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**MEASURING THE EFFECT OF EUROPEAN FUNDS
ON BULGARIAN ENTERPRISES (2007-2013)**

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***Abstract:** The First Programming Period, which grants access to European funds for the Bulgarian enterprises has ended. Therefore, there is a need of assessment of the effect these funds have created for Bulgarian enterprises. Within the research paper relevant measuring indicators will be proposed and therefore examined in real Bulgarian small, medium-sized and large enterprises operating in different sectors of the economy. The results of the concluded research methods will be then analyzed which will lead to relevant conclusions and recommendations.*

***Keywords:** EU funds, Bulgaria, positive and negative effects, indicators*

1. Introduction

The main Programme financing the Bulgarian business by granting funds during the last seven years (2007-2013) is Operational Programme “Development of the competitiveness of the Bulgarian economy” (OP Competitiveness). That programme contains a substantial part of the funds received by the country in its first Programming period as a Member State. Therefore one of the most important tasks at the end of its implementation is to be applied a suitable analysis on micro level for effective measurement of the impact the Programme has on Bulgarian micro, small, medium and large enterprises. Such an analysis should be representative and include information about key financial indicators of Bulgarian companies before and after the implementation of their projects as well as analysis of the companies regarding structure, sectors and achieved microeconomic indicators. Results from that analysis should be then compared with results measured on macroeconomic level. Measuring the effect of the European funds on Bulgarian business for the last seven years will demonstrate if expectations for economic growth, modernization, increase in employment rate and new foreign markets companies are met.

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2. Object, Subject, Purpose and Tasks of the Study

2.1. Object of the study

Object of the study is the First Programming period (2007-2013) for Bulgaria as a Member State of the European Union and the effect of the granted European funds on Bulgarian enterprises.

2.2. Subject of the study

Subject of the study is research on existing models related to assessment of EU funds absorption and conduction of analysis on microeconomic level (company level) regarding the effect of EU funds.

2.3. Purpose of the study

Purpose of the study is to compare results from existing analysis related to the effect of EU funds absorption for the Bulgarian economy on macroeconomic level and results of that effect on company level.

2.4. Tasks of the study

- To examine existing models designed to measure the effect of EU funds and results from their application;
- To conduct a quantitative analysis based on key financial and non-financial indicators compared for the year before the implementation of the grant project by the company and the year following the implementation of the grant project;
- To conduct a qualitative analysis based on the assessment of the companies (beneficiaries) for the effect of the received grants on their businesses;
- To compare the results received from existing models, results based on financial and non-financial indicators and results based on beneficiaries self-assessment.

3. Existing Models for Measuring the Effect of EU Funds on Macroeconomic Level

Forecasts for the future development of the Bulgarian business regarding EU funds are inevitably related to the evaluation of the impact of these funds during the finishing Programming period.

There are many studies in the research circles related to processes which can be observed in the context of European integration as well as indicators for measurement of those processes. Some authors examine the macroeconomic aspects of Bulgarian integration into the EU and other authors examine different indicators of industrial dynamics in the condition of European integration. In addition, there are many studies using clusterization of Member States by application of different indicators related to their

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economic development as well as elaboration of different scenarios for their development during the next seven years.

Currently, the only model studying the direct impact of EU funds on the Bulgarian economy is the Simulation (model) of Bulgaria's Investment in Long-term Advance (SIBILA) (Tsvetkov, S., Vasilev D., Ganey K., Simeonova-Ganeva R