



Institute of Economic Research Working Papers

No. 111/2017

**The Impact of Developmental Expenditure on the
Competitiveness of Local Governments**

Michał Bitner, Jacek Sierak

Article prepared and submitted for:

**9th International Conference on Applied Economics
Contemporary Issues in Economy, Institute of Economic
Research, Polish Economic Society Branch in Toruń, Faculty of
Economic Sciences and Management, Nicolaus Copernicus
University, Toruń, Poland, 22-23 June 2017**

Toruń, Poland 2017

© Copyright: Creative Commons Attribution 3.0 License

Michał Bitner, Jacek Sierak
mwbitner@uw.edu.pl, sierak.jacek@gmail.com
Warsaw University, 26/28 Krakowskie Przedmieście, 00-927 Warsaw (MB),
Łazarski University, 43 Świeradowska, 02-662 Warsaw (JS)

The Impact of Developmental Expenditure on the Competitiveness of Local Governments

JEL Classification: *H72; H76*

Keywords: *development policy; local government budgets; developmental expenditure; competitiveness; tax revenue*

Abstract

Research background: Development policy in Poland is based on various strategic documents, and it utilizes both the national resources and the European funds. Managing development at the local level is an important element of this policy. Many facets of this management are of incessant interest to the theory and practice of public finance. One of undisputed findings is the relationship between development and increase in competitiveness. However there are no studies showing the relationship between the shape of local government expenditure policy and increase of competitiveness at the local level.

Purpose of the article: The paper is focused on demonstrating the importance of specific groups of public expenditure implemented by local government units for development processes at the local level. The authors try to answer the question whether the implementation of certain local budget expenditure positively impacts the level of local government tax revenue, which determine the ability to provide public services, while creating a boost to the growth of competitiveness.

Methodology/methods: On the basis of international consensus on the impact of individual factors on the competitiveness measured at the regional level, the authors propose the concept of public developmental expenditure and they adjust it to current standards of budget reporting. In turn, the indicator of tax revenue per capita was chosen to measure the achievement of the objectives of development policy at the local level. The study covers all major cities in Poland (poviat-cities). The authors calculate the volume of the developmental expenditure over the reference period in each city covered by the study as well as the average dynamics of tax revenue per capita. Regression analysis constitutes the essential part of the study.

Findings: The observations that had been made, allowed to draw some conclusions regarding both the usefulness of proposed classification of developmental expenditure for the processes of planning, monitoring and evaluation of

development strategies and the importance of developmental expenditure for the growth of competitiveness. The proper allocation of budgetary resources in developmental projects should lead in the long run to the growth of local economy and thus also to increase in local budget revenue.

Introduction

The concept of development is one of the key notions in economics. As a result of development processes there is a shift from the current situation to a better, more desirable one from the point of view of the proper functioning of society and the economy. Both public and private entities participate in shaping of development processes, and specific groups of expenditure (“developmental expenditures”) are very important tool applied by them.

The subject of the analysis is developmental expenditure borne by major Polish cities (the cities with county rights, i.e. poviats-cities). Urban developmental expenditure is primarily infrastructure investment characterised by high capital intensity, a long implementation period and high costs that usually exceed the financial capacity of the annual budget. Another important developmental expenditure group are measures increasing social capital, dedicated to education, health, culture and sport. Undoubtedly, developmental expenditure also contain spending to finance scientific research and implementation work aiming at making use of innovations, but due to the legal nature of the tasks of cities with county rights their significance is limited in practice.

The ability of a territorial unit to build a permanently attractive environment for activity of enterprises as well as work and life of people is defined as territorial competitiveness (Meyer-Stamer, 2008, pp. 219-226; Annoni, Kozovska, 2010, pp. 1-3). New investments of enterprises and of households result in an increase in the tax base. New jobs, especially in high value-added sectors, raise the purchasing power of the population, which in turn stimulates the creation of additional supply. Theoretically, an external manifestation of this process should be an increase of the budget income of cities resulting from certain taxes. It is therefore necessary to examine the occurrence and intensity of the relationships between the value of developmental expenditure and the rate of changes in tax revenue collected by the cities. The results of such a study are important for constructing realistic and measurable goals of local development strategies.

