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INSTITUTIONALIZATION OF METROPOLITAN AREAS AS POSSIBLE SOLUTION OF AGGLOMERATION EXTERNALITIES IN THE CONTEXT OF URBANIZATION DEVELOPMENT IN THE CZECH REPUBLIC

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Abstract

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The acceleration of urbanization in developed countries in the 20th century has become during last 50 years a global phenomenon bringing many challenges. Relations between city and its surroundings have been consequently evolved by many essential changes. In post-socialistic countries the development of urbanization was affected by specific factors which influence – on the basis of historical memory – creating of functional regions. The subject of this paper is to discuss that the formal or informal institutionalization of metropolitan areas in the Czech Republic (covering the delimitation of metropolitan area or a consequent anchoring of metropolitan areas in the process of spatial planning), may be advantageous even from an economic point of view for all stakeholders.

Keywords: metropolitan areas, urbanization, agglomeration externalities, institutionalization, Czech Republic

INTRODUCTION

Metropolitan areas[1] can be considered as key elements of settlement system. Metropolitan areas can generally be characterized as highly urbanized areas consisting of a core city (or cities) and the adjacent hinterland, with strong functional links between them. In effect, a metropolitan area can be seen as a **functional region**, which is, for the purpose of this article, understood as a region delimited by its inner organization principle; a very important role is played by its unique historical memory, which influences the future development of the region (Hampl, 2005). In accordance with the same author, the formation of metropolitan areas can be considered as a higher phase of urbanization development associated with the progress of post-industrial processes, which increase the importance and scope of the metropolis. In addition to the spatial aspect associated with the process of suburbanization, this area features a range of qualitative characteristics. Metropolitan areas typically attract a large number

1 Throughout the whole text of paper it is not differentiated between the terms "metropolitan area" and "agglomeration", although I am aware of many particularly complex qualitative differences that upgrade agglomeration to the metropolitan area. Regarding the Czech Republic, the issue is the more interesting, because as a typical metropolitan area of European character is referred only to Prague.

of job opportunities, company headquarters, public institutions and authorities, and also many different forms of housing. This system of course could not function without complex transport and technical infrastructure. Thus, in the modern developed world, metropolitan areas can be considered **key spatial players of economic development**.

The development of metropolitan areas follows the formation of first cities and the subsequent wave of urbanization, during which the percentage of urban population has gradually grown. Although there is no clear-cut definition of the urbanization process, nor is the process clearly defined in time, academic literature usually links urban development with the Industrial Revolution, which happened gradually throughout the entire Europe starting from the 18th century. Due to the development of industry and later also of the service sector, people and activities started to concentrate in highly urbanized areas. **The economic growth is therefore the driving force of the urbanization process.**

The urbanization process is most frequently linked with the process of industrialization that had its roots in the 18th century in England.[2] Sociologist Musil (2002) defines the term urbanization in a broader way and does not connect it solely with industrialization.[3] According to Musil, the term urbanization describes not only the concentration of people in cities and the growth of population density, but primarily the society-wide transition from the rural type to the urban type. Maur (2002) associates urbanization with the creation of actual urban networks, which had happened even earlier, even though urban growth significantly accelerated only during the 19th century. The urbanization process is similarly perceived also by Geyer (2002), who believes that the most remarkable changes in the system of settlements occurred in the last two centuries.

The process of industrial urbanization gradually spread from England to the rest of Europe. Between the years 1800 and 1950, the world population grew by 250%, the population growth in most cities being ten times faster compared to other areas. The percentage of world population living in cities had grown from approximately 3% in 1800 to roughly 15% by the turn of the 19th and the 20th century (see e.g. De Blij, Murphy, 1999). Such concentration of population in urban areas is unparalleled in the history of urbanization development and is likely to remain so.

The second half of the 20th century, however, brought about a fundamental turn in the spatial growth pattern of settlement areas and their hinterlands. Technological progress, better living standards, the development of individual automobile transport and a number of other, predominantly economic factors contributed to the emergence of **deconcentration tendencies**, which occurred in various parts of the world with different intensity and at different times. While the number of people living in city centers declined, migration and investments flowed to the hinterlands. It is, however, impossible to make generalizations regarding the development of metropolitan areas in terms of space and time. The processes that are currently occurring in metropolitan areas in the USA cannot be compared to the process occurring in large European cities, particularly because they have different causes of origin and their social and cultural environments differ. There were differences even within the development of systems of settlements in individual European countries in the second half of the 20th century.

Specifics of Urbanization in the Period of Socialism

As has already been mentioned above, the development of metropolitan areas in Eastern Europe and a part of Central Europe was influenced by the postwar onset of socialism, which has, through central planning and economic and social equalization, partly slowed down the growth of metropolitan areas. The emphasis put on heavy industrial production and the development of central settlement system[4] contrasted with deindustrialization and the development of tertiary sector, which were typical for West European countries. During the transformation period, a number of changes occurred in the formerly socialist countries of Eastern and Central Europe. These changes influenced the entire organization of the society, including the systems of settlements, and they also had an impact on the development of metropolitan areas. Although with a time lag and a certain deformation (see Čermák *et al.*, 2009), the processes that had formed the systems of settlements in Western countries could now develop even in the post-socialist countries. The main tools of socio-economic changes were the processes of liberalization, privatization, restitution and a gradual opening up to foreign investors. These changes subsequently supported

2 A number of authors maintain though that the process of urbanization can be traced all the way back to antiquity and the Middle Ages.

