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Public Sector's Influence on Economic Growth and Convergence as a Proof of Development

Sorin GRIGORAS*

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ABSTRACT

Increasing people's standard of living is one of the main goal of every economic system and maybe is the best evidence of the economic growth and development occurrence. Nowadays the economies based on private property, prevails all over the world, however public sector is becoming more and more influential due to the scarcity of public resources, that are not always catching up with the expansion of consumptions to be accomplished by the government. Thus the size of budgetary funds, manner of apportionment and their economic development correlation with, are major interest fields, able to make a difference between countries with similar characteristics and potential. The present article aims to identify the relevance between government expenditure and economic performance, by developed and developing economies, depending on some variables as budget constraints or nature of public expense, and to examine the convergence in terms of speed, time and public sector contribution, in order to outline some realistic future expectations regarding the improvement in the overall economic conditions.

1. Introduction

The issue whether state should or should not be involved in economy has been extensively debated upon by all the generations of economists and other scientists alike and has resulted in a series of utterly distinctly dissimilar theories, starting with the one based upon pure liberalism, in which state plays a rather symbolic part, and culminating with the doctrines of extreme socialism, in which it is the sole owner of capital, as well as the only one able to carry out any economic activity at all. Throughout history, as well as during the succession of different economic and political regimes, mankind has experimented all the economic systems in their own manner of applying all these established theories and also recorded new economic progress that resulted mainly from the level of the social relationships existing among everyone taking part in the economic life, progressing in order to offer the state a more and more important role in contemporary economies, thus becoming capable of playing a crucial role in the welfare of its population, so that people from all walks of life may benefit. This fact is primarily owed to the capacity of redistributing the social product to its members do did not contribute directly to its formation, generated by the need to finance those activities that do not create added value, but that are absolutely indispensable to any normal society. The state is also responsible for the services offered to the population that brings added value to the society, but that cannot be practically insured by the private environment, such as the great projects of infrastructure. Once democracy was implemented, consecrated and developed as a form of political organisation in developed states, but also in developing countries, the public sector was allotted with new prerogatives in the area of managing a social system in full expansion, as evidence of increasing the quality of life, having regard that the limits of the available public funds have become more and more visible and that the need to reform the public system is an issue of major importance, especially in the economies of the developing countries. The financial crises, perceived at different intensities and lengths in almost all contemporary economies, have determined to turn attention to the possibilities of oversizing the prerogatives exercised by the state in economy, with the aim of improving the management of the issues revealed at macroeconomic level, such as the recording of a significant budgetary deficit as compared to Gross Domestic Product (GDP), the GDP exceeded by the public debts, the decrease of labour offers, the decrease of wages and implicitly the population purchasing power, the increase of population aging degree, as well as at microeconomic level, such as the bankruptcy of the enterprises, the foreclosures caused by excessive indebtedness, the bankruptcy of the speculative hedge funds due to the contraction of transactions performed on the financial market. The management of all these drawbacks may be included in the area of "invisible hands", specific to the

* "Dunarea de Jos" University of Galati, Romania. E-mail address: sorin.grigoras@stud.ase.ro (S. Grigoras)

mechanisms of market economy in the sphere of state authorities, because of their privileged position in exercising political power by monopolizing the legislation, taxation and power of constraint. In this context the discussion referring to interventionism is an open one and requires answers to such questions as: what is the best dimension of the public sector? What activities/ tasks should be attributed to the private/ public sector? How elaborate and permissive/ restrictive should the legislative framework be? Does the amplitude of the public sector participation in economy have any impact upon economic development and the differences recorded in different countries?

2. The issue public sector – economic development

In the current economic context, the entirety of the activities performed in the public sector, have, as the main objective, to serve the general interest which, more than often, is in conflict with the purpose of maximizing profit because it finances certain activities that do not comply with the principle of opportunity cost and optimal resource allocation, when justified. The private sector is the one that ensures most of the added value, created as a result of economic activities of which the public sector will also sustain the consumption of resources, in order to reach its specific objectives. Therefore, it is also expected that, between the size of the public sector from one particular country and the degree of economic development of that country, to be an inversely proportional relationship. However, at the level of the entire population, as there are different social categories that form it, there is an optimal dimension of the public sector, different from one country to another, that may maintain a reasonable level of social equity, which based on the resources allotted through the mechanisms that are specific to the state, to have a positive impact on the level of living of most of its citizens. This also adds to the intensity with which the regulation measures affect economic activities as well as social life in such a manner that they may influence the level of development, concepts that are studied by Public Economics.