Developmental expenditure and competitiveness – theoretical background

The authors understand public developmental expenditures as the money spent on development policy by central government and local governments (excluding transfers between them), leading to positive socio-economic changes, in particular a rise in productivity and an increase in social and economic cohesion. Adopting the criterion of functionality, the authors divided developmental expenditure aimed at increasing the competitiveness of cities into the following three groups:

- Group I – expenditure generating high value added (knowledge-based economy), which include projects directly contributing to the creation or enhancement of productivity-increasing factors. This group covers expenditure that finances research and development, science and the use of advanced technology both in business and administration (especially digitisation processes).
- Group II – material, human and social capital crucial for development processes – covers financing of technical infrastructure necessary for the functioning of all sectors of the economy and the acquisition of the necessary qualifications by people involved in the processes of the creation of value added. This group includes, in particular, expenditure on the construction, extension and modernization of transport routes, telecommunication infrastructure and other public utility infrastructure, as well as expenditure on higher education and life-long learning meeting the needs of the economy.
- Group III – expenditure covering the social-economic base of development process – covers measures that can be considered a precondition to implement development policy in the long run. These are primarily expenditure on general and vocational forms of primary and secondary education, health care, culture, sports and tourism.

Referring to the concept of territorial competitiveness it is possible to characterise development expenditure as expense aimed at strengthening of so-called competitiveness factors. The competitiveness of a given territorial unit (a city, a region, a state) is increasingly determined by its ability to create an environment conducive to innovation and the knowledge-based economy. Among development expenditure, these classified in group I are of fundamental importance in this respect. The innovativeness of a region can be described as its ability to introduce changes, reforms, innovative solutions in various spheres of socio-economic life and to improve the way of functioning of development mechanisms (Chądzyński, Nowakowska, Przygodzki 2007, p. 144).

Discussing the importance of expenditure belonging to the second group (group II developmental expenditure), reference should be made to the theory of the economic base (North, 1955, pp. 243-255). The development of this base produces multiplier effects, contributing to the development of related areas. Recommendations formulated in the field of development policy point to key development factors, i.e. implementing projects that attract investors, supporting export production and rendering services that can promote technological changes. Today, great importance is also attached to basic infrastructure serving environmental protection. It should be stressed that the existence of the “traditional” negative trade-off between competitiveness and environment protection has long been questioned (Porter, v. der Linde, 1995, pp. 105-113). The literature on the impact of public investment on economic growth was extensively referred to in the 4th Cohesion Report containing an analysis of the importance of promoting public investment in EU cohesion policy, indicating the existence of a broad consensus in this respect (in the recent literature see especially Romp, de Haan, 2007, pp. 8-16).

The third group of developmental expenditure encompasses mainly financing of human capital and social infrastructure. One can refer here to the theory of endogenous growth which puts particular emphasis on the role of human capital as a resource of knowledge (Barro, Sala-i-Martin, 2003, pp. 383-411). The relationship between technological progress, economic growth and the level of human capital is also highlighted (Romer, 1986, pp. 1003). Various studies underline the relationship between education and economic growth (Mallick, Das, Pradhan, 2016, pp. 175-184). An equally important role should be assigned to health infrastructure (Bloom, Canning, Sevilla, 2004, pp. 1-13; Barro, 2013, pp. 327-341).

Analysing the role of developmental expenditure, we also refer to the achievements of territorial competitiveness researchers in determining development factors. The best known initiative reflecting the key consensus on identifying competitiveness factors is the Global Competitiveness Report. In turn, the GCR methodology has been applied to construct the Regional Competitiveness Index (RCI), used by the European Commission to measure regional competitiveness. The purpose of both the GCR and the RCI is to assess the status quo in individual states or regions in terms of previously identified competitiveness factors: the methodology is therefore based on the identification of indicators that enable standard measurement of the intensity of individual factors and then on the construction of a single index aggregating the results of these measurement.