3 Also in the submitted paper the term *urbanization* will be used in a broader more general way which involves various stages of urban development.

4 The so called central settlement system developed in former Czechoslovakia in the 1970s was implemented on the basis of selective administratively-directive methods that did not reflect natural developmental and catchment area tendencies of settlement areas. This resulted in general suppression of smaller settlement units and in convergence of life in urban and rural areas (for more detail see e.g. Šašinka, 2012).

and amplified the accompanying processes, above all the deindustrialization and the related process of tertiarization aimed at individual consumption. Therefore, the process of deindustrialization developed in a specific way in the context of post-socialist cities (Harloe, 1996). According to Hampl (2005), the postwar socio-economic development in post-socialist European countries including the subsequent transformation period can be considered, as to a certain degree, unique.

The Situation in the Czech Republic

The settlement structure of the Czech Republic is historically given. It is characterized by significant fragmentation and a high number of small municipalities. It had been developing naturally for centuries and gained its basic contours in the Middle Ages already. The **key role of cities** as centres of socio-economic development affecting its hinterland with numerous links (nodal – inner heterogeneous regions) could already be seen at that time. In the past, the hinterland was formed by close surroundings of the city which originally supplied the city population with agricultural products and was under administration of a larger centre (Ryšavý *et al*., 1994). Thus the city was dependent on its hinterland to a certain level. However, the relation between the city and hinterland was changing gradually. The "classical" urbanization with massive influx of people into cities taking place in our country especially on the turn of the 19th and 20th century gradually eliminated this original dependence of the city on its hinterland and sequentially, the high share of commuters for work and services to core (nodal) cities became the typical feature of agglomerated municipalities (see e.g. Ouředníček, 2002), which actually persists to this day.

In contradiction with the natural development of urbanization in our country were the extensive social-political changes starting at the end of 1940s.[5]

The urbanization development in our country was most significantly affected during the period of communism. Centralized planning influenced the physical shape of cities as well as the system of their hierarchy. Relations in functional areas were deformed artificially. The most striking factors affecting the above described situation may include the following:

- **massive industrialization emphasizing heavy industries** (from the 1950s);
- interventions in the hierarchy system of functional areas and related processes:
  - **formation of new districts** (the 1960s);
  - **constitution of the centralized settlement system** (the 1970s).

These factors have deformed especially the employment distribution and thus also the commuting flows in a fundamental way.

The fall of the communist regime subsequently triggered the processes of political and economic transformations of the society which also influenced the urbane sphere (Musil, 2003).The one-way flow of migration from rural to urban areas stopped, or in many cases rather turned in favor of suburban areas (for more details, see the following table which illustrates the decline in the percentage of urban population in the last 20 years).

Similarly, e.g. commuting for services and business is not one-sided anymore (Hampl, 1996). The change occurred especially with the construction of industrial zones and shopping centres in suburbs or outside the administrative borders of the city. Suburbanizing tendencies have a large economic, social and spatial impact on the city and its rural hinterland. Development of sectoral employment has gone through a major change. The city way of life blends with the rural one, the working links to city as well as leisure time activities have been changing. Cities are often forced to deal with technical and transport infrastructure and the system of public transport even outside their administrative borders which, however, is beyond their competencies. Increasing number of people only works, studies, uses the services, etc. in the city, but lives permanently and spends their leisure time outside the typical urban space, in the city's hinterland.

Although Czech metropolitan areas differ from the metropolitan areas of world metropolises especially

I: *The Percentage of Urban Population in the Czech Republic between the Years 1961 and 2011; adapted from the data provided by the Czech Statistical Office*

	Percentage of urban population					
Year	1961	1970	1980	1991	2001	2011
Czech Rep.	61.8	65.2	68.9	71.2	70.6	69.6

5 Until the end of 1930s of the 20th century the settlement system of Czech territory seemed to develop quite naturally without any significant external intervention. This natural development was temporarily disrupted by World War II but mainly by permanent and irreversible economic and political changes in the postwar period. If we identify ourselves with the postwar expulsion of Germans from the Czech territory as the only possible (widely acceptable) solution, it can be assumed that the gradual desertion of some unfavorably located settlements was partly expected and acceptable tax for the entire national unification. Even at the huge socio-demographical and cultural changes in the Czech borderland which is still apparent (see also Šašinka, 2012).

as to their significance for the global economy, their position within the Czech, and to an extent the whole Central European network of settlements and the economic, political and cultural sphere is significant (Musil, 2003).

Metropolitan areas currently play a much more significant role in the regional development in the Czech Republic than was the case in the past – compared to the situation in the past, cities are to a greater extent interconnected with their hinterlands and they depend on them, the growth pole shifts from the cities towards the actual metropolitan areas, and agglomeration advantages increasingly come to the fore. This all is taking place under the specifics or the period of communism which had sidelined the processes of formation of natural functional regions. These started to be formed during the transformation period and with a delay compared to western countries, but the more intensively. This situation requires significant demands on high quality regional policy among others. However, the system of Czech public administration reacted to the above mentioned situation with a delay and the concept of metropolitan areas is, however, not embedded in the Czech public administration system:

- There is no unique spatial and functional delimitation of metropolitan areas.
- There is no systematical anchoring of metropolitan areas especially in the context of spatial planning.
- There is no definition of the process of metropolitan management that would serve as some kind of a connecting link between the local and regional level.

