the place of business activity are often underlined in the literature on the subject. Thanks to the SMEs' ease of operation as well as the tendencies and possibilities to use local resources, prosperity of the local society (the owners, employees) grows. As such, these entities constitute an economic base for formation of the middle class [Struzycki 2004; Lichniak 2011]. This results in a close relationship between the development of this sector and the local and regional development. The example of the Gdansk Metropolitan Area very well illustrates the phenomena associated with economic activity of small and medium-sized enterprises and with the suburbanization processes in periurban areas.

### III. THE ROLE SMALL AND MEDIUM ENTERPRISES PLAY FOR THE POLISH ECONOMY

Dynamic development of small and medium-sized enterprises, which was observed during 20th century, is a characteristic trait of modern economy. Nineteenth century theorists argued that small enterprises did not stand a chance in competition with big industry. By the end of the sixties of the 20th century, economic development of most highly-developed countries was based on activity of large enterprises. At the beginning of the seventies, changes took place due to technological advances (miniaturization and specialization),

increased global competition, the transformations related to lack of some raw materials, and increasing demands of the customers who began to seek non-standard goods and services. In Eastern-European countries, development of small entrepreneurship took place twenty years later, due to the systemic and economic transformations. In Poland, the reasons for rapid development of SMEs include:

- abolition of monopoly and of preferential access to the market of state enterprises;
- release of an enormous entrepreneurship potential, revival of family-craftsmen and merchant traditions;
- systematically growing unemployment after the collapse of state enterprises;
- introduction of internal convertibility of the zloty;
- consistently pursued monetary and privatization policies;
- introduction of free travel and trading of goods;
- restitution of local self-governance;
- possibility to start business at minimal capital input;
- continuing market imbalance.

Experience of highly-developed countries shows that their economic strength depends on small companies, as indicated by certain particular characteristics of this group of business entities as well as by their economic potential. Small and medium-sized enterprises mainly are considered as a stimulant of economic development, while their functioning is a sign of healthy competition and reflects society's resourcefulness. The SME sector approaches external environment dynamically, because it is able to quickly respond to the emerging and changing need of the consumers. Small and medium-sized enterprises most often consciously seek market opportunities which in the opinion of large enterprises are considered market niches and which large companies forgo in belief that activity in certain segments is unprofitable. Additionally, it can be indicated that the small and medium-sized enterprises' importance in market economy is, above all, increased by the following:

- significant progress of information technology,
- dynamic development of the sector of services,
- optimization of the operational costs on the part of large enterprises,
- rising energy prices and a decline in global demand,
- modification of manufacturing techniques,
- superiority of the small and medium-sized enterprise sector over large corporations in terms of activity flexibility, the rate of reacting to the changes in the market environment.

Based on Bass's research [Bass, 2006, pp. 10-11], attention should be particularly paid to four basic aggregated aspects of small enterprises:

- 1) creating jobs,

- 2) ensuring structural changes,
- 3) generating innovation,
- 4) contribution to integration of national economy with global economy.

Analyzing the above in terms of the Polish SME sector, what follows can be asserted. Micro-enterprises are the largest employer in Poland in which works almost 40% of all the employed in Poland, while the entire SME sector employs almost 70% of all the employed in Poland. On average, around 5 persons work in entities of this sector [PAED (the Polish Agency of Enterprise Development), 2015]. The average cost of creating and maintaining one job position in such enterprise is significantly lower than in large companies [Dominiak, 2005, p. 144], which means that the SME sector generates lower unemployment and exhibits higher employment dynamics than large-sized enterprises. These enterprises, therefore, make a major contribution to creation of new jobs in Poland.

Referring to the second aspect of SMEs' activity mentioned by Bass [Bass, 2006, pp.10-11], great contribution of the Polish SMEs to the ownership and structural changes in Polish economy, which occurred during the transformation, ought to be underlined. This function is continually valid. This group of entities does not require special infrastructure conditions in order to operate. Small and medium-sized entities often emerge in places where for large enterprises it is unprofitable. It particularly could be noticed in Poland during the nineties of the 20<sup>th</sup> century, when, along with bankruptcies of large state enterprises (e.g. Polish shipyards in Gdansk and Szczecin, numerous textile and clothing factories in Lodz, the Cegielski Plant in Poznan), many small and medium-sized enterprises were created in proximity of old factories. All the more, the scale of these enterprises' activity, by definition, is limited, thus it can be said that they contribute to decentralization of economy and actively market conditions into its functioning. In terms of provision of structural changes, small enterprises are characterized by high capacity for filling the market niches. Niche enterprises constitute approximately 80% of this sector [Jaworski, 2015, p. 168].

