CURRENT STAGE AND PERSPECTIVES FOR THE ADVANCING DEVELOPMENT OF THE DANUBE REGION - FACTORS OF GROWTH

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Abstract: The economic development of Bulgaria characterizes with regional misbalances. As a result, it found different usage of factors of growth and conditions for business in different regions of Bulgaria. It causes lower productivity, different level of incomes, of public serves, quality of life and welfare in different points of the country. The increasing well – being is the aim of every economic policy.

The basic of theory for economic development is the research of Solow. According his theory, main factors for economic growth are: capital(K), labour force (L) and technology. Nowadays one of main factor is innovation. Solow calculates 1/3 to 1/2 of economic growth depends on the technology.

The Danube region includes 11 districts in the North Bulgaria. They are a part of 3 economic regions. These districts are lower developed; some of them are poorest regions in EU. GDP of Danube region is 16,09% of GDP of Bulgaria. The average income per capita in the region is 9249.70 lv by 14280 lv average for the country in 2017.

It requirest research in details the factors of economic development in Danube region. It will permit to be realized advancing economic growth in the region compere with average in the country. For the countries on the Balkans is typical the growth to depends on consumption. It is different compare with developed country. By the creation of mathematical model, it researched the impact of growth factors in the region in short and long term. It will define the factors influence on the growth and in perspective to be realized advancing development of Danube region.

Keywords: economic growth, factors of economic growth, regional development

INTRODUCTION

The economic development of Bulgaria's characterizes by strong regional misbalances. As a result, it found different usage of the factors of growth and the conditions of business. It causes lower productivity, different level of income, of public services, quality of life and, as a result, welfare indifferent point of the country. The increasing well- being is main goal of every economic policy.

As known, the Economic growth defines an increase in Gross Domestic Product produced in a country for one year and it will allow better to meet the needs of its citizens. According to its economic characteristics, economic growth can be extensive or intensive. The current conditions of globalization of the economy, the limitations of markets, capital and labor force require the search ways of realizing intensive type of economic growth.

The foundations of modern theory of economic growth are introduced by Robert Solow. According to him, three main factors of growth are capital (K), labor (L) and technology. He emphasizes, in the current context, technical progress and innovations are key factors for growth. Solow estimates that between 1/3 and 1/2 of economic growth is due to technology.

The Danube region in Bulgaria includes 11 Bulgarian administrative units (NUTS level 3) as part of 3 planning regions (NUTS level 2) - the districts of Vidin, Vratsa, Montana, Lovech, Pleven, as part of the Northwest planning region; districts VelikoTurnovo, Gabrovo, Ruse, Razgrad,Silistra as part of the North Central Region; Dobrich District, belonging to the North-East Planning Region. Vidin, Vraza and Montana are the slowest-growing administrative units and the poorest regions, both nationally and within the EU. The region covers almost half of the country's territory. But GDP produced in the Danube region in 2017 represents 16.09% of the country's GDP. The average GDP per capita for 2017 is BGN 9249.70, compared to the national average of BGN 14280, which is 64.77%.

Table 1: GDP for the Danube Region for 2017

Administrative unit	GDP mln BGN	GDP per capita BGN
Vidin	640	7 283
Vraza	1 953	11 684
Lovech	1 128	8 804
Montana	1 155	8 659
Pleven	1 941	7 884

VelikoTarnovo	2 227	9 254
Gabrovo	1 376	12 363
Razgrad	1 029	8 985
Ruse	2 480	11 152
Silistra	744	6 687
Dobrich	1 582	8 925
Total for Danube region	16255	9249.70

Sources: National statistic and own calculation

It requires researching in-depth and in details factors of the economic growth in the Danube region and to achieve faster pace in the coming years compared to the national average.

Regional economic policy is defined as a complex policy including economic, legislative, administrative activities of state and local governments. It aims to accelerate regional economic growth and overcome the differences in regional economic development in the country. It will deliver more welfare of the population. According to various authors, regional economic development can be seen as a product and a process. The difference in the individual author's interpretations is based on the perception of regional development as a product of the economic development of the country and as result the investments, number of jobs, working conditions, living standards and population welfare are increased. By regional economic development as a process, investments improve the potential of the workforce, the infrastructure - transport, energy, digital – provides the conditions for the development of market relations in order to increase the product delivered and make better living conditions and well-being of citizens.

Regional differences comes from historically shaped differences in social processes (social, economic, managerial) in individual regions. In this way, imbalances are observed in GDP per capita, distribution of investments, the age and educational structure of the population, the level of employment (unemployment), income per capita. For this reason, the main objective of regional economic policy is to overcome the imbalances and ensure advancing development in order to make equally good living conditions in all parts of the country.

The main objective of regional economic policy in Bulgaria is achieving high economic growth. The Danube region has a GDP per capita lower than the national average. It requires advancing development, higher than the national average to reduce and eliminate imbalances in the future compared to other areas in the country. Achieving this goal can be realized by utilizing the region's existing human, natural and institutional resources, as well as the region's comparative advantages over others (by Samuelson).