The presence of the public sector in economy is exercised by means of public administrations, institutions generating goods and services, objectives that were also established depending on the proposed decentralisation degree. Overall, they should first of all ensure the frameworks that are needed for economic development, by encouraging free initiative, labour equity and the activities that are specific to the private sector. Besides, the private sector may find is extremely difficult to guarantee certain services for the population (defence, justice, education and research, infrastructure networks, environmental protection, etc.). The same is valid in case of ensuring a fair process of redistributing incomes among the different categories of population. All these represent other important responsibilities that are the responsibility of the public sector, whose management is directly influenced by the available public funds as well as the efficient capability of allotting them. On the other hand, it is well known that a transfer, over the optimal limit, of the activities pertaining to the public sector, will lead to a precarious fulfilment of the objectives because of the state's reduced ability to administer aggregated activities above a certain level of complexity, case in which, the public-private partnerships will be analysed and, as case may be, adopted and implemented.

Interventionism applied above a certain limit, will more than often exercised though the legislative framework (following the continuous improvement of the systems) using such instruments as:

- Taxation, which may have a different impact, depending on the system of application (lump, unique, progressive, etc. sums);
- public expenses, as allotments, in currency or in kind, necessary to the functioning and materialisation of the social – administrative requirements, indispensable to cohabitation within the society; depending on their function, they may be delimited in general expenses, destined to carrying out current activities, capital expenses, destined to financing investment projects adopted by the public sector, namely in the category of transfers, that have an extremely important role in the process of redistributing wealth. Overall, the public expenses have continuously grown as weight in the macroeconomic indicators of measuring national wealth, in the last decades, in most of the states and this fact was mainly due to capital expenses. Most of the times, these supplementations of public expenses were accompanied by tax boosts, the tax burden having become more and more difficult to bear, its led to decreasing the degree of collecting owed taxes and duties, reason for which, there were contracted foreign funds as loans, thus increasing the debt degree of the public sector, in most of the states.
- managing prices, instrument used with a reduced impact which aims to settle maximal or minimal limits of the prices existing in certain markets, considered of common interest, such as the labour market, the health system, the cereals market, the real estate market, etc.

By means of the instruments mentioned above, the state must act in the name of one of the most important responsibilities, i.e. that of ensuring equity in distributing the social product created from the carrying out of economic activities especially in the context of uneven distribution of the nation income, mainly owed to property rights obtain in time, over the economic goods, but also of other rights such as those of political, social, individual etc. nature, a fact that led to the situation in which economic increase affected a significantly reduced part of the population. However, the intervention possibilities are limited when compared to the established objectives, so that, to the point that the best allotment, in which the amelioration

of an individual's welfare would determine its decrease in another's case, we may talk about an extraordinary distance whose coverage may more than often be impossible to be actually achieved.

3. Relationship between public sector and economic development

This subchapter analyses the dependency (correlation) relationship between the degree of economic development, expressed by the real GDP /inhabitant (exogenous/ independent variable) indicator and the size of the public sector, described by the level of totally allotted governmental expenses (the endogenous/ dependant variable), by constructing a linear, single-factorial econometric pattern, as follows:

$$y = \alpha + \beta * x + \epsilon, \quad (1)$$

where:

y = total government expenses level (dependent variable of regression);

x = real per capita Gross Domestic Product level (independent variable of regression);

α, β = estimated parameters (intercept, coefficient of regression);

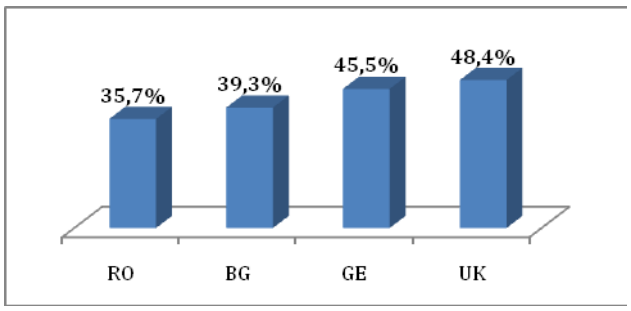
ϵ = residual value.