Another aspect is innovation. Dominance of small enterprises over large companies, in this regard, consists, among others, in efficiency of the research and the rate of implementing its results. It cannot, however, be said that the Polish SME sector is more innovative than large enterprises. Percentage of large enterprises conducting innovative activity, which in 2013 was 67%, is much higher than for medium-sized enterprises (35.8% of enterprises) and small ones (17.4%) [PAED, 2015, s.15]<sup>1</sup>. One can, therefore, wonder what constitutes the basis for the Polish SME sector achieving a competitive advantage.

A similar situation exists in the case of the Polish SMEs' contribution in integration of Polish economy with global economy. Low contribution of this sector clearly is particularly influenced by micro-enterprises, among which only 3.1% sell

their products abroad, while 0.4% - their services. Other groups come off much better in this aspect of business activity. Over 30% of small companies, almost half (47.5%) of medium-sized enterprises and over 66% of large firms export goods, while, accordingly, little over 8% of small entities, 22% of medium-sized ones and 54% of large enterprises export services [PAED, 2015, p.30].

The importance small enterprises play in economy should also be analyzed through the prism of economic growth measures. Currently, Poland's economy, in large part, functions on the basis of those enterprises' business activity, although the cost of enterprise establishment is higher and the time needed for its registration is much longer than in similar economies within the region [Doing Business 2015]<sup>2</sup>. The data presented in table 1 confirms that.

TABLE I.

Indicator	Poland	OECD
Procedures (number)	4.0	4.8
Time (days)	<b>30.0</b>	<b>9.2</b>
Cost (% of income per capita)	<b>12.9</b>	<b>3.4</b>
Paid in min. Capital (% of income per capita)	12.3	80.8

Source: Doing Business, 2015.

Polish SMEs primarily operate in services and trade (76.6%), less frequently in construction (13%) and processing industry (10.3%). Compared to the EU average, the SME sector in Poland is, to a greater extent, dominated by micro-enterprises, while the share of small firms is half less than the EU average. However, the structure of Polish enterprises has been gradually approaching EU structure. Starting in 2008, a gradual decrease of the share of micro-firms as well as an increase in the number of the remaining size categories have been taking place. Majority – 90.4% - of all entrepreneurs from the SME sector are natural persons conducting business activity. Legal persons and entities without legal personality constitute 9.6% of small and medium-sized enterprises. Macroeconomic data on the SME sector in Poland is presented in table 2.

<sup>1</sup> Innovative entrepreneurship in Poland. Discovered and hidden potential of Polish innovation. PAED 2015 ed. by P. Zadura – Lichota.

<sup>2</sup> In the *Doing Business* report, Poland was qualified as a high income OECD region, <http://www.doingbusiness.org/data/exploreeconomies/poland> [date of access: Nov. 3<sup>rd</sup>, 2015]

TABLE II. MACROECONOMIC DATA ON THE SMES IN POLAND (AS FOR DECEMBER 31, 2012)

The size of the company / the measure	Micro <sup>3</sup>	Small <sup>4</sup>	Medium <sup>5</sup>	The SME sector	Large
Number of entities (%)	95.8	3.2	0.9	99.2	0.8
Number working persons (%)	38.32	13.34	17.75	69.41	29.59
Number of employees (%)	19.76	16.6	24.15	60.51	39.49
Share in the GDP (%) <sup>6</sup>	29.7	7.8	11.0	48.5	24.5

The difference between the number of working persons and the number of the employed in each class of business size stems from the fact, that the majority of entities are small enterprises with quite a significant share of the working (that is, the owners and family members), with low proportion of permanent employees.

Source: own elaboration based on the PAED, 2014.

The enterprises operating in Poland generate nearly three-quarters of the GDP. In the structure of the GDP, the SME sector generates every other zloty (48.5%), including the smallest companies generating nearly every third zloty (29.7%), while the share of medium entities is three times less (11.0%) than of small ones – almost four times less (7.8%).

<sup>3</sup> A **micro-entrepreneur** „is an entrepreneur who during at least one out of the last two trading years: employed, on a yearly average, less than 10 employees; and achieved an annual net turnover from the sale of goods, products and services as well as from financial operations not exceeding a PLN equivalent of 2 million EURO, or the total assets on the balance sheet at the end of one of those years not exceeding a PLN equivalent of 2 million EURO”.

Art. 105 of the *Act of 2 July 2004 on freedom of economic activity*, Journal of Laws 2004. No. 173, item 1807

<sup>4</sup> A **small entrepreneur** „is an entrepreneur who during at least one out of the last two trading years: employed, on a yearly average, less than 50 employees; and achieved an annual net turnover from the sale of goods, products and services as well as from financial operations not exceeding a PLN equivalent of 10 million EURO, or the total assets on his balance sheet at the end of one of those years did not exceed a PLN equivalent of 10 million EURO”.