Method of the Research

The aim of the study is to determine the relationship between developmental expenditure borne by cities with county rights and the relative wealth of individual cities, which is measured by the amount of tax revenue per capita. The study covered all self-government units which in the whole period 2005-2015 had the status of cities with county right (66 units). The choice of cities with county rights seems to be justified for the following reasons: firstly, it is a homogeneous group in terms of their tasks and funding system; secondly, with the exception of Silesian voivodship, cities with county rights are relatively scattered territorially; thirdly, analysing all units of a given type removes the difficulty connected with a random sample selection. In order to determine the amount of developmental expenditure we analysed the budget statements of cities with county rights in each year of the period 2005-2015. Since developmental expenditure related to R&D and innovations (i.e. expenditure belonging to the first group – according to our classification) was incurred only by some cities and not in each of the years under the study, the research was limited to developmental expenditure belonging to groups II and III. For each city, the average intensity of developmental expenditure was calculated as the share of developmental expenditure belonging to a given group in total budget expenditure. The amount of tax revenue per capita was chosen as a measure of relative prosperity of cities. This indicator covers basic types of income of local government units, whose size results from the broadly understood economic base of a given government. For each city we calculated the average dynamics of the indicator in the period under consideration assuming the shift over time of tax revenues in relation to the incurred developmental expenditure.

The relationship between the values of the variables discussed above can be expressed in the most general form in the following formula:

$$\Delta Dpc_{(o)} = \alpha (\mathbf{W1}_{(o-n)} + \mathbf{W2}_{(o-n)} + \mathbf{W3}_{(o-n)})$$

where:

ΔDpc – increase in tax revenue per capita in the period o ;

α – the parameter of the impact of developmental expenditure on the change of tax revenues per capita;

$\mathbf{W1}_{(o-n)}$, $\mathbf{W2}_{(o-n)}$, $\mathbf{W3}_{(o-n)}$ – the share of developmental expenditure of the i -th group in total expenditure in the period $o-n$;

n – the assumed time shift of the impact of developmental expenditures;

and

$$\Delta Z = \alpha \mathbf{Z} \alpha \mathbf{B}$$

where:

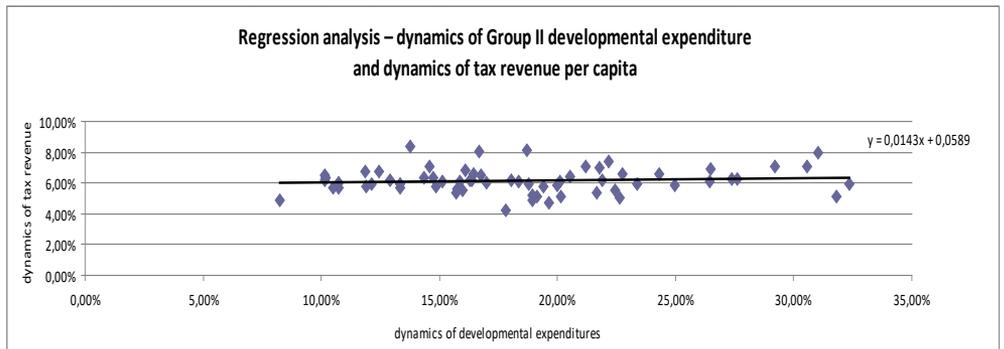
$\alpha \mathbf{Z}$ – increase in the number of tax payers (as a result of incurred development expenditure);

□ *B* – increase in the tax base (as a result of incurred developmental expenditure).