The analysis was carried out comparatively (data available on the site of the European Union Institute of Statistics – Eurostat, analysed period 2004 – 2013) based on the indicators recorded in four different economies, thus selected:

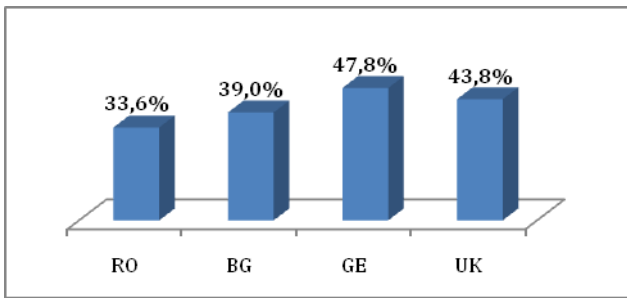
- Romania (RO) and Bulgaria (BG) as developing economies, similar in potential and macroeconomic results, that covered the same road towards European integration;
- Germany (DE) and Great Britain (UK) as powerful developed economies, representative for the friendly business environment, different in terms of size and the intensity of participation of the public sector in economic activity.

As previously pointed out, the dimension and the intensity of the public sector being present in economy, is manifested differently, from one county to another, depending on the vising referring to the governing methodology as well as the economic situation at a certain point in time.

Measured as a weight of the total governmental expenses in the GDP, the public sector has a larger dimension in developed economies as to the developing ones, of 45 – 50% as to 35- 40%, in the case of selected states with some differences between the situation at the beginning of the analysed period (year 2004) and its finishing point (year 2013), because of the restructuring policies applied in the public sector, both at the level of expenses and contracted activities, as well as the level referring to the number of employees and assumed responsibilities, as one may take note in graphic 1 and 2, below, obtained following our own processing of the data available on Eurostat website:



Graph 1 – Share of public expenses within GDP 2013



Graph 2 – Share of public expenses within GDP 2004

One of the drawbacks related to how public funds are spent, observed by taking account of the statistical data, is that of establishing them in terms of the incomes that are available in a specific period of time, a fact that is confirmed by the likelihood of over-unitary elasticity of the public expenses when correlated with the Gross National Product (GNP), a fact that may lead to not complying with the principle of judicious consumption of resources by the adverse financing of certain activities that are considered determining to the detriment of other less important ones.

Following the processing of empirical data, the actual governmental consumption per inhabitant, namely real GDP/ inhabitant, expressed as absolute values, in EUR, using the application Data Analysis in Microsoft Excel, we obtained the following econometric patterns, which may lead to a series of findings, such as:

Table 1 – Econometric models of government consumption and GDP variables

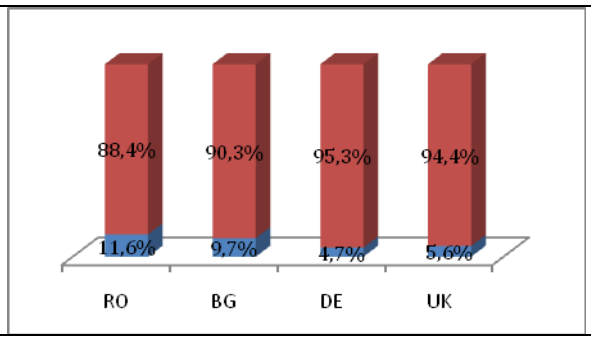
Dependent variable	**Government consumption**				Theoretical value
Independent variable	**GDP**				
Country	**RO**	**BG**	**DE**	**UK**	
Intercept *(t-stat)*	-6.581,99 (-1,0871)	-331,21 (-0,2045)	221.386,21 (1,0329)	532.813,60 (3,3576)	(2,262)
PIB Coefficient *(t-stat)*	0,4359 (8,8258)	0,3906 (8,2884)	0,3746 (4,3435)	0,1917 (2,2454)	(2,262)
R^2	0,9175	0,9075	0,7294	0,4187	
F	77,8945	68,6970	18,8657	5,0417	5,12
Sig. F	0,0000	0,0001	0,0034	0,0596	