Art. 106 of the *Act of 2 July 2004 on freedom of economic activity*, Journal of Laws 2004. No. 173, item 1807

<sup>5</sup> A **medium entrepreneur** „is an entrepreneur who during at least one out of the last two trading years:

employed, on a yearly average, less than 250 employees; and achieved an annual net turnover from the sale of goods, products and services as well as from financial operations not exceeding a PLN equivalent of 50 million EURO, or the total assets on the balance sheet at the end of one of those years not exceeding a PLN equivalent of 43 million EURO”.

Art. 107 of the *Act of 2 July 2004 on freedom of economic activity*, Journal of Laws 2004. No. 173, item 1807

<sup>6</sup> The share of other entities in the GDP is 15.6%.

#### IV. THE SEARCH FOR ENTREPRENEURSHIP NESTS - RESEARCH METHODOLOGY

The study on the issue of suburbanization and on the development of SMEs was divided into two parts. The aim of the research, in the spatial aspect, was to single out those suburban municipalities which exhibit the highest rate of suburbanization, while in the economic aspect – to select the municipalities / towns with the highest concentration of SME entities. The research area comprised the Tricity Metropolitan Area (TMA). The TMA constitutes a significant part of the functional and spatial structure of the Pomerania Province and it is the most important economic and social center of the South Baltic area. The Pomerania Province is classified as second in the ranking of Polish provinces in terms of entrepreneurship<sup>7</sup>. Around 7% of all Polish SME-sector entities are registered in the Pomerania province.

Delimitation of the area was carried out in accordance with the area development plan of the Pomerania Province. In the agglomeration center, the TMA is composed of 3 main cities and a functional area encompassing 6 towns, including 1 town-village and 5 rural communities. The surroundings of the agglomeration consist of 5 cities and 12 municipalities.

In order to determine the intensity of suburbanization in each municipality of the investigated area, migration analysis and a construction activity index were used. The studies were based on the data from the Central Statistics Office and the Marshal's Office of the Pomeranian Province.

Intensity of economic activity in the TMA municipalities measured by the location quotient (LQ).

% of the SMEs registered in the TMA and located in a given municipality

LQ =

—————  
% of the TMA population in a given municipality

• % SMEs registered in the TMA and located in a given municipality is the number of the SMEs headquartered in a given municipality relative to the number of the SMEs registered in the TMA area

• % of the TMA population in a given municipality is the number of persons with registered residence in a given municipality relative to the TMA population.

Location quotient (LQ) is the measure of the degree of concentration of a given characteristic in a given area (in % of the total of a given attribute) relative to the degree of the concentration of the number of population in a given area (in % of the total population). A location quotient equal to 1 indicates that the region (here: a municipality in the TMA zone) has the

<sup>7</sup> The ranking of the provinces is based on a synthetic index. The synthetic index of entrepreneurship development in the regions was created based on the place a given region took in 26 sub-rankings of provinces, which illustrate formation of the variables referring to entrepreneurship development, i.e. the number of enterprises, the number of the persons working in enterprises, the revenues, the expenses and the investment expenditure [PAED, Warsaw 2014, p. 61].

same share of a given characteristic in relation to the share of the population number in this area. Usually, it is assumed that a location quotient higher than 1.25 signifies regional concentration of a given characteristic [Brodzicki, Szultka, 2002]. In this study, the characteristic analyzed was the number of the SME-sector entities in a given TMA municipality.

The Authors are aware of the imperfections of the presented research methods that were selected to assess the suburbanization process and economic activity. However, these weaknesses are independent of the Authors and primarily related to the manner of collecting statistical data in Poland. In the context of measuring the dynamics of migration, no obligation to report a change of address as well as possibility to own several homes in Poland can be, for instance, considered as such weaknesses. Analysis of construction activity is subjected to an error associated with delays in registering completed buildings. The fact that often the actual place of business activity is different than the business entity's headquarters (place of registration) is a weakness associated with analysis of economic activity that is based on the number of registered SME-sector companies.

The Authors assumed the following research hypothesis:

*H: The degree of concentration of SME-sector companies will be moderately higher in the municipalities characterized by the highest migration balance and construction activity index than in other municipalities in the TMA, thus those TMA municipalities can be called entrepreneurship nests.*

Comparing the data on migration balance and on the construction activity index, 7 settlement units located within the TMA having the characteristics of most intensively developing suburbanization process were singled out. These are: Pruszcz Gdański (2), Kolbudy, Zukowo – a rural area, Kosakowo, Szemud, Kartuzy – a rural area, Wejherowo (2). Statistical data on the migration balance and on the construction activity are presented on figure 1 and in table 3.

