Pole cities: economic development enhancers and limits. 
Case of two Hungarian regional centres

Abstract. Pécs and Szeged, two Hungarian Pole cities (refers to F. Perroux’s Growth Pole Theory) in the top-down initiative Hungarian Pole Programme are examined in this research. The Pole cities which have been appointed to the Programme are those regional centres of Hungary where significant public and private companies, chambers, civil organisations, municipalities, universities and R&D institutions operate.

The analysis carried out for years 2013-2014 has shown that the simulation of multiplier effects in the regions of the two cities was limited due to the relatively low level of the for-profit enterprises participation in the examined Programmes, limiting the increase of employees’ income level in the cities where Universities are the most influential factor in local economic development.

We conclude that the Pole Programme itself was not the ultimate victorious strategy to decrease the regional disparities in Hungary. In the near future, economic Programmes must focus on how the local industries can relate to other industries and through productive consumption enhance the regions’ well-being.

Keywords: Economic Development; Cohesion; Growth Models; Hungarian Pole Programme; Productive Consumption

JEL Classification: R00, R11

Acknowledgement. This paper was supported by the Janos Bolyai Research Scholarship of the Hungarian Academy of Sciences.

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Introduction. Parallel to the spread of globalization, attention to the economic growth of regions has revived (Csete & Szabo, 2014 [1]; Martin & Sunley, 1998 [2]). Often factors which influence economic development (capital flow among countries, delocalization of international enterprises, remittances) are not under the control of governments (Csete & Szabo, 2014 [1]; Shera & Meyer, 2013 [3]). Consequently, there is a need to design, choose appropriate tools for promoting local economy in order to attract these exogenous factors. Governments are expected to ensure the rational rate of the natural environment transformation (supply of biosphere resources to mankind) to man-made capital, since it provides a stable base of living for the future generations.

Acknowledgement. This paper was supported by the Janos Bolyai Research Scholarship of the Hungarian Academy of Sciences.
The reason of the particular Hungarian development is the special structure of the economy rooted in Hungarian history: the age of Dual Monarchy (started with the Austro-Hungarian Compromise in 1867) when due to the competition with the Austrian capital (Wien), the main focus of spatial development was the capital city; approximately 2% of the National Income of the Kingdom of Hungary was spent on community and infrastructural ameliorations in the capital (concentrating 60% of the public investment stock to the city where 5% of the population lived) per year between 1890 and 1914 ([Illes, 2009 [11]). The economic environment of the country in the recent regional development economic literature is described as follows: the territorial hegemony of the capital, increasing differences between the capital and rural areas, emergence of the «West-East decline», variant development patterns of micro-regions and settlements ([Dusek, Lukacs & Racz, 2014; Nemes Nagy & Tagai, 2011; Obadovics, 2013; Penzes, 2012 as cited in Csete & Szabo, 2014 [1]; Csete, Palvölgyi & Szendro, 2013 [12]).

Aftermath the Hungarian spatial development has two main purposes: strengthening the rural communities' (territories outside the capital) economy, improving the population retention and enhancing their competitiveness (1); and promote those territories where flagship enterprises are located thus can improve the functioning of the local economy (2). This approach resembles to the holistic approach described in the EU Sustainable Development Strategy definition, social cohesion and economic growth must be developed collaboratively ([Csete & Horváth, 2012 [13]). Consequently the development aims must support the improvement of regions’ adaptivity capacity to ensure regional resilience in social structures, natural environment, institutional framework and economic background ([Szendro, Csete & Torok, 2014 [14]).

In the fourth Programming period of the European Union (2007–2013) the Hungarian Pole Programme was introduced to promote economic growth, development within the country and offsetting the territorial hegemony of the capital.

The Programme has appointed seven cities as main focus points of economic development (Figure 1), which are basically the regional centres/centre cities of all the seven NUTS-2 regions in Hungary: Budapest, Miskolc, Debrecen, Szeged, Gyor, Szekesfehérvár-Veszprém, Pécs ([Bendo, 2010 [16]).

In our research we examine two Pole cities: Pécs; the «Pole of quality of life» (responsible for the cultural and environmental industry’s development) and Szeged, the «Biopolis» (associated with the healthcare, environmental, agricultural, bio-technology industries’ development). Firstly, we provide a short overview of the theories growth, highlighting theoretic background of the Pole Programme. Secondly, we implement a situation analysis of the two cities regarding the population patterns and economic activity. In order to position the two Pole cities on a national level, we examine how many enterprises were located in the cities among the 500 companies with best sales performance (TOP 500 list) according to the list published in HVG (Heti Világzadaság – a dominant economic weekly review in Hungary) in 2013. Taking into account their Pole role, we analyse two Programmes in 2007–2013 period: we look at the structure of nine call for proposals, available in the Green Economic Development Programme (2013–4013), and examine for which purposes grants have been used. Also, we review the ten largest projects in Science–Innovation Programme (2013–4013) and examine how the fund is distributed among different local participants: universities, for- and non-profit organizations with respect to the share of own contribution they provided to the total amount. The two Programmes have high importance in the cities’ future development as the human capital and the natural environment are those endogenous factors which affect the possible inventory of economic tools ensuring sustainable growth ([Szendro, Csete & Torok, 2012b [17]).