When compared to more developed countries, the less developed economies reveal a more powerful governmental consumption/ correlated (is better explained) by the overall economic performances. The resulted correlation coefficient (R^2) GDP influences with than 90% the level of the total expenses of the state, a fact that may turns into a first alarm signal with regard to the need to carry out an overall analysis, meant to detect the opportunity, the relevance, the degree of importance attached to each category of expenses contracted in the public sector. At the other pole, the economies that are more developed are characterised by a more accentuated diversity in so far as GDP influences the governmental consumption, from a relatively high level of 72,94 %, in the case of Germany, to only 41,87 % in the case of Great Britain, a fact that denotes the more prominent manifestation of other influential factors that affect the level of governmental consumption rather the performance of the carried out activity. The utterly obvious difference between the two developed economies, in this respect, may first of all be explained through the vision and conception related to the manner of managing the economic system, regarded through the dimension and importance of the public sector at the level of the two national economies, the differences between the two economic systems are very well known, i.e. the burden of taxation borne by the economic agents from the private environments, social assistance, insurance systems or other forms of social protections, less important in Great Britain, corroborated with a greater level of uneven distribution of the incomes in the Anglo-Saxon society. However, all the analysed economic systems present the characteristics of a direct link between the dimension of the economic results and the allotted public funds (a fact that is evidences by the positive vale of the exogenous variable), the greatest intensity existing in Romania (a variation with 1% of the GDP will involve a variation of 0,19% of governmental consumption, a parameter that is not significantly different from zero, the vale $t_{calc.}<t_{tabel}$). Therefore, one may note the intensity with which the public funds are influenced by the overall economic results is different, in decreasing order as follows: Romania, Bulgaria, Germany and Great Britain, a fact that is also confirmed by how close to zero the Sig. F indicator is, which in the last model exceeds the level of the accepted significance threshold of 0.05 (for a significance threshold of 5%, the value of the correlation report is not significantly different from zero), which, together with the value of 5.04 of the F indicator (inferior to the theoretical value of the pattern conditions, of 5.12) signifies the impossibility of building a significant pattern between the two variables, in case of the British system, owed to the weak correlation between the dimension of the allotted public funds and the obtained economic results, namely of limiting the interventionism of the public power in overall applied economic policies.

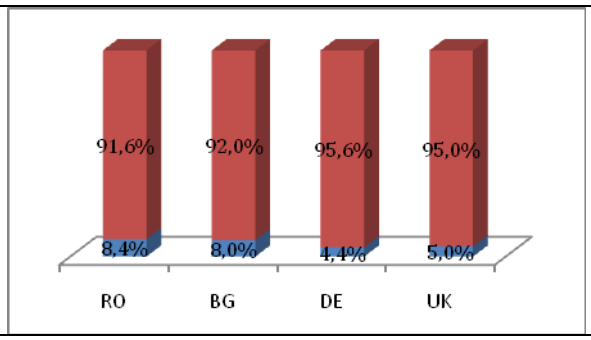
4. Government consumption's influence on economic development

Governmental consumption influences the level of the economic growth indirectly, by its capacity to create a general optimal environment to support the private sector, where economic activities are bring added value in the society, are mainly carried out, as well as directly, by its own contribution to the process of creating value, case in which its influence on economic growth is quantified in a more precise manner. The two means of influence may be measured by separating the nature of the different categories of budgetary expenses, depending on the theoretical impact that they have upon real economy, namely the Gross Fixed Capital Formation (FBCF) pertaining to the consumptions incorporated in fixed capital goods and general public expenses (G) pertaining to current activities related to the functioning and fulfilling objectives of the public sector. The two types of expenses of the public sector are allotted approximately in the same manner both in powerfully developed economies are well in the weakly developed ones, the general expenses occupying the greatest overall area, with weights of approximately 95% in powerfully developed economies and approximately 90% in less developed ones, the latter, with an activity of the public sector that is less focused on investments. At the end of the analysed period (year 2013) as to its beginning (year 2002) we note a change in the dynamics of the structure of the two categories of expenses, in all analysed economies, to the sense that the capital expenses increase, a fact that may be explained by the perspective of the economic crisis covered by this period of time, with budgetary corrections for reducing the current expenses for the operation of the public sector, on the one hand, and the opportunities of contracting investments in this

period, on the other hand, as revealed by 3 and 4 graphics, below, obtained following our own processing the a data available of Eurostat website:



Graph 3 – Current and capital public expenses 2013



Graph 4 – Current and capital public expenses 2002

This subchapter analyses the influence (the dependency relationship) played by the dimension of the public sector, rendered through the level of general governmental expenses (G) and the capital ones (FBCF), (distinct independent variables) in the level of economic growth, expressed by the real GDP increase rate / inhabitant (dependent variable), through the construction of a linear, multifactorial model of the following form:

$$y = \alpha + \beta_1 * x_1 + \beta_2 * x_2 + \epsilon, \quad (2)$$

where:

y = GDP per capita growth rate (%), (dependent variable of regression);

x_1 = share of capital government expenses within GDP (%), (FBCF); (independent variable of regression);

x_2 = share of current government expenses within GDP (%), (G); (independent variable of regression);

α, β_1, β_2 = estimated parameters (intercept and independent variable's coefficients);

ϵ = residual value.

Following the processing of empirical data of the variables (available on the site of the European Union Institute of Statistics – Eurostat, analysed period 2002 – 2013), using the application Data Analysis in Microsoft Excel, we obtained the following econometric patterns and findings, as follows:

Table 2 – Econometric models of economic growth rate, current and capital public expenses variables

Dependent variable	**Economic growth rate**				Theoretical value
Independent variables	**Capital public expenses (FBCF)**				
	Current public expenses (G)				
Country	**RO**	**BG**	**DE**	**UK**	
Intercept *(t-stat)*	0,88 (3,9608)	0,25 (1,0112)	0,38 (1,5599)	0,29 (2,9326)	(2,201)
FBCF Coefficient *(t-stat)*	4,2774 (2,7489)	-0,0634 (-0,0397)	-3,1947 (-0,5909)	-0,3583 (-0,2318)	(2,201)
G Coefficient *(t-stat)*	-2,8687 (-3,6812)	-0,5860 (-0,8144)	-0,6568 (-1,2806)	-0,5901 (-2,0513)	(2,201)
R^2	0,6473	0,0907	0,2243	0,6459	
F	7,3403	0,3990	1,1566	7,2973	(3,98)
Sig. F	0,0155	0,6836	0,3621	0,0157	

Based on the data recorded in Table 2, we may observe the relatively limited and differentiated correlation between the factors subjected to our analysis: the general as well as capital expenses financed from public funds did not influence except to an insignificant extend the economic growth rate from Germany and Bulgaria, a fact that denotes the reduced capacity as well as the limited leverages of the public power to intervene into economic mechanisms, specific to market economies, functional in these both states. In the case of Romania and Great Britain, the parameters (the constants and the coefficients of the independent variables) and the overall econometric model, are significant ($t_{calc}<t_{tabel}$, $F_{calc}<F_{tabel}$), the correlation between the consumptions (general and capital) the public sector and the economic growth rate in explained to a greater extend, of approximately 65% which, in their weight have negatively influenced the recorded economic growth rate, except Romania, where the economic growth rate is also positively influenced by the state's capital expenses, such as, a growth of 1% of the public capital expenses determine an increase of

4,28% of the economic growth rate, a fact that reveals the existence at a macroeconomic level of a private system of investments that is both fragile as well as insufficient for the actual needs of the economy. Except this case, all the other categories of expenses from all the analysed economic systems have a negative influence on the economic growth rate, any increase of the expenses from the public sector generates decreases of the economic growth rate up to 3,2%, which denote the lack of cost-efficiency of the investment projects as well as the inefficacy of the current public expenses, while the implementation of some strategy which would ensure the transition of as many sectors of activity from the public to the private administration, turns into a condition of major importance in the process of economic growth in which the underdeveloped economic systems are more and more pregnant engaged.

5. Convergence of public expenses' analysis

This subchapter focused on measuring the converge degree pertaining to the expenses employed in the public sector, based on testing the influence relationship between the size of the public expenses (the independent variable) from the beginning of the analysed period (initial) and the growth rate of the governmental expenses (the dependent variable). The influence relationship was determined by constructing econometric patterns at the level of each category of public expenses (also detailed in point 4), namely general expenses (G), capital expenses (FBCF), as well as the total level of the engaged public expenses, expressed in nominal values. The constructed econometric model is single factorial, of linear type and has the following form:

$$y = \alpha + \beta * x + \epsilon, \quad (3)$$

where:

y = government expenses growth rate (%), (dependent variable of regression), in EUR;

x = level of government expenses (total, capital, and general, by case) in EUR; (independent variable of regression);

α, β = estimated parameters (intercept and independent variables coefficients);

ϵ = residual value.