Generally, metropolitan areas are not institutionalized[6] in the Czech socio-economic system, both formally and informally, which is no less than notable in the time when the importance of metropolitan governance is emphasized in many developed countries and the European structural policy is going to support metropolitan areas in current programming period, too.

The aim of this paper is thus to present a reflection that would lead to an attempt to describe recommendations regarding the institutionalization as a possible solutions to positive externalities (agglomeration advantages) of metropolitan areas in the context of urbanization development in the Czech Republic.

MATERIALS AND METHODS

As it would be highly insufficient to explore the solutions of agglomeration externalities of metropolitan areas only from the vantage point of one discipline, an **interdisciplinary** approach will be used in this paper. It will be necessary to consider knowledge from multiple disciplines, mainly from social geography, public economics and public administration, regional economics, but also historical geography. This so far unique interdisciplinary approach to the issue shall constitute the main **added value of this work**.

Apart from the introduction, where the development of metropolitan areas in connection with the urbanization process (including links to agglomeration advantages) and their growing significance for economic development is being discussed and followed by a brief description of the situation in the Czech Republic, next chapters provide the definition of metropolitan areas which is put into the context of regional development theories and the urban life cycle theory. The last part of the article outlines possible solutions to positive metropolitan externalities (agglomeration advantages), as seen from the vantage point of current public economics and its various approaches.

Besides the above-outlined aim and content of this paper, it is also methodologically correct to list its **determinants**. Due to the extent of the presented paper, the given issue can only be discussed partially and to a limited extent, which leaves considerable space for further elaboration and empirical verification of selected passages, and therefore provides potential for future research. Some of the selected topics are interpreted in a slightly simplified way, but in a sufficient manner to serve illustrative purposes, considering the focus of the paper.

Definitions of Metropolitan Areas

As has already been stated in the introduction, metropolitan areas constitute one of the most important elements of the system of settlements. The term *metropolitan area* is used in scholarly literature to describe a city and its hinterland; there is, however, neither a unanimously accepted definition of the term nor a single methodology for delineation of metropolitan areas. A city can be defined for instance by its administrative boundaries (that is the areas that fall within the competence of city authorities); however, there is no single administrative unit that could be used to define metropolitan areas.

Based on the findings of Frey and Zimmer (2001), a metropolitan area can be defined as a spatially continuous and economically interconnected area consisting of densely populated, small settlement areas and their surroundings, which are under the influence of the dominant core (center). In accordance with Hampl (2005), the formation of metropolitan areas can be regarded as

6 The term "institutionalization" of metropolitan areas is meant for the need of this paper in general to create the coordinating measures, rules, recommendations and framework regulations, which affect all spatial actors of social system. Primarily, however, it should not be considered as allover legislative measures.

a developmentally higher phase of urbanization – it relates to the development of postindustrial processes, where the importance of metropolises and the extent of their managing authorities increase. Apart from the spatial aspect related to the process of suburbanization, these areas are also characterized by a number of **qualitative** characteristics – metropolitan areas constitute not only the largest territorial concentration of economy and population, but more importantly, they constitute the qualitatively most important concentration, which is the concentration of the most progressive activities, especially of the so called *quaternary sector* (Hampl, 2005). Metropolitan areas have been similarly described by Knox and Pinch (2009) (although their description might be considered a bit too simplified for the case of the Czech Republic) who see the formation of metropolises as a consequence of the process of deindustrialization in the second half of the 20th century, the crisis of Fordism and the arrival of new information technologies. They also stress the impact of globalization processes, of the formation of multinational companies and of the fact that cities have to compete in attracting more investors in order to sustain their economic development.

Regional Development Theories and Metropolitan Areas

The following chapter brings a brief overview of basic regional development theories and approaches which are the most related to the questions of development of settlements and regions (metropolitan areas) in space and time while it is beyond the scope of this paper to analyze the respective theories in detail. Till now, it has been formulated quite a wide range of theories concerning the issue of metropolitan areas while some of them may be in terms of hypotheses and approaches even contradictory.