Results

Figure 1 presents the results of a regression analysis that shows the relationship between two variables – the share of developmental expenditure in group II and the dynamics of tax revenue per capita. Its purpose was to demonstrate in a general way the relationship between the averaged share of developmental expenditure of group II in total expenditure and the averaged change in tax revenue per capita for the period 2005-2015 in each of the 66 cities with county rights. Thus, each of the 66 points in Figure 1 reflects the average share of developmental expenditure of group II in the budget (X axis) and the average change in tax revenue per capita (Y axis) in a given city with county rights. The location of the points representing the cities shows that units with a higher average share of group II developmental expenditure in the budget had also a slightly higher average rate of increase in tax revenue per capita.

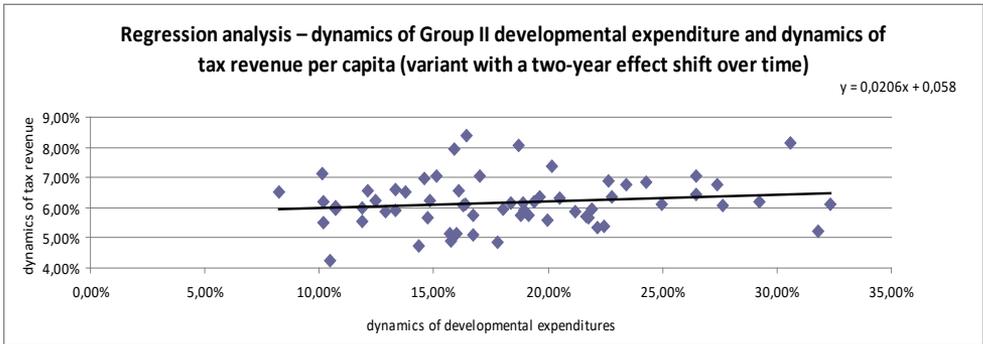
Fig. 1. Regression analysis – group II expenditure and tax revenue pc



Source: own calculation

Figure 2 presents the results of the regression analysis for the variant assuming a two-year shift in the impact of developmental expenditure on the dynamics of tax revenues collected by the examined cities.

Fig. 2. Regression analysis – group II expenditure and tax revenue pc (variant with a two-year effect shift over time)

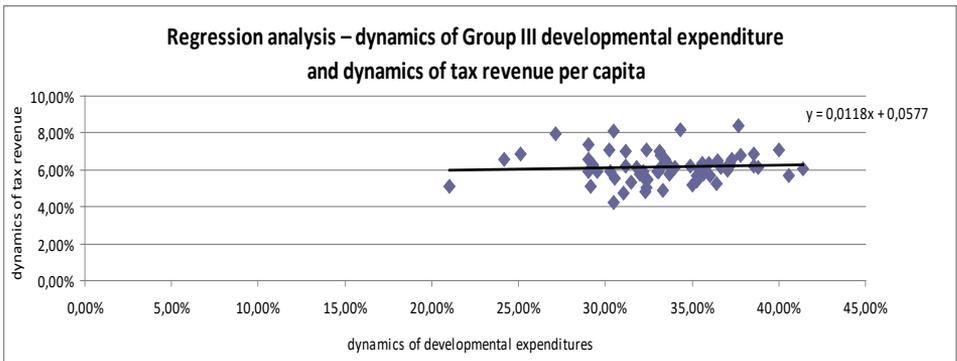


Source: own calculation

The analysis of the relationship based on the comparison of changes in the share of group II expenditure in the budget and tax revenue pc shows a weaker correlation than is the case of the comparison of the data with the assumed shift in tax revenue per capita by 1 or 2 years. In the latter variant, there is a stronger link between the increase in expenditure in group II and the increase in tax revenue pc. These results are a logical consequence of the specifics of investments in technical infrastructure, the financial and economic effects of which appear belatedly in relation to the completed investment process.

Figure 3 presents the results of a regression analysis showing the relationship between the share of group III expenditure in the budget and the dynamics of tax revenue pc.