The evaluation of the convergence degree is closely connected with the value (positive or negative) of the β coefficient of the independent value (the regression slope) so thus in the context of a relationship of inverse proportionality between the two variables, namely for a level of the initial public expenses that is small, there is an increased growth rate of this indicator. This equals with determining a negative value of the β parameter.

Following the processing of empirical data of the variables (available on the site of the European Union Institute of Statistics – Eurostat, analysed period 2002 – 2013), using the application Data Analysis in Microsoft Excel, we obtained the following econometric patterns (constructed at the level of each category of public expenses, namely general expenses (G), capital expenses (FBCF), as well as at the total level of engaged public expenses) and findings, as follows:

Table 3 – Econometric models of public expenses growth rate, total, current and capital public expenses variables

	Convergence model of government …expenses		
	total…	**capital… (FBCF)**	**general… (G)**
Intercept *(t-stat)*	0,0908 (7,8839)	0,1191 (7,9662)	0.0854 (6,9972)
Regression coefficient *(t-stat)*	$-7,87^{-8}$ (-4,3189)	$-2,06^{-6}$ (-4,2794)	$-1,68^{-7}$ (-3,6756)
R^2	0,9032	0,9015	0.8711
F	18,65	18,31	13,51
Sig. F	0,05	0.05	0,07

Having regard to the data recorded in Table 3, we may observe the negative, yet excessively weak in intensity, correlation existing among the factors under analysis for both types of analysed public expenses, but also for their total. The determined econometric models reveal the low impact manifested by the modification of the level of initial governmental expenses over the growth rate of the governmental expenses during the analysed period (the change with 1% of the amount of the governmental expenses leads to a reverse modification of the growth rate with $2,06^{-6}$ in the case of capital expenses, with $1,68^{-7}$ in case of general expenses, namely with $7,87^{-8}$ at the aggregate level of the two categories).

The econometric patterns that correlated the analysed variables are significant both at the level of the parameters of the regressions as well as in their overall value ($t_{calc.}<t_{tabel,}$ $F_{calc.}<F_{tabel}$), the correlation between consumptions (capital, general and total) of the public sector and their growth rate in the studied period is explained to a great extent, an aspect that has been evidenced by the value that is close to 100% of the R^2 correlation coefficient.

6. Convergence – from expectation to achievement

The research concerns of the contemporary economists have had convergence as a first a foremost important matter, as a result of the manifesting interest for sustainable economic growth and sustainable development. Owing to the close connection between economic growth and convergence, the latter may be analyses in nominal terms when the economic systems align to a series of standard landmarks such as a level of the prices, the inflation rate or the exchange rate, namely in real terms, by means of the macroeconomic indicators determined in statistical objectives, expressed at the real economic value, such as real GDP and GNP.

In fact, if we take account of the different level of development among the economic systems of different nations, we may also note that the principle of instituting convergence is based on the superior growth dynamics, recorded in the economies that less endowed with technology, measured either at the level of aggregating all the influence factors existing between the two economies (absolute convergence), either depending on certain homogenous factors of similar importance, applicable to different national economies (conditioned convergence).

The speciality literature is familiar with a multitude of techniques on how to measure the degree of convergence/divergence experimented by the national economies of different states, of which the most important and used are β convergence and σ convergence. While the second method reflects the diminishing of the disparities among territories within a delimited period of time, by decreasing the dispersion of the analysed phenomenon from one period to another, β convergence illustrates the correct demonstration referring to the predisposition of underdeveloped economies to record growth rates that are superior to the ones in mature economies., convergence, that may be produced towards different developing stages, such as the intensity with which the convergence process is carried out. However, there is a strong relationship between the two models, a whole-to-part relationship, meaning that β convergence is necessary but not enough for the existence of σ convergence.

The analysis of β convergence takes the form of a one-factorial, nonlinear model of the type:

$$\frac{1}{n}\lg\left(\frac{y_{in}}{y_{i0}}\right)=\alpha+\beta\times\lg y_{10}+\varepsilon_{in} \qquad (4)$$

where,
y_{i0} = initial real GDP per capita, in EUR;
y_{in} = real GDP per capita after „n" period, in EUR;
α = intercept
β = coefficient of regression;
ϵ_{in} = residual value,
that explains the dependency relationship between the initial value of a GDP from one country (independent variable) and the economic growth rate recorded in the subsequent period (dependent variable).