1. MODEL

It creates model with the factors of economic growth according Solow.

The baseline model is following:

$$GDP = \beta_0 + \beta_1 x_1 + \beta_2 x_{21} + \beta_3 x_{22} + e_{i,t} \tag{1}$$

Where

GDP – Gross Domestic Product annually for the region

x_1 – direct foreign investment annually for the region

x_{21} - population annually in the region

x_{22} – citizens graduated less primary school annually for the region

Due to the lack of date for whole period, it is tested separately following equation:

$$GDP = \beta_0 + \beta_1 x_{23} \tag{2}$$

Where

x_{23} – average income per capita in the region

The research investigates Danube region in Bulgaria for the period 2000-2017.

2. LIMITATIONS OF THE RESEARCH

- Because the different way to be made the data by National statistic – with or not accumulation, monthly, quarterly or annually, chronologically presented – the different variables are recalculated to be mathematically compatible;
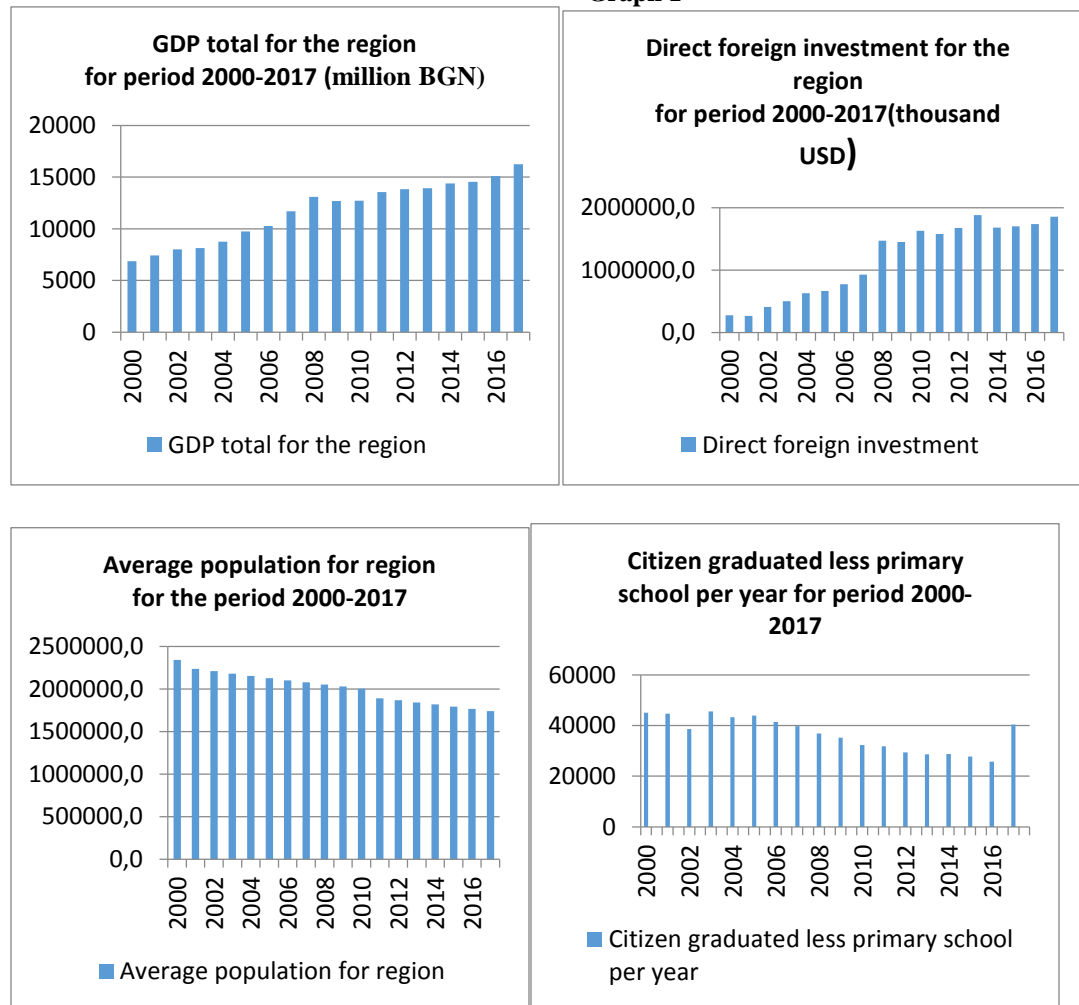- The research recognizesas the primary factors capital and labour force.

- Foreign direct investment delivers to the economy more innovative technology and techniques, new approach to educate and management of human resources.
- From the population depends on disposal labour force in the region. Unfortunately, the part of population in the region migrates to main sites of the region and to abroad.
- It is very difficult to distinguish the impact of factors' variables on the changes of GDP or such are the result from automatic adjustment and due to it, the research suggests as a reason for changes only the influence of independent variables.