In order to analyse the enterprises of Pecs and Szeged, in the range of the TOP 500 list and MS excel database based on the weekly’s list, we identified the enterprises location on NUTS-3 level (as there was a statement in the weekly review) then we checked the company seats resulted the sample of enterprises from the TOP 500 list in Pecs and Szeged. To analyse the Green Economic Development Programme (2013–4013) and Science–Innovation Programme (2013–4013), we collected data from the website of the Hungarian Government and elaborated MS excel data pool by which we were able to carry out the research. For collecting general data about Europe and Hungary, we used data from Eurostat and Hungarian Central Statistical Office.

**Purpose** of the article is to examine the effectiveness of the Pole Programme in the two selected cities; to find out how the industries which have been chosen as development priorities support regional growth, and how the organizational structure of the local economy influences utilization of development funds.

**Brief Literature Review.** How economics grow? Will regions of different economic performance converge or diverge to each other in long term? These are question to which interest has revived since the mid of the 20th century. In neoclassical equilibrium, economics convergence among regions derived from the lack of barriers to the operation of market forces. One of the most influential statements supporting this theory, published in 1965, is Williamson’s analysis of the evolution of regional income differences in advanced industrial countries. While in equilibrium economics the convergence of regional incomes over time is a consequence of that inequalities stimulate self-correcting movements in prices, wages, capital, labour; divergence models argue that economies of scale and agglomeration (concentration of large number of enterprises within the same geographical location) lead to the cumulative concentration of the capital, labour and output in certain regions at the expense of others. Authors of divergence-type growth models are Perroux (1950, 1955), Myrdal (1957), etc. During the mid-1980s, the neoclassical growth model was reviewed again from the returns of capital point of view. Concerning production theoretical neoclassical growth model considers diminishing returns to scale, consequently an economy in mature state reaches its limit of growth and mobile production factors flows to such (undeveloped) regions where the returns are higher due to the scarci-
ty of them. Since the model considers technology as exogenous the long-term growth becomes exogenous as well. Endogenous growth theory states the opposite regarding economies of scale (main factors: agglomerative advantages, big market sizes, human capital, and technical advancement), it introduces increasing returns through disparities are conserved in spatial economy. (Csete & Szabo, 2014 [1]; Martin & Sunley, 1998 [2]; Halmi & Vasary, 2012 [9]).

The Hungarian Pole Programme could be linked to Perroux Concept of Growth Poles which are the concentration of such highly innovative and technically advanced industries that are able to stimulate economic development in linked businesses and industries through productive consumption. The wished effect of growth poles on regional growth is the strong multiplier effect they initiate if they prefer local products and services to procure. As the income increases in the territory, the consumption structure of the consumers becomes more diversified, the increasing demand and improving purchasing power attract more and more participants of the market economy. The cumulative processes increase concentration and provide more favourable conditions to enterprises. Myrdal’s Circular Cumulative Causation Model (1957) accepts growth poles as initiators of account in regions, but calls the attention to that the structure of the economy affects their effectiveness. The Pole cities which have been appointed in the Programme are those regional centres of Hungary, where significant public and private companies, chambers, civil organisations, municipalities, universities and R&D institutions operate. We suppose if the Pole positions of the cities are in accordance with their economic structure, then, funding mechanisms promote innovative, developing sectors/participants, supporting, consequently, the convergence of incomes.

**Results.** Pecs; the «Pole of quality of life» (responsible for the cultural and environmental industries’ development) and centre of the Southern Transdanubia NUTS-2 region, is the 5th largest city in Hungary with 156,049 inhabitants. It is located on the slopes of the Mecsek Mountain and represents the defence-driven location decision. Szeged; the «Biopolis» (healthcare, environmental, agricultural, bio-technology industries’ development) and the centre of Southern Great Plain NUTS-2 region, is the 3rd largest city in Hungary with 168,048 inhabitants. It is situated next to rivers, representing the beneficial combination of different land use model (HCSO – Hungarian Central Statistical Office, 2013 [18]; Szabo, 2012 [19]). The populations’ economic activity shows similarities in the two cities: approximately 40% of the population is employed, the share of inactive beneficiaries is around 28%, the share of dependents from the population is 27% and unemployed people are about 5% (a bit higher in Pecs than in Szeged) of the population. The distribution of employees among sectors is the following (HCSO, 2013, p. 9. [18]): the most significant sector is Education (Pecs: 25%, Szeged: 23%), then Industry (Pecs: 17%, Szeged: 19%), then with a slight lag go Public services (Pecs: 16%, Szeged: 15.5%), Commerce (Pecs: 11%, Szeged: 10%), then Transportation and Warehousing (Pecs: 9%, Szeged: 9%), and Health services (Pecs: 6%, Szeged: 2%), Building Industry (Pecs: 2.5%, Szeged: 2%), and Agriculture (Pecs: 1.5%, Szeged: 2%) are trailing the list (there is also «Other», miscellaneous economic branches’ category; Pecs: 12%, Szeged: 175%).