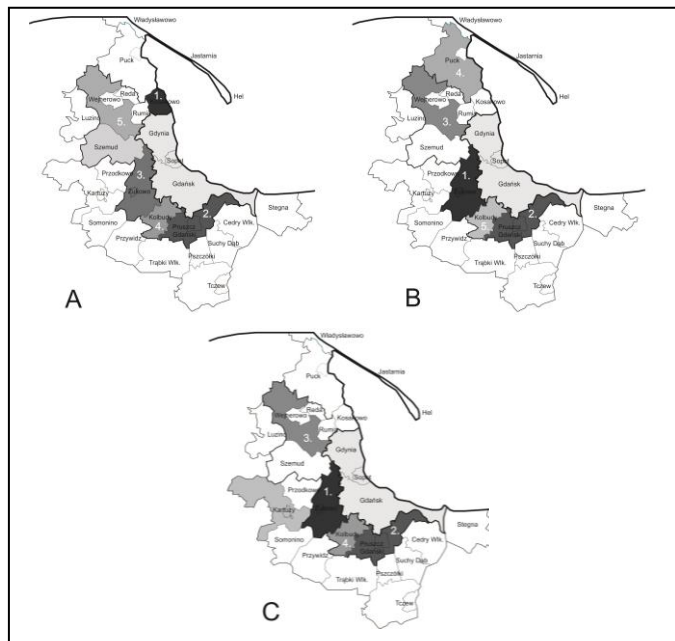


Figure 1. Spatial illustration of the migration balance.

A. – Migration balance for the years 2003- 2012  
B. – Construction activity 2008-2012 – new residential buildings  
C. – Construction activity 2008-2012 – new residential buildings  
Source: Own elaboration

TABLE III. THE MIGRATION BALANCE AND THE CONSTRUCTION ACTIVITY INDICATOR IN THE TMA AND ITS ENTREPRENEURSHIP NESTS

	The entire TMA area			Entrepreneurship nests		
	Migration balance	AB 1*	AB 2**	Migration balance	AB 1*	AB 2**
The average	7.7	418	44	24.92	801	66
The median	4.28	320	39	25.30	664	74
The minimum value	-22.22	10	3	8.55	360	44
The maximum value	35.06	1480	126	35.06	1359	105

\*AB 1 the construction activity index 1 – the number of residential buildings (2008 – 2012)

\*\*AB 2 the construction activity index 2 – the number of residential buildings (2008 – 2012)

Source: Own elaboration based on the data from the Central Statistics Office and the data from the Office of the Pomeranian Province

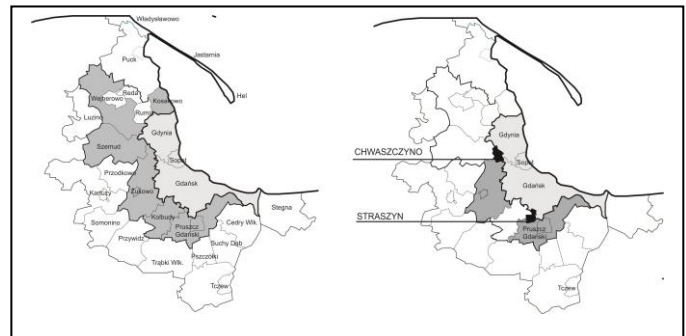


Figure 2. Spatial illustration of the municipalities with the highest development level of the suburbanization process as well as selection of entrepreneurship nests on the basis of the location quotient.  
Source: Own elaboration.

Determining the location quotient measuring the degree of concentration of TMA units in a given municipality in relation to population, in turn, allowed selection of two towns (Chwaszczyno, Straszyn) with the highest concentration of the SME-sector companies, and thus they can be called entrepreneurship nests for the TMA<sup>8</sup>. The data on the location quotient for administrative units in the TMA, in particular for the central cities, the municipalities with the most intense suburbanization processes and for the entrepreneurship nests are presented in table 4.

<sup>8</sup> Higher location quotients of SMEs can be noticed for seaside municipalities (Władysławowo, Jastarnia), however, after elimination of section I units (activity connected with accommodation and catering services) from the number of the SME-sector companies, this quotient significantly decreases. Elimination of the sector I seems to be necessary, since in most cases such activity involves only seasonal accommodation rental.