3. VARIABLES

- GDP annually in current prices. It used current prices, because in this case it possible to account different stage of economic cycle.
- GDP is measured by final expenditure.
- Foreign direct investments in USD.
- Population - it takes only potential labor forces – age from 15-64 years.
- Because the education is primary factor for higher productivity of labour force, it taken only educated citizens with less graduated primary school.
- Average income from per capita in BGN for the region.

4. DATA ANALYZE

Graph 1

GDP total for the region for period 2000-2017 (million BGN)

Direct foreign investment for the region for period 2000-2017(thousand USD)

Average population for region for the period 2000-2017

Citizen graduated less primary school per year for period 2000-2017

5. RESULTS

By the testing of model it calculated following results

Table 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,988[a]	,975	,970	509,31725

a. Predictors: (Constant), HRSE, Population, Investments

On Tab. 2. Model Summary is given the coefficient of determination of the multifactorial regression model. As expected, the coefficient is $R^2 = 0,975$, which means almost a functional link. Also, the coefficient is statistically significant (Table 3, Sig. $< \alpha = 0,10$).

In the Table 3. Coefficients - are defined the standardized coefficients for the multifactor regression model for each factor of economic growth.

Table3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	19817,749	4639,773		4,271	,001		
	Investments	,003	,001	**,684**	5,268	,000	,105	9,549
	Population	-,007	,002	**-,440**	-3,680	,002	,124	8,092
	HRSE	,063	,034	**,144**	1,817	,091	,280	3,567

a. Dependent Variable: GDP

The statistical analysis shows the coefficient of determination for direct foreign investments is significant. The economic analysis notes strongest impact of investments in the region on the aggregate supply measured with GDP. The investments have two effects: direct-increasing the aggregate demand and there for aggregate supply for current year and indirect - additional multiple effects on the aggregate demand and the GDP in next several years. The capital expenditure, because long duration of each stage of their turnover, retains the impact on the aggregate demand and therefore on the GDP for long period of time.The impact in the current year is stronger, indicating these costs immediately produce a high demand for goods and services. As known from the theory, as a result - income increases and employment reduces not only in sectors, where the capital spending made, but in others. It leads to an increase of aggregate demand, not only through investment (I), but also indirectly through the consumer spending (C).The correlation coefficient, calculated for the region is very strong and probably shows foreign direct investments add to GDP because better management, nowadays technology and techniques. Higher income paid in foreign companies adds to multiply effect of these investments through consumption.

The statistical analysis shows the coefficient of determination for the population is magnitude. The correlation coefficient is negative, but with very significant value – 0.440. The economic growth in Danube region is delayed due to decreasing of population in the region.On this base, the economic analysis confirms external and internal migration influence negatively on the economic growth. It is a reason for lack of enough human resources. Reducing population is the reason for realization of GDP under potential for the region.

By the statistical analysis is found the coefficient of determination for educated citizen is lower compared with other research factors.But nowadays industries required very good educated people in the modern industries. It will increase disposal incomes and welfare and ensure good well – being in the region. From other site for Bulgaria more significant impact on the aggregate demand and therefore on the GDP has the consumer spending. The earned income transforms into consumer spending in a short period of time and without time lag increases the aggregate demand. The impact of income received in Bulgaria, loses in a very short period of time and reaffirms very short time horizon of economic agents.

Table 4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,958[a]	,918	**,908**	338,372

a. Predictors: (Constant), X23

Table 5

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7407,659	705,088		10,506	,000
	X23	1,921	,203	**,958**	9,473	,000

a. Dependent Variable: GDP

The testing of equation (2) shows the coefficient is strongly significant. By the economic analyze it found the correlation coefficient for average income per capita is strongest than for other factors of growth. The income and it sustainable increasing is main factor for economic growth. It confirm the conclusion of same author in other own research, the consumption is important factor to be increased aggregate demand. The income stimulates aggregate demands through consumption, public spending and import. They are the part of GDP by final expenditure.

CONCLUSION

The economic development of Bulgaria's characterizes by strong regional imbalances. As a result, it found different usage of the factors of growth and the conditions of business. It causes lower productivity, different level of income, of public services, quality of life and, as a result, welfarein different point of the country. The well - being is main goal of every economic policy.

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It creates model with the factors of economic growth according Solow.According to him, three main factors of growth are capital (K), labor (L) and technology. The economic analysis notes strongest impact of investments in the region on the aggregate supply measured with GDP The investment have two effects: direct- increasing the aggregate demand and there for aggregate supply for current year and indirect - additional multiple effects on the aggregate demand and the GDP.The statistical analysis shows the coefficient of determination for the population is more magnitude. . The correlation coefficient is negative, but with very significant value – 0.440. The economic growth in Danube region is delayed due to decreasing of population in the region.The economic analyze confirms external and internal migration influence negatively on the economic growth.The coefficient of determination for educated citizen is lower compared with other research factors.But nowadays industries required very good educated people in the modern industries. It will increase disposal incomes – main factor for sustainable growth - and welfare and ensure good well – being in the region.

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