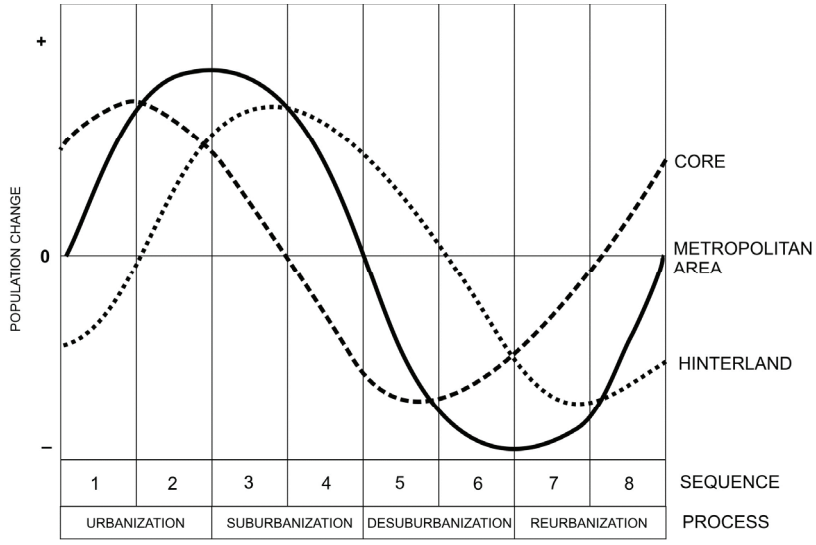
Having in mind the issue of metropolitan areas (and in the context of public/regional economy), it is suitable to divide regional development theories into two basic groups: the equilibrium theories (the so-called theories of convergence or neoclassical theories) and the disequilibrium theories (the so-called theories of divergence or Keynesian theories) which are closer related to the issue of metropolitan areas. It should be mentioned that neoclassical growth models do not perceive territorial structures, historic events or different levels of human capital as factors that could influence regional development. Similarly, later models of endogenous growth do not reflect the importance of historical opportunities or socio-institutional structures – regional policy is thus according the neoclassical theories redundant.

Regarding the theories of divergence, it is useful to pay attention to evolutionary ideas of economic geographers (Evolutionary Economic Geography). Unlike the case of endogenous growth theories or new economic geography (Krugman, 1991), which itself stays on the edge between neoclassical and Keynesian approaches, theories of divergence do take into account the historical role of the formation of a system of uneven growth, arguing that each economic process has to be analyzed in the context of socio-economic and cultural processes within which it has developed. As such, these theories prefer directed case studies and qualitative methods instead of quantitative models.

In this respect, we should also mention the so-called core-periphery theories, which too presume uneven regional development. A significant contribution of these theories lies in the introduction of the term *multiplier* (see below) or, in other words, the subsequent reaction of the economy to a certain impulse (Wokoun *et al*., 2008). The growth pole theory was coined by Perroux and Boudeville in the 1950s. Within this theory, an uneven development is perceived as natural, because growth does not appear everywhere and with the same intensity. A new term *growth pole* has been introduced. Poles are points (places) in time and space where growth originates. The key driving sectors in the region are defined as fast growing sectors containing large and innovative companies. As the region develops, it sends out impulses to other sectors, the so-called driven sectors. The polarization principle – that is the ability to attract certain economic activities – results in higher economic productivity of the whole region. Another representative of the core-periphery group of theories is J. Friedmann and his general theory of polarized development (see e.g. Viturka, 2010). The core-periphery theories assumed a long-term unevenness of regional development, and the majority of authors were convinced of the necessity of state intervention (core-periphery theories also served as the basis for the urban-life cycle theory and the theory of differential urbanization).

We should also mention theories of cumulative causation (which encourage the formation of agglomeration economies in less developed regions). Emphasis could also be placed on **institutional theories** of regional development, which maintain that a subject's behavior is significantly influenced by its environment; environment in this case is understood as the regional context (that is the socio-cultural environment in the region, including the respective institutional and legislative framework). These theses and the consequent development of an institutional approach highlighted the influence of the social system (starting with citizen-individuals, ending with the state as an institution) on shaping the spatial relationships and patterns (e.g. Pahl, 1975, cit. according to Sýkora, 1993).

Finally, it is also appropriate to mention the social-geographic **theory of urban life cycle**, which is not linked to the above-listed concepts of regional economics, but is nevertheless important with



1: *"The Stages of Urban Development" Model; adapted from van den Berg et al. (1982: 37)*

regard to the topic of this paper. The urban life-cycle theory (and potentially the follow-up theory of differential urbanization) currently represents the generally accepted model of urban development, based on an analysis of economic and, eventually, environmental conditions and their influence on urban development. The authors of the theory entitled *A Study of Growth and Decline* (van den Berg *et al.*, 1982) differentiate between four basic stages of urban development: urbanization, suburbanization, disurbanization and, as an alternative to future urban development, also reurbanization (see Fig. 1, which shows individual stages in the light of population changes)[7]. The final stage, which closes the entire cycle, is characterized by political attempts to revitalize the centers of cities. It is essentially a form of public intervention that consists of the application of proactive regional (urban/metropolitan) policies (see below).

In the following sections, the above-listed stages are put into historical context. However, the names of individual stages are not strictly followed and differentiated; instead, they are shown in the context of the theory of current public economics and the specific conditions in the Czech Republic, whose socioeconomic and therefore also urbanization development has been strongly influenced by historical context – still evident are: a strong industrial tradition which to a certain degree contrasts with the deindustrialization trends present in advanced western economies; massive postwar changes in population structure and density; the era of socialism and the subsequent transformation period.

DISCUSSION

There are many phenomena currently occurring in the space of metropolitan areas, and these are mutually influencing not only each other, but also the broad economic, social and environmental hinterlands of these areas. These phenomena can be, from a general point of view, seen as processes occurring in a mixed economy (the interaction between the private and the public sector). Metropolitan areas therefore serve as a source of a number of positive and negative externalities, for which the economic theory may offer potential solutions.