From the range of enterprises with the highest sales value on NUTS-2 level, Pecs has enterprises operating in Energy, Retail, Machine Engineering, Transportation, Wholesale industries/sectors, while Szeged has enterprises operating in Energy; Food; Construction; Chemical, Rubber and Plastic; Wholesale industries/sectors (Szabo, 2012). On the national level, concerning the spatial distribution of the 500 companies with best sales performance (TOP 500 list) published last year in HVG, there were four companies located in Pecs, and eight companies located in Szeged in the range.

| Tab. 1: Distribution of participants (with positions) according to sectors in 500 companies with the best sales performance list (Pecs, Szeged, 2012) |
|---|---|---|---|---|
| **Pecs (rank)*** | **Sector** | **Szeged (rank)** |
| Energy | 191 | 469 | Energy | 37,83 | 170 |
| Machine Engineering | 276 | 306 | Wholesale | 233 |
| Food Industry | 146 | 202 | Chemical, Rubber & Plastic Industry | 207 |
| Construction | 367 | TOTAL | 2 2 3 1 0 |

Source: Own work based on (HVG, 2013 [20])

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tant to note that projects connected to climate change and sustainable energy management have synergic effect on regional development (Fur & Csete, 2010 [21]). The proposals which received fund in the two cities had been submitted to the following nine calls (Table 2):

- Developing the energy performance of buildings and the energy-efficient transformation of public lighting (A)
- Developing the energy performance of buildings combined with the usage of renewable energy sources (B)
- Energy efficiency investments of central government agencies (C)
- Modernization of the energy performance of the district heating sector with the potential usage of renewable energy sources (D)
- Promotion of sustainable lifestyle and consumption—social awareness raising, expert advice (E)
- Renewable energy based electricity, heat and electricity cogeneration and bio-methane production (F)
- Sample project promoting sustainable lifestyle and consumption (G)
- Satisfying local heating and cooling needs by using renewable energy sources (H)
- Strategic planning and project preparation in 2014-2020 period (I)

Both cities have the same amount of proposals get funded in the Green Economic Development Programme (2013-4013), though the structure of the proposals is slightly different in case of Pecs. The call with the highest funding in case of Pecs received one submitted proposal (the establishment of Biogas Plant of Pecs), while in case of Szeged twen-


ty projects which have been funded in the call “Satisfying local heating and cooling needs by using renewable energy sources” has the highest share of funds available. In case of Pecs the second largest amount of funding was provided for strategic planning and project preparation for next Programming period, while in Szeged one was funded for improving the energy efficiency of a government agency. The two largest calls in the Green Economic Development Programme concentrate in case of Pecs 59.26% of the total fund with two projects from thirty, while in case of Szeged 91.63% with 21 projects from thirty. In the Science-Innovation Programme we have selected the ten largest projects funded in case of both cities.

Figure 2 shows how the fund of the first 10 largest projects in the cities is distributed among different organizations. We can see that the two cities have quite a large difference in the development funds. This is due to that Szeged has been involved in the European Project: Extreme Light Infrastructure (ELI) while Pecs was the first structure in the world for studying the interaction between light and matter with ultrahigh intensity laser. In case of the ELI project the beneficiary is a non-profit organization. That is why, according to organizational structure, this segment concentrates the highest level of grant. If we compare the distribution of fund among universities and for-profit organizations, we see that in both cities the Universities dispose higher amount of them. We have analysed how the total cost of the 10 largest projects is financed in terms of grant and own contribution: dominant share of the largest projects were financed with funding intensity of 100%. In total, the share of own contribution to the total cost of the ten largest projects is 4.68% in case of Pecs and 4.68% in case of Szeged.

Conclusions. Our results indicate that in the period we investigated (2013–4014) several projects have been realized which can be related to the Pole role of the cities. In Green Economic Development Programme the largest amount of fund has been allocated to the establishment of the Biogas Plant in case of Pecs, while in Szeged projects which serve decreasing the energy dependency of households had the priority. From economic development point of view, these activities are impor-

tant, but have limited impact on strengthening the supply of labour market in the regions. This is less favourable because convergence requires the local economy’s expansion. If we assess the projects which we have taken into consideration in line with the Science-Innovation Programme, we can conclude that the relative dominance of the Universities compared to for-profit organizations indicates that there is lack of either interest or capability of the local enterprises to attract funds for broadening their capacities in the field of science and innovation. This is a loss, since the people graduating each year have limited variety of jobs provided in the cities. The Extreme Light Infrastructure project in Szeged potentially could be a break out point, but its impact on local economy will be revealed in future. Thus, we can conclude that the Pole Programme itself was not the ultimate victorious strategy to decrease the regional disparities in Hungary. In the near future, economic Programmes must focus on how the local industries can relate to other industries and through productive consumption enhance the welfare and well-being of the regions’ inhabitants.

References


Received 10.03.2015