Fig. 3. Regression analysis – group III expenditure and tax revenue pc



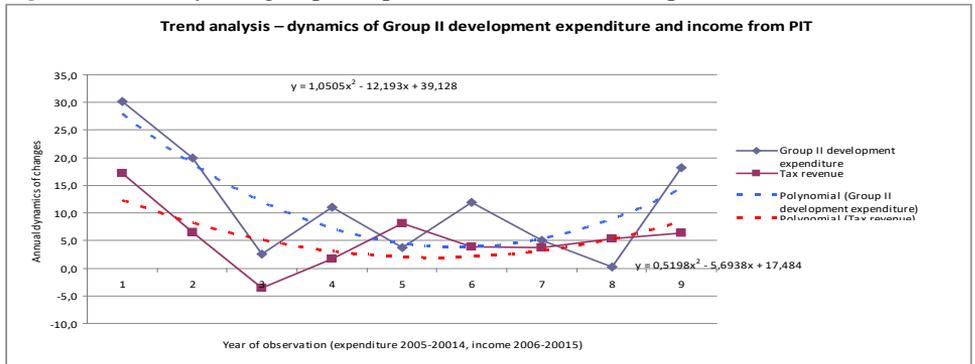
Source: own calculation

The location of the points representing the cities shows that in the governments that had a higher share of group III developmental expenditure averaged for the period 2005-2015, there was also a higher

average rate of increase in tax revenue per capita for the same period. In comparison with the corresponding summary containing group II expenditure, these links are significantly weaker. The results seem to be a logical consequence of the specifics of the social infrastructure investments, whose financial and economic effects appear later than in the case of the technical infrastructure.

In order to confirm the presented relationships resulting from the regression analysis, we analysed the co-occurrence over time of changes in the share of development expenditure of group II (and separately group III) in the budget with tax revenues pc. The lines of the polynomial trend for both these values, i.e. group II expenditure and tax revenue pc, show a high degree of co-occurrence of both analysed variables over time (see Figure 4), which confirms the thesis on the impact of development expenditure on the tax revenue observed with the time shift described earlier. This relationship occurs throughout the analysed period – to some extent independently of the fluctuations in the business cycle – confirming the importance of public developmental expenditure as an instrument of a stabilising function of public finance.

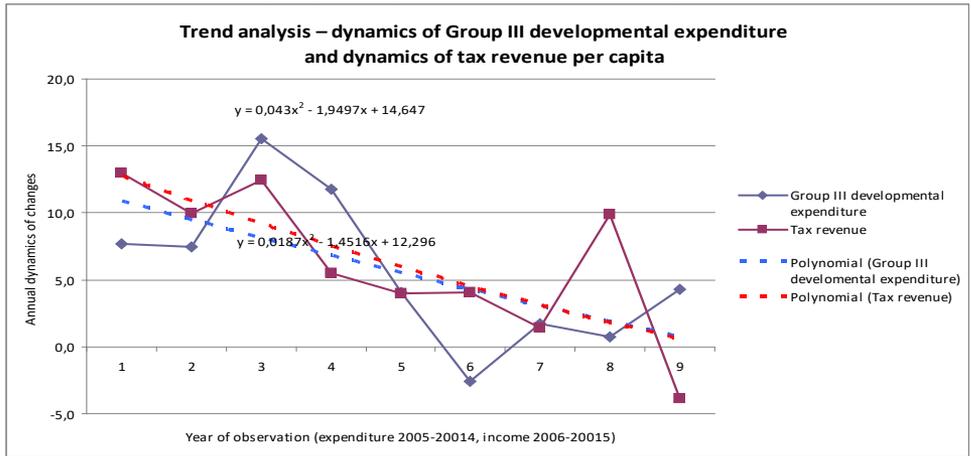
Fig. 4. Trend analysis – group II expenditure and tax revenue pc



Source: own calculation

Analogous conclusions can be drawn from the analysis of relationships of the above values referring to group III expenditure (see Figure 5). Relationships visible in this case have a different form – developmental expenditure of group III show a decreasing trend of changes in the analysed period. A similar trend was noted in changes in the dynamics of tax revenue per capita. One should also emphasize a strong correlation between the analysed variables, which finds its expression in the polynomial equations of the trend line.