An **externality** is a term used mainly by economists, although the current understanding of the term goes far beyond the horizon of economics. The actual social issues are much more complex, and they extend to many other scientific disciplines besides the fairly narrowly defined discipline of economics. It is only logical, rational and also meaningful that issues that have at least a twofold dimension – that is the economic and the expert dimension – should be addressed within an interdisciplinary approach.

The Context of the Formation of Agglomeration Advantages (Positive Externalities)

Previous paragraphs of the paper have outlined that the second half of the 20th century brought a fundamental change into the spatial growth of cities and their hinterlands. Technological progress, living standards improvements, the development of individual car transport and many other economic factors contributed to the **progress**

7 For a detailed analysis of the urban life cycle theory and the concept of differential urbanization, including references and further reading, see for instance Ouředníček (2000).

of deconcentration trends that occurred in different parts of the world with different intensity and time.

Polycentricity

It would be useful within the context of this paper to ask what was the reason for spatial deconcentration of urban functions and the subsequent formation of agglomeration advantages. On the one hand, there were changes stemming from socio-economic, cultural and technological shifts which demanded different spatial distribution and relations. On the other hand, there were new location factors that determined the direction of the shift of functions. The new location factors are related to a shift in values and the preference of variables different from the past (time vs. distance). There are many studies within economic geography analyzing the motives that lead to a decision where to locate (or relocate) a company (see e.g. Coe, 2007; Rosenthal, 2004; Bodenman, 2000; Malmberg and Maskell, 1999; in the Czech context Toušek *et al*., 2008). The decision where to locate a company within a city is the result of an assessment whether the costs (disadvantages) in the center exceed its attractiveness (advantages). Locations on the outskirts of cities offer cheaper land and rents, which results in lower building costs, which is exemplary described by the neoclassical Land use theory and its Bid rent (Alonso, 1964). New development projects in city centers are limited by the existing housing development. Although city centers offer a more creative environment with more opportunities for sharing, the outskirts typically offer better environment and lack everyday traffic complications. Moreover, new research and development campuses can compete with the creative environment of the centers.

An important role in the context of the Czech Republic is played by incentive policies pursued by the government or local authorities that serve as a motivation to locate a company in a predefined location. Also important are local plans that delineate development areas (see below). Outskirts have become the place where new jobs are being created and where economic activities are located. The main motivational factors are land prices, lower rents, accessibility, environmental value and previous activities in the given area (Gottdiener, Hutchinson, 2006).

Agglomeration Advantages as Positive Externalities

The concept of polycentricity speaks of the attractiveness of the area (locational influences) and the attractiveness of the main activity (economic influences). Both of these formulations can be seen as simplified designations for agglomeration advantages, or – bearing in mind the economic vantage point of this paper – as positive metropolitan externalities. These two basic influences and their differences and synergies are fairly fundamental for the possible solutions to positive metropolitan externalities (see below).

Despite the fact that the concept of agglomeration advantage is fairly old and there exist a number of studies describing the impacts of agglomeration advantages (most frequently as location determinants in regional scale), Fujita a Thisse (2000) believe that the research on the issues of agglomeration advantages is not yet adequate, whereas Rosenthal (2004) points out that authors tend to omit the issue of agglomeration advantages on the level of a whole region or a metropolitan area.

The concept of agglomeration advantages had been coined already by the end of the 19th century, when Marshall identified three principles, according to which individual companies cluster together and eventually create mutual links. This concept clarifies why activities concentrate in a place that provides them with an added value, extra profit or which leads to a simplification of activities or to cost savings (Rosenthal, Strange, 2008). Mechanisms can be classified in different ways. According to Kitchin and Thrift (2009), there are agglomeration advantages related to flexibility and dynamism (sharing of services and infrastructure, traffic costs reduction, availability of workforce), and agglomeration advantages related to innovation (sharing of know-how and experience). Rosenthal (2004) identifies three types of agglomeration advantages depending on their scope: geographic, temporal and industrial. Probably the most widely known classification is that of Marshall, who distinguishes two types of advantages: location advantages (proximity of similar or the same type of activities and of qualified workforce) and urbanization advantages (sharing of support services, availability of a workforce, shared infrastructure).[8]

For the purpose of this paper and in accordance with the above-stated classifications of agglomeration advantages, we shall distinguish two types of agglomeration advantages: **locational** (location attractiveness, available facilities, availability of workforce, etc.) and **economic** (main and accompanying activities, sharing of support services, etc.).[9] Agglomeration advantages can be further increased by multiplier effects.

8 The importance of individual agglomeration advantages has been naturally changing throughout history and is dependent on economic trends influencing urban development.

9 The author of this paper is aware of the fact that this classification is rather simplified, since locational factors also encompass economic aspects. Yet for the purposes of this paper, this classification suffices and will be therefore used.

Multiplier Effects

When defining the concept of growth poles, we have also mentioned the so-called "accompanying activities". Within agglomeration advantages, triggered either by the main activity (company) or by the location itself (area), the growth pole attracts other accompanying activities. The multiplier effect results in increased productivity and therefore in higher revenues for both main and "accompanying" activities in the given area; these revenues then retroactively feed back into processes in the area and thus generate further development (Fujita, Thisse, 2008; Kitchen, Thrift, 2009). A frequent example of spatial multiplier effects is a circle, in which an activity generates workforce in the region; the workforce receives salary for its work; the salary is then spent within the region, which stimulates existing activities and generates new ones.