For the existence of the convergence process, we need to determine a relationship of inverse proportionality between the two variables, namely for an as high a possible level of initial GDP, we need an as small as possible growth rate of the same factor. This equals with determining a negative value for the parameter β.

Following the processing of empirical data of the variables (available on the site of the European Union Institute of Statistics – Eurostat, analysed period 2000 – 2013), using the application Data Analysis in Microsoft Excel, we obtained the following results:

Table 4 – Econometric model of β convergence

Independent variable	*Real GDP per capita*	*Theoretical value*
Dependent variable	*Average GDP growth rate*	
Intercept *(t-stat)*	0,16 (24,12)	(3.128)
GDP coefficient *(t-stat)*	-0,015 (-21,12)	(3.128)
R^2	0,9978	
F	446,1063	10,13
Sig. F	0,0301	

Based on the obtained results, shown in Table 4, we may observe a slow process of economic convergence existing between the analysed states and evidenced by the negative value of the GDP coefficient referring to the resulted model $(1/13)*\lg(y_{i13}/y_{i0)} = 0,16 - 0,015*\lg(y_{i0})$, which translates into a medium reduction of the differences among the GDPs recorded by developed as well as developing countries of approximately 0,015% at each initial GDP growth of 1%. The value of the determination R^2 coefficient, which is very close to 1, reveals the fact that the model is well chosen because there is a strong link between the

dependent and independent variables. The parameters of the model are significant because they overtake the theoretical value and the overall model in significant ($F_{calc.} > F_{tabel}$).

Considering that there is an extremely low rhythm of installing economic convergence among the analysed states, both developing as well as developed ones, a general concern is given by the period that needs to be scrutinised in order to eliminate in a reasonable manner the development setbacks between the two categories of states, namely to adopt those measures means to reduce this period as long as possible and to increase efficiency and competition at the same time. In order to estimate a certain amount of time, realistically and reliability, needed in order to reach convergence among developed and developing state, starting from the premise that, in standard conditions, the latter „step up" and record more significant growth rhythms when they are at the onset of the development process; it is well known that mature economies find it more difficult to record increases to previous periods, so that we intend to measure the period of time in which, given the initial conditions of unevenness which the GDP from developed economies overtakes significantly its level from the less developed economies, corroborate with the existence of the superior growth rhythms recorded in less developed economies when compared to the developed ones. The mathematical expression that calculates the convergence terms takes the form of the following equation:

$$y_0 \times \bar{I}_y^n = Y_0 \times \bar{I}_y^n \quad (5)$$

where:

y_0 = initial GDP from the less developed economies;

Y_0 = initial GDP from developed economies;

$\bar{I}$ = average economic growth index.

Modelling the expression (5) using geometric mean method and logarithm technique, it is obtained calculation formula of time length in order to reach absolute convergence:

$$n = \frac{\lg Y - \lg_y}{\lg \bar{I}_y^n - \lg \bar{I}_{y'}^n} \quad (6)$$

Following the application of the expression (6) there have been estimated the following time lengths that are needed in order to reach convergence:

Table 5 – Time length and growth rates required to reach convergence

Country	Real GDP per capita 2000 (EUR)	Real GDP per capita 2013 (EUR)	Average GDP growth rate (%)	Required period in order to reach convergence (years)		GDP growth rate in order to reach convergence in... (%):			
						...15 years		...25 years	
				DE	UK	DE	UK	DE	UK
RO	3.700	6.700	4,78	44	40	12,3	11,49	7,65	7,17
BG	3.000	5.200	4,38	57	53	14,22	13,39	8,75	8,26
DE	28.700	32.700	1,04						
UK	26.000	29.500	1,00						