Fig. 5. Trend analysis – group III expenditure and tax revenue pc



Source: own calculation

Conclusions

There is a general consensus in the literature on the importance of certain factors for territorial competitiveness understood as the ability of a given territorial unit to offer a permanently attractive environment for activity of enterprises and work and life of citizens. On this basis, various recommendations are made for directions of public intervention aimed at the creation or improvement of business conditions and the development of human capital. Incurring of developmental expenditure on the basis of specific development strategies is one of the essential elements of this intervention. In turn, the local government sector, and above all - local government units - is the largest spender of public developmental expenditure. However, the analyses we carried out, indicate that no measurable economic effects of developmental expenditure intervention can be expected in the short (or medium) run. Although it is possible to distinguish among developmental expenditures those, whose impact on the level of economic activity is revealed earlier than of the others, this does not mean that these expenditures are “more important” from any point of view. The deferred impact of public developmental expenditure points to the need to build development policies on long-term strategies and to the necessity to look for short-term measures of the effectiveness of public fund management.

References

- Annoni P., Kozovska K. (2010), *EU Regional Competitiveness Index. RCI 2010*, European Commission, Luxembourg;
- Barro, R. (2013), Health and Economic Growth; *Annals of Economics and Finance*, 14(2);
- Barro, R., Sala-i-Martin, X. (2003), *Economic Growth*, Cambridge MA, The MIT Press;
- Bloom, D.E., Canning, D., Sevilla, J. (2004), The Effect of Health on Economic Growth: A Production Function Approach, *World Development*, 32(1). DOI: <http://dx.doi.org/10.1016/j.worlddev.2003.07.002>.
- Chądzyński, J., Nowakowska, A., Przygodzki, Z. (2007), *Region i jego rozwój w warunkach globalizacji*, Warsaw, CeDeWu;
- Knack, S., Keefer, Ph. (1995), Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures, *Economics and Politics*, 7(3). DOI: <http://dx.doi.org/10.1111/j.1468-0343.1995.tb00111.x>.
- Mallick, L., Das, P.K., Pradhan, K.Ch. (2016), Impact of educational expenditure on economic growth in major Asian countries: Evidence from econometric analysis, *Theoretical and Applied Economics*, 23(2);
- Meyer-Stamer, J. (2016), Systematic Competitiveness and Local Economic Development. In Sh. Bodhanya (ed.) *Large Scale Systemic Change: Theories, Modelling and Practices*.
- North, D. C. (1955), Location Theory and Regional Economic Growth, *The Journal of Political Economy*, 63(3). DOI: <http://dx.doi.org/10.1086/257668>.
- Porter, M.E., v. der Linde, C. (1995), Toward a New Conception of the Environment-Competitiveness Relationship, *The Journal of Economic Perspectives*, 9(4). DOI: <http://dx.doi.org/10.1257/jep.9.4.97>.
- Rodrik, D. (2007), *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth*, Princeton, Princeton University Press;
- Romer, P.M. (1986), Increasing Returns and Long-Run Growth, *Journal of Political Economy*, 94(5). DOI: <http://dx.doi.org/10.1086/261420>.
- Romp, W., de Haan, J. (2007), Public Capital and Economic Growth: A Critical Survey, *Perspektiven der Wirtschaftspolitik*, 8(S1). DOI: <http://dx.doi.org/10.1111/j.1468-2516.2007.00242.x>.
- Stiglitz, J.E. (1989), Financial Markets and Development, *Oxford Review of Economic Policy*, 5(4). DOI: <http://dx.doi.org/10.1093/oxrep/5.4.55>.