TABLE IV. THE LOCATION QUOTIENT IN THE TMA, THE CENTRAL CITIES, AND ENTREPRENEURSHIP NESTS

	All administrative units in the TMA	Central cities			Municipalities without the central cities	Selected municipalities (?)	Chwaszczyno	Straszyn
		Sopot	Gdansk	Gdynia				
Average	0.7854	1.5925	1.0717	1.0649	0.7428	0.8518	1.3378	1.3709
Median	0.7768				0.7435	0.7991		
Minimum value	0.4832				0.4832	0.6345		
Maximum value	1.5925				1.0522	0.9993		

Source: own elaboration based on the CSO data

The median of the location quotient for the entire TMA are was 0.7768. This signifies that in the TMA municipalities and cities, the number of registered small and medium-sized enterprises, in relation to population density, in most cases, in lower than the average. This indicates large differences in the concentration level of business activity relative to the population level within the TMA area. The highest value of the location quotient was recorded for the city of Sopot (1, 5925), indicating it to be the most economically active TMA-city, in terms of SMEs' activity. This means that Sopot has the most registered SME companies per 1000 inhabitants compared to all the other TMA cities and municipalities. The studies indicate that the municipalities with the highest intensity of the suburbanization processes differ significantly from other administrative TMA units in terms of SMEs' activity concentration. However, towns within those municipalities can be identified, which are distinctively characterized by high concentration level of SMEs' business activity. In relation to the population, the number of the SMEs registered in these towns is much higher than the TMA average or the average in the central cities, except Sopot. These towns are: Chwaszczyno and Straszyn. They can, therefore, be called entrepreneurship nests. The location quotient for these towns is higher than 1.25, which signifies regional concentration of the trait investigated in those towns. As such, the assumed hypothesis, stating that *in the municipalities characterized by the highest migration balance and the level of construction activity, the concentration*

*degree of the SME sector will be moderately higher than in the other municipalities* has been positively verified only partially. Higher level of economic activity of the population in the municipalities with the highest migration balance and the highest construction activity only exists in some towns, which can be called entrepreneurship nests. The factors determining higher level of entrepreneurship in these towns will be presented further in this article, while using urban measures.

Banski proved that the highest density of enterprises in Poland has been noted in the municipalities directly neighboring a city, while the size of a zone with a higher number of enterprises depends on the size of the city (Banski, 2005). The analysis proposed by the Authors of this article confirms Banski's results, expanding them with an analysis of the towns within municipalities and as well as with the enterprise size-classes. It would be, however, advisable to check what part of the business entities registered in the central cities actually conduct their activity in that area, which seems essential especially for the city of Sopot. In fact, it can turn out that part of enterprises only are headquartered in the central city, while actually the place of their activity involves suburban areas.

#### V. THE SPATIAL ASPECTS OF THE SME BUSINESS' ALLOCATION IN THE SUBURBS

Various empirical studies have distinctly shown that there is no such phenomenon as the location behavior of small and medium enterprises [van Noort, Reijmer, 2008]. The choice a given company's place of location depends on different factors. The purpose of this part of the article is to investigate the spatial aspects which influence formation of the 'SME entrepreneurship nests'.

The theory of urban planning distinguishes classic stimulants of spatial development. They have been described as environmental, economic, communication–infrastructural, and cultural factors [Gruszkowski, 1989]. In current conditions, two of those shape the modern urbanized landscape in a particular manner. Accessibility of transportation roads and availability of the markets (defined as the production factors and availability of the consumers) clearly translates into an expression of spatial development.

Transportation infrastructure is a characteristic element of suburban landscape, but, above all, it is a key element enabling functioning of the land. Hierarchization of the road categories within a regional structure significantly affects attractiveness of a given site's location. Easy access to a given company as well as to other services allows smooth functioning of the business entity. In some SME-sector industries (e.g. transportation, logistics), proximity of the communication hubs with supra-regional significance plays an important role. Sometimes, a crippled public transportation becomes an impulse for allocation of given function in suburban areas. The causes should be sought in the too lengthy commute-time to the city using public transportation, as well as in the too low frequency of service. Today, planning of new strategic solutions in the field of infrastructure, such as: supra-regional road system, investments in public transportation or in other infrastructure with a metropolitan range, is the key developmental element

for a given region. Their range not only will be visible on suburban landscape, but, above all, there is a belief that it will lead to an economic growth of a given region.

Availability of the markets, defined as accumulation of the production and consumer factors, is hidden in the forms of spatial development. Intensity of these factors is read out in the forms of architectural objects. The typical urban tissue dispersed on the suburban areas highlights the characteristics associated with spatial order. In Poland, it is mostly described as the housing tissue, large-area retail spaces, and business parks. What is more, investments of a wide range and exceptional form, which serve the broader regional context, can be noticed. In such diverse yet often unconnected spatial forms, after a thorough analysis, smaller elements can be seen, i.e. various types of services, schools and shops, which usually service the immediate environment, but they as well may serve the clients on a supra-local level. In scattered tissue, which often lacks coherent planning, various other types of spatial development, such as craft businesses, production companies or warehouses, can be distinguished. It is the latter which usually largely characterizes entrepreneurship nests.

In order to identify the stimulants of the development of the entrepreneurship nests singled out in economic studies (Chwaszczyno and Straszyn towns), the Authors applied selected methods of urban analysis. At this stage of the research, two primary factors (transportation infrastructure, market availability) which can significantly affect allocation of the service-craft-industrial-production functions in a given location, were analyzed.