As one may note, the results expressed in Table 5 are very discouraging in the hope of reaching any level of high convergence between the two categories of economies that have been analysed. In the current social – economic, political as well as strategic conditions as well as in maintaining the level of scientific progress and innovation, the weakly developed economies need a period of at least 40 years in order to obtain performances that are similar to those recorded by powerfully developed economies. A more interesting analysis could be represented by the assessment of the conditions in which absolute convergence could be achieved in a relatively closer period of time, of approximately 15 – 25 years. In these conditions, the less developed economies should record economic growth rates between 7 – 9% in order to reach convergence in approximately 25 years, namely rates of 11 – 15% necessary to ensure total convergence in approximately 15 years, provided that the developed economies maintain a growth rate of fewer than 5% (caeteris paribus). Obviously, the period established by taking into account all these methods, shown in table 5, have a purely theoretical character and are of use if we want to observe the overall picture of the economic situation and the development degree of the analysed economies. The main tracked objective, of reducing the development differences existing between the different economic systems, called for the adoption of those measures that are means to minimise the period of time needed for convergence, which in order to have an impact and to be able to respond to all expectations, needs to bring certain improvements oriented towards positive economic growth, by modelling influential factors, exercised in the field of taking decisions at local and central levels, such as: removal of the public sectors that are not efficient enough and making them more efficient by moving them into the private sector, encouraging the development of the private sector, focused on increasing investments, local as well as foreign, on the long term, ensuring an equilibrium between the efficacy of each sector of economic activity, encouraging those operational processes that created value, ensuring the legal framework is complied with alongside with the conditions of loyal competitions by all the participants in the economic activity.

7. Conclusions

Comparative evaluation, carried out on the developed economies, on the one hand, and the emergent ones, on the other, of the interdependence between the public sector in economy and the development of that particular economy, by measuring the level of convergence existing between the two categories of economies, denotes the different character, from one country to another, no natter the economic topology it represents, between the dimensions and the intensity of the public sector from an economy and its level of development.

Between the level of economic development and the dimension of allotted public funds, these is a directly proportional relationship, of unitary elasticity, in all the economies subjected to analysis, the emergent economies being characterised by a strong correlation between the two variables, as to the developed economies. From this point of view, the emergent economies are more sensitive to contracting expenses in the public sector, more depending upon the resources that are available at a certain point in time and less oriented towards the opportunity, the relevance and the importance degree that is attached. Interventionism, manifested by the regulation degree of the legislation in force, is exercised less in Anglo-Saxon economies as to those from Eastern or Continental Europe, an aspect that also results from the reduced correlation between the allotted public funds and the level of the obtained economic performances also expressed by the GDP indicator.

In order to test the correlation between the public sector and the process of economic growth, the public expenses may be decomposed analytically, depending on their separate functions, in capital and general expenses, the latter being predominant in all the economies systems, the developing countries manifesting a larger structure of capital expenses, when compared to more developed ones. In our country, the public capital expenses have positively influenced the rate of GDP growth, generating a growth of 4,28% at each 1% intervention of the public investments, while the general expenses and the GDP growth rate display an inversely proportional correlation, namely for each 1% growth of the general public expenses, there a decrease in the GDP growth rate with 2,8%. The other analysed economies, both categories of expenses are negatively correlated with the GDP growth rate, which confirms on the one hand, the inverse connection between interventionism and the level of economic development, while on the other, the lack of cost-efficiency displayed by the public investments and economy of allotting current expenses to the public sector. With regard to testing the convergence process existing in the analysed economies, we note that it is achieved, a fact that is confirmed by the negative sign of the independent variable coefficient of the determined econometric model, yet at an extremely low pace, equalling a reduction of the development disparities with an average of 0,015% for each initial GDP growth of 1%. This equals with a similarity of economic performances achieved between the two economies over a period of 40 – 60 years, while a decrease to 15 or 25 years would involve the recording of a rate of economic growth between 11-15% annually for the first term , namely 7-9% for the latter, a fact that is impossible to achieve in the current social-economic, political, progress, scientific, innovation and strategies conditions, which allowed an annual growth rate, calculated at the level of the last 13 year, of approximately 4,4 – 4,8%.

Reducing the disparities and achieving convergence involves measures that are adopted by the competent decision-making factor, meant to act towards: the removal of the public sectors that are not efficient and making them more efficient by moving them in the private sector, encouraging development of the private sector, focused on increasing investments, local and foreign, on the long run, ensuring an equilibrium between the efficacy of each sector of economic activity, encouraging those operational processes that created value, ensuring that the legal framework is complied with alongside with the conditions of loyal competitions by all the participants in the economic activity.

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