Other examples of multiplier effects, besides the often mentioned workforce, can be services or incoming investments that respond to agglomeration advantages in a given area and thus become a part of the growth pole, where, in turn, they subsequently strengthen agglomeration advantages in the area. Individual multipliers can be decoded using input-output tables, which show economic structure of an area – that is the inner links, the area of production and the area of final consumption. The effects an increased demand will have on salaries in the region can be theoretically assessed with the help of separated processes and activities – for more details see Blažek and Uhlíř (2011).

A milestone in the development of the concept of agglomeration advantages, and therefore also in the concept of the multiplier effect, came with the arrival of the **outsourcing** phenomenon. Outsourcing can be understood as a situation when companies or institutions contract out services or processes that are not directly connected with their narrow specialization but are nevertheless absolutely crucial for the operation of the company. The selected services are provided for fee by other parties (subcontractors) located nearby. The advantage of cities lies in the fact that they can offer various and numerous support services. With respect to the local/regional scale, any supporting activity which increases the attractiveness of an entire metropolitan area can be labeled as growth pole multiplier effect.

Positive Externalities and Their Solutions

From the point of view of public economics, the term externality is usually easy to define. Although there are minor differences between individual definitions, most schools of economics agree on a universal definition (with the exception of the Austrian School of Economics, which is to be discussed below).

The current neoclassical economic paradigm maintains that every time externalities occur, the market production of resources is inefficient, in other words, the needs are not fully satisfied. In such case, the production level and the related level of marginal costs will be incorrect.

In the context of metropolitan areas, it is more appropriate to use a slightly broader definition by Šindler (2008), adapted for the purpose of this paper by its author: *Externalities[10], or the spillover effect, occur when actions (intended or unintended) of economic entities[11] or other factors (spatial, natural)[12] influence the decision-making process of other economic entities (both in the public and the private sphere) through involuntary additional external costs or utilities; where these additional costs and benefits have not been assigned a monetary value and their originators have not reimbursed them.*

It follows from the aforementioned definition that other factors (spatial, natural aspects) that influence the activities of economic entities are also included among externalities. This is the most significant difference when compared to other definitions of externalities which explicitly state that externalities occur only as a result of human action – a person can act either individually or within a company (Goulli, 1998).

There are many criteria for the classification of externalities. Besides the most common division into **positive** and **negative** externalities, several other classifications could be listed within the context of this paper. One of the criteria may be the externality impact – here we can talk about externalities that have an impact on a certain area (in this case the metropolitan area). Furthermore, we can define reciprocal externalities. These are described as situations when certain positive effects caused by one subject to other subject return back to the first subject. An oft-quoted example is that of an orchard owner and a beekeeper (see below). An interesting approach (also with respect to a potential solution of externalities) is the division of externalities into those **Pareto efficient** and **Pareto inefficient**[13] – terms introduced by Buchanan and Stubblebine (see e.g. Dahlman,

10 Externalities are understood here as one of the forms of microeconomic market failure, when market price distortions may occur.

11 By economic entities we do not understand solely market entities. Public sector institutions (in this case for instance municipalities, regions, etc.) also fall under the category of economic entities.

12 This broadening of definition of externalities is extremely important for the purpose of this work (in the context of agglomeration advantages).

13 Here, we come across the concept of *welfare economics* and search of an efficient allocation of means under the circumstances of limited resources.

1979). A Pareto efficient externality is an externality that, when solved, contributes to a society's welfare. On the other hand, a Pareto inefficient externality is an externality whose solution does not increase a society's welfare (in some cases, the level of welfare may even decrease – such a situation would happen when a solution to the externality is too costly). It follows that it is not efficient to solve every externality.

In contrast to the above-described approach stands the so-called Austrian School of Economics, whose stance on externalities is summarized in an article by Kinkor (1995: 7). The Austrian School *"completely rejects the widely accepted notion that the problem of externalities lies in the inability of producers to take into account the social benefits or the social costs."* The school does not even accept the terms *social benefits* and *social costs*. Both of these terms are regarded as individually and subjectively perceived factors that cannot be ascertained, aggregated or compared. A *society* is regarded as an abstract term and as such cannot be attributed benefits or costs; those can be attributed to human beings only.[14]

Going back the subject of this paper, when compared to negative externalities, positive externalities are, according to Ježek (1998), much less frequently discussed. Unlike the case of negative externalities, their occurrence is less often perceived as an actual problem.

Solution of Externalities

When attempting to find solutions to externalities and their impacts, a considerable space is open to opinions and practices of various schools of economics. A separate issue is whether there actually is the need for finding solutions to positive externalities.[15] As for now, this normative question should remain unanswered.

Public economics generally distinguishes between *public* and *private* solutions. The former type consists of government intervention (or, in our case, the intervention of a local authority) and market "correction"; the second type relies on spontaneous market trends which can under certain circumstances tend to automatically eliminate external impacts. However, under real-life circumstances, neither one of these extreme solutions would work satisfactorily. It should therefore be noted that it is often impossible to strictly divide these two approaches, and it is thus necessary to look for compromises and mixed solutions. A brief description of both approaches follows.

Public solutions represent an approach typical of classical economics. In theory, public solutions to externalities are very simple. According to for example Malý (2001), these solutions can be described as processes where private costs (or benefits), related to production or consumption of commodities connected with a negative (positive) externality, approximate social costs (benefits). This can be achieved through so-called corrective taxes (subsidies) or through imposing fines or other charges (or, in contrary, subsidies) on production or consumption. These corrections are known in economic literature as Pigouvian taxes or subsidies. Other types of public solutions may be various bans, directives and other kinds of state regulations. The problematic nature of these types of solutions relates to the fact that we do not know the marginal values of benefits or costs.

The basis for one of the forms of **private solutions –** by which the private sector can solve the problems of externalities without direct state intervention – is the so-called Coase theorem.[16] This theorem defends the stance that any time an externality occurs, the involved parties may join forces and create some set of measures that would help to internalize the effects their activities may have on the outside, and thus ensure efficiency. This is the so-called internalization principle – that is the creation of economic units so large that most of the effects of their activities would manifest within the unit. Other types of private solutions may be, for example, appropriate arrangement of property rights (as a necessary condition for successful internalization) or the employment of the principle that economic subjects bear responsibility for their actions – this principle is irrelevant in the case of positive externalities.

14 Kinkor (1995: 7) further continues with an assertion that undermines the very basis of the externality concept: "*It is very misleading to see externalities as market failure, since the thing which should supposedly be failing in fact does not even exist. Externalities should be seen as a result of the absence of market, not as its failure.* (…)"

15 According to Kinkor (1995) economists of the Austrian School do not identify any problems stemming from positive externalities. It seems completely absurd to insist that an individual should be obliged to reimburse externality producer for any benefit, since there was no prior contract concluded stating that this benefit should be subject of the transaction.

16 For several decades the Coase theorem has been arousing passionate discussions regarding possible solutions to externalities and the role of governments and state regulations. The theorem is based on ideas of prof. R. H. Coase that he published in 1960 in his most famous article entitled *The Problem of Social Cost*. His intention was to introduce an alternative to Pigouvian solution to externalities. The central idea of the article is that the solution to externalities does not consist in limiting those who produce them, but in assessing whether the benefits from limiting the activities generating externalities will exceed the losses caused by the depletion of products of these activities elsewhere. Coase proved in his article that if there were no transaction costs it would not be necessary to solve externalities through state regulations, since they would be eliminated automatically with the help of private solutions.

RESULTS

Usage in Metropolitan Areas

We shall now attempt to apply the above-described solutions (or their combinations) to positive agglomeration externalities of metropolitan areas within the context of several stages of urban development, also having in mind the locational and economic distinction of agglomeration advantages (see above). The basic division of stages of urban development according to van den Berg will not be strictly followed here, although it could be applied with certain simplifications. In order to illustrate the discussed solutions, the beekeeper-orchard owner model example will be employed. For the sake of a higher illustrative value, we shall set down one more condition: the term "company" here is slightly simplified and stands for a market entity whose activity does not cause any negative externalities (for instance pollution).

Phase I – Primary Deconcentration of a Strong Company to Hinterlands

This phase has already taken place in the developed world and can therefore be described.

As we already know from the previous text regarding the historical development of urbanism, the primary impulse for deconcentration tendencies was driven by strong companies and their attempts to lower costs. In this respect, it was the factor of location advantages connected with deconcentrative location of companies that were crucial for a company – companies realized they can benefit from positive location advantages in city hinterlands (location attractiveness, available facilities, cheaper land, availability of workforce, etc.). When a company finished its deconcentration to hinterlands, these location advantages at certain point turned into a positive externality of the company.[17] If we were to use our model simile, the beekeeper (in this case the company) chooses the best and the most intensively blooming orchard in the area (that is, a suitable spatial location in the metropolitan area) and relocates his beehives there.

In case that no company (beekeeper) finds the spatial location (the orchard) attractive enough, the government/local authority may step into the process – it may look for a suitable beekeeper and attract him to "its" new orchard (that is, to transform the location advantages to a mutually positive externality). The entire system of government interventions – when the state intervention policy serves as an incentive for relocation to a predefined area – plays, especially in the Czech Republic, a very important role, and so does the local plan that determines development areas. Both can be considered a form of public intervention.

Phase II – Driving Company/Sector Attracts Other Activities – Continuation of the Deconcentration Process

This phase has already taken place in the majority of Western countries; in post-socialist countries, it is currently underway.

At this point, one or more bigger companies are already located in the favorable city hinterland and they take advantage of positive metropolitan externalities. These companies serve as driving powers of the entire industry. In this phase, the state could again try to intervene in the process by attempting to solve the externalities and distribute the benefits between more companies (see our example) – that is to attract another strong player (another beekeeper) to the hinterlands. It is very likely, though, that the government would not have sufficient information to execute the above-described scenario, and, more importantly, everything would be solved within the market itself before the state could even intervene. Smaller companies are very well aware of the presence of a driving company in the hinterlands, and they want to fully benefit from primary economic agglomeration advantages that stem from the proximity of and the cooperation with a larger company. These small companies therefore again gradually transform economic agglomeration advantages to positive externalities by relocating themselves to the vicinity of a big company (small beekeepers concentrate around a large one). Mutual economic positive externalities are subsequently created – driving companies attract the driven ones.

The solution of the above-described situation will emerge promptly. Big and small companies begin to intensively cooperate and gradually internalize their activities, either in a spontaneous (informally) or in a controlled (formally) way. They become each other's suppliers, they may rent facilities from one another, and some companies may even merge (small and large beekeepers might create one joint unit). Positive externalities are thus privately internalized, the city hinterland in its entirety continues to develop further, and the situation remains Pareto efficient (society-wide benefits increase).

Phase III – Prevalence of Negative Externalities and Their Possible Public Solutions

This last phase of the described development is more of a model situation, in many aspects debatable. Unlike in some Western countries, it has not been systemically dealt with in the Czech Republic.

17 A company starts to transform agglomeration advantages to positive externalities the moment its costs related to the process of deconcentration to hinterland equal the gained agglomeration advantages.

When a metropolitan area as a whole grows, spatial limitations may occur (the orchard is now too small to accommodate all the beekeepers; see also the textbook example of "The Tragedy of the Commons"). Although we have been analyzing a model situation where companies create positive externalities only, after reaching a certain number of localized companies, negative externalities start to prevail over the positive ones (the negative externalities are not created by any one company, rather they occur when many companies cumulate in one location). As a result, the area may gradually (with smaller or larger extent of dynamics) reach its territorial, technical and infrastructural limits, which causes limited workforce mobility and lowered attractiveness of the area.[18] Society-wide benefits decrease and society-wide costs on the other hand increase – a Pareto inefficient situation. In case no attempts to solve the situation were made, company profits will gradually decrease, the companies will then abandon the location and the entire metropolitan area will socio-economically deteriorate.

A solution to this situation (or also a means of its prevention) may be, according to van den Berg, the public institutionalization of the metropolitan area as a whole (delimitation of the metropolitan area, its legislative incorporation, delegation of powers and responsibilities, designing the administrative structure, etc.), in order to maximize the benefits for the entire metropolitan area, rather than only for an individual. It is a kind of public intervention – although not necessarily a solution of the metropolitan area's externalities, especially not the positive ones. In this phase, the main motivation of the state is to protect the society-wide interests rather than the purely economic ones (public interest outweighs private interest). Solutions to externalities described in the final phase therefore strongly depend on the institution which executes an active metropolitan policy. The newly created metropolitan authority may benefit from its outsider's point of view and prevent the creation of externalities right from the onset. The institutionalization of metropolitan areas has its advantages as well as its risks:

- ☑ *prevention of the actual creation of externalities,*
- ☑ *better awareness of "one's own" problems, involvement, motivation,*
- ☒ *pressure by interest groups,*
- ☒ *asymmetric information,*
- ☒ *more paperwork resulting in the need for more clerks.*

It follows that solutions to the problem of externalities can be approached from different angles and with various assumptions. There is no single theory and it is impossible to unequivocally determine one proper solution. The solution presented in the above text is only one of many, in this case combining findings from public economics and social geography.

SUMMARY

In recent globalized and high-urbanized world not only separate cities, but even the whole metropolitan areas are considered as key centres of economical, social and culture development of the city. These areas consist of core city (cities) and municipalities situated in surroundings. Both parts are functionally interconnected and mutually dependent on each other. Recent situation shows that the further development of these areas cannot be planned only within the administrative boundaries of each municipality, but it needs to be coordinated by appropriate regional policies at the level of the entire functional region.

Specific model of the stages of urban development and functional regions in the Czech Republic is based on the unique historical memory. This development was determined by artificial interventions from the central level into the settlement system in the period of socialism (physical shape of municipalities and their hierarchy), followed by the period of capitalism, where the trends in economic and social behaviour of people began to be formed with delay. Between these two distinct processes can be also found a transitional period of economic transformation, when the development of urbanization (urban development stages) follows on its natural development, which is however distorted – thanks to the effects of specific factors from the past – and creates specific claims on the appropriate proactive regional policy, taking into account findings from both public economy and social geography.

The formal or informal institutionalization of the Czech largest metropolitan areas can be advantageous from the viewpoint of contemporary economic theory. The institutionalization of metropolitan areas

18 When companies relocate to city hinterlands (to a certain location where they create a new deconcentration growth pole), settlement areas concentrate near them. These areas are populated mainly by those who want to live there or those who need to live there. Solution to the situation when society-wide costs gradually outweigh society-wide benefits can be slowed down by the fact that in the case of the people living directly in that location, the border when they feel inadequately burdened by society-wide costs will be higher than in other cases (compared to other inhabitants of the metropolitan area, local inhabitants will be more willing to longer tolerate everyday traffic congestions, lower attractiveness of the location etc.).

can be seen as a solution to positive (and even some negative) metropolitan externalities, which can be economically efficient at the moment when the metropolitan area covers/solves its externality more effectively within its defined administrative area.

The need of institutionalization of the Czech largest metropolitan areas is not currently emphasized sufficiently between relevant stakeholders; the persisting legislative vacuum is reflected in the field of strategic planning, moreover there is no expert interdisciplinary debate that would provide valid analysis and conclusions for the planning practice. This topic thus remains a challenge for the future research and the submitted paper is merely an initial limited input to the discussion.

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