Table 5 determines occurrence of individual elements along with their specific expression, as well as it describes their significance on a 1-3 scale.

TABLE V. CHARACTERISTIC SPATIAL FEATURES IN SELECTED ENTREPRENEURSHIP NESTS

Developmental factor		Occurrence of individual elements	Chwaszczyno	Straszyn
Transportation infrastructure	Road-transport infrastructure	National road – accelerated motion	-	√
		National road	√	√
		Provincial road	√	√
		Regional road	√	√
		Local road	√	√
		Regional communication hub	√	√
	Public transportation infrastructure	other	-	-
		Public transportation hub	-	-
		Commute time to the city – using public transportation	20 min.	30-45 min.
	Key planned elements of the transportation system in Gdansk metropolis	other	-	-
		Supra-local road system	√	√
		Public transportation	-	-
		Other infrastructure	-	-
Availability	Dominant	Housing functions	√	√

Availability of the markets	Spatial functions	single-family		
		Housing functions – multi-family	√	√
		Local services	√	√
		Large-area commerce	-	-
		Production and craft businesses	√	√
		other	√	√
	Social infrastructure	kindergartens	√	√
		Primary schools	√	√
		Junior high-schools	√	√
		High schools	-	-
		Cultural facilities, including tourist attractions	√	√
		Local sports facilities	-	√
		Health centers	-	-
		other	-	-
	Forms of urban tissue	Compact structure	-	-
		Relaxed structure	√	√

Source: own elaboration

The search for the key spatial elements determining development of given functions is the essence of the study. Bahatta indicated that the factors of city-development are similar to the causes of the city-spill [Bahatta, 2010]. Our research has confirmed earlier studies and complemented them with a list of potential spatial determinants affecting accumulation of the SME-sector companies in given towns, which results in formation of 'entrepreneurship nests'. The key element here is communication accessibility on regional and supra-regional levels, which has been repeatedly raised in scientific publications [Parteka, 1997; Owen, 1989] as a developmental factor. Conclusions from this part of the study can lead to a statement that expansion of a transportation network with communication hubs, not necessarily in connection with public transportation, can result in emergence of 'entrepreneurship nests'. The Authors of the article are aware that during the next stage of the research, other towns ranked lower in the LQ ranking, should be studied. In this way, there is a greater chance to verify the correctness of the thesis.

This stimulant (accessibility of communication), however, is not the only guideline, since both towns have different locational predispositions. Straszyn is located near an existing communication hub, while allocation of a key communication hub in the Chwaszczyno area is being planned. The search for an answer to the question about the causes of such intensive accumulation of companies in these towns requires qualitative research. Therefore, the next stage of the study on the project will involve a survey addressed to the owners of the companies located in the 'entrepreneurship nests'. The results will be used to generate a model of developmental stimulants for the SME-sector entrepreneurship in the suburbs.

## VI. SUMMARY

A sustainable urbanization rate in new areas, leading to emergence of functionally, spatially and socially balanced suburbs, is considered as a natural spatial city-development. The suburbanization process itself, however, has been identified as a form of spatial development. Lisowski and Grochowski describe it as follows: "a new format of a city in the form of an in-between-city, a diffused city, a network city, a fuzzy system, strongly connected functionally, but lacking

the traditional spatial compactness and not meeting the traditional canons of spatial order” [Lisowski, Grochowski 2010]. In Poland, the fact that only after 1989, due to the changes in the political system and the transition from a planned economy to market economy suburban areas begun to develop rapidly, is very characteristic [Lorens, 2005]. Dynamic development of the micro, small and medium-sized enterprise sector was another reaction to the changes in the sphere of economy. The urban pattern emerged as a result of human activity is a reflection of the needs that are anthropogenic in nature. Perhaps, while seeking values in this dimension, it should be noted that the model of scattered development bears entrepreneurship potential.

The set of studies quoted in this article constitutes only a fragment of a broader study. The Authors are aware that it is incomplete. Nevertheless, they would like to draw attention to the phenomenon of the suburbanization process in Poland, which is progressing parallel to the development of the SMEs. This is only an introductory study, which offers incomplete explanation of the suburbanization process in one agglomeration in Poland. Strong policy on spatial development of a regional road system fosters development of entrepreneurship in the suburbs. In this context, the scheme for spatial development of the metropolis should be focused not only on measures to improve transportation systems with a high levels of control and energy efficiency, but ought to cover a wider scope of events and activities. Such growing periurban zone stands a chance to generate a network of dispersed business entities. The success of such development ought to be evaluated in the view of a highly-webbed space, where spatial solutions fit into the need of individuals, simultaneously creating a coherent and harmonious landscape that is environmentally friendly.

The search for the stimulants of entrepreneurship development in the suburbs, and subsequently creation of a spatial development model based on the SME sector is the next stage of the research grant. The qualitative studies on selected towns are aimed to find the economic-spatial determinants affecting allocation of enterprises in the suburban areas. The van Noort and Reijmer thesis stating that there a spatial location characteristic of small and medium enterprises does not exist will, then, be verified. Numerous studies on the subject of small and medium enterprise development, in light of economic development based on knowledge, indicate that gaining and maintaining a competitive advantage of an enterprise depends not only on their material and financial assets, but on their intellectual assets as well. A question, therefore, emerges whether creative residents of suburban areas stimulate spatial development not only of the housing functions, but of the service-manufacturing-crafting ones as well.

## REFERENCES

- [1] B. Bahatta, “Analysis of Urban Growth and Sprawl from Remote Sensing Data”, 17 Advances in Geographic Information Science, Springer-Verlag Berlin Heidelberg, 2010.
- [2] J. Banski, “Suburban and Peripheral rural areas In Poland: The Balance of Development in the Transformation Period”, Geograficky Casopis, 57, 2, Slovak Academic Press, Bratislava, 2005.
- [3] W. Barlett, “Neo-Liberalism, SME Development and the Role of Business Support Centres in the Transition Economies of Central and Eastern Europe”, Small Business Economics, Volume 14, Issue 4, 2001.
- [4] T. Brodzicki, S. Szultka, “Koncepcja klastrów a konkurencyjność przedsiębiorstw (The concept of clusters and competitiveness of enterprises)”, Organizacja i Kierowanie (Organization and Management), No. 4(110), p. 45-59, 2002.
- [5] R. Bruegmann, “Sprawl: A Compact History”, University of Chicago Press, Chicago, 2005.
- [6] M. Clapson, R. Hutchison, “Suburbanization in Global Society”, Research in Urban Sociology, Vol. 10, Emerald Books, 2010.
- [7] C. Couch, G. Petschel-Held, L. Leontidou, “Urban Sprawl in Europe: Landscape, Land-Use Change and Policy”, John Wiley & Sons New York, 2008.
- [8] J. Dzielek, “Powiązania migracyjne i procesy suburbanizacji rezydencjonalnej (Migration relationships and residential suburbanization processes)” [in:] R. Guzik, “Czynniki i ograniczenia rozwoju miast województwa pomorskiego w świetle relacji przestrzennych i dostępności komunikacyjnej (The factors and limitations of city-development in the Pomerania Province in light of the spatial relationships and communication accessibility)”, Gdansk: The Pomeranian Province Marshall Office, 2012.
- [9] A. Duany, E. Plater-Zyberk, J. Speck, “Suburban Nation: The rise of sprawl and the Decline of the American Dream”, New York: North Point Press, 2000.
- [10] “Enterprise and Industry POLAND 2013 SBA Fact Sheet”, European Commission, [http://ec.europa.eu/growth/smes/business-friendly-environment/performance-review/files/countries-sheets/2013/poland\\_en.pdf](http://ec.europa.eu/growth/smes/business-friendly-environment/performance-review/files/countries-sheets/2013/poland_en.pdf) (date of access: Nov. 3<sup>rd</sup>, 2015)
- [11] P. Dominiak (ed.), “The European small and medium enterprise sector facing the global economy challenges, in: Small and medium enterprises facing modern economy challenges”, Gdansk: VM Group, 2005.
- [12] O. Gillham, The Limitless City, A Primer on the Urban Sprawl Debate, Island Press, Washington, DC, 2002.
- [13] W. Grudzewski, I. Hejduk, „Małe i średnie przedsiębiorstwa w gospodarce rynkowej w Polsce (Small and medium enterprises on market economy in Poland)”, WSiP, Warsaw, 1998.
- [14] K. Kajdanek, „Pomiędzy miastem a wsią. Suburbanizacja na przykładzie osiedli podmiejskich Wrocławia (Between a city and a village. Suburbanization on the example of suburban communities)”, NOMOS Publishing, Wrocław, 2011.
- [15] I. Lichniak (ed.), „Determinanty rozwoju przedsiębiorczości w Polsce (Determinant of entrepreneurship development in Poland)”, SGH Publishing, Warsaw, 2011.
- [16] A. M. Lisowski, M. Grochowski, „Procesy suburbanizacji. Uwarunkowania, formy, konsekwencje (Suburbanization processes. Predispositions, forms, consequences)”, Bulletin KPZK No. 240, 2009.
- [17] A. Liskowski, D. Mantey, W. Wilk, “Lesson from Warsaw, The lack of Coordinated Planning on Urban Sprawl”, in: K. Stanilov, L. Sykora, (ed.) “Confronting Suburbanization: Urban Decentralization in Postsocialist Central and Eastern Europe”, Wiley, New York, 2014.
- [18] P. Lorens, “Problem suburbanizacji (The issue of suburbanization)”, Urbanista (The Urbanist), Warsaw, 2005.
- [19] T. Markowski, T. Marszał, „Metropolie, obszary metropolitalne, metropolizacja (Metropolies, metropolitan areas, metropolization). Problemy i pojęcia podstawowe (Problems and basic terminology)”, KPZK PAN, Warsaw, 2006.
- [20] G. Masik, „Wpływ polityki lokalnej na warunki i jakość życia. Przykład strefy suburbanizacji Trójmiasta (Impact of local politics on the conditions and the quality of life. The example of Tricity suburbanization zone)”, SCHOLAR Scientific Publishing, Warsaw, 2010.
- [21] H. Nuißl, D. Rink, C. Couch, J. Karecha, “Decline and Sprawl: Urban Sprawl is not Confined to Expanding City Regions”, in: C. Couch, L. Leontidou, G. Petschel-Held (ed.): “European Patterns of Urban Sprawl”, Blackwell, Oxford 2007.
- [22] W. Owen, “The Accessible City”. The Bookings Institution, Washington, 1972.

- [23] T. Parteka, „Planowanie strategiczne rozwoju zrównoważonego (Strategic planning of balanced development)”. Gdansk University Publishing, Gdansk, 1997.
- [24] B. Piasecki (ed.), „Ekonomika i zarządzanie małą firmą (Economy and small enterprise management)”, PWN, Warsaw, 2001.
- [25] „Raport o stanie sektora małych i średnich przedsiębiorstw w Polsce w latach 2008 – 2009 (A (Report on the state of small and medium-sized enterprises in Poland in the years 2008-2009)”, PAED, Warsaw, 2010.
- [26] „Raport o stanie sektora małych i średnich przedsiębiorstw w Polsce w latach 2010 – 2011 (Report on the state of small and medium-sized enterprises in Poland in the years 2010-2011)”, PAED, Warsaw, 2012.
- [27] „Raport o stanie sektora małych i średnich przedsiębiorstw w Polsce w latach 2011 – 2012 (Report on the state of small and medium-sized enterprises in Poland in the years 2011-2012)”, PAED, Warsaw, 2013.
- [28] „Raport o stanie sektora małych i średnich przedsiębiorstw w Polsce w latach 2012 – 2013 (Report on the state of small and medium-sized enterprises in Poland in the years 2012-2013)”, PAED, Warsaw, 2014.
- [29] „Raport 2013. Sektor MSP na Pomorzu w warunkach spowolnienia tempa wzrostu gospodarczego (The SME sector on Pomerania in conditions of a slowing economic growth rate)”, ARP, Gdansk, 2013.
- [30] H. Renski, “New Firm Entry, Survival, and Growth In the United States: A Comparison of Urban, Suburban, and Rural areas”, Journal of the American Planning Association, 75:1, 2008.
- [31] K. Sasin, “Zarządzanie małą firmą (Small company management)”, AE Publishing in Wrocław, Wrocław, 2003.
- [32] D. Schuurman, B. Bacarne, L. De Marez, P. Mechant, “Smart Ideas for Smart Cities: Investigating Crowdsourcing for Generating and Selecting Ideas for ICT Innovation in a City Context”, Journal of Theoretical and Applied Electronic Commerce Research, ISSN 0718-1876 Electronic Version VOL 7 / ISSUE 3 / DECEMBER 2012 / 49-62, Universidad de Talca – Chile, 2012.
- [33] K. Stanilov, L. Sykora, (ed.) „Confronting Suburbanization: Urban Decentralization in Postsocialist Central and Eastern Europe”, Wiley, New York, 2014.
- [34] M. Starczewska – Krzysztożek, „Słabe i mocne strony mikro, małych i średnich przedsiębiorstw (Weak and strong points of micro, small and medium enterprises)”, Lewiatan, Warsaw, 2011.
- [35] M. Strużycki, „Małe i średnie przedsiębiorstwa w gospodarce regionu (Small and medium enterprises in regional economy)”, PWE, Warsaw, 2004.
- [36] E.A. Van Noort, J.I. Reijmer, “Location choice of SMEs. The most important determinants”, Zoetermeer : EIM, 1999.
- [37] „The Act of 2 July 2004 on freedom of economic activity”, Journal of Laws 2004. No. 173, item 1807
- [38] M. Webber, “The Joys of Spread-City”, Urban Design International 3, no. 4 (December 1998), p. 201-206, 1998.
- [39] A. Wolak – Tuzimek, “Determinanty rozwoju małych i średnich przedsiębiorstw w Polsce (Determinants of small and medium size enterprise development in Poland)”, PWN, Warsaw, 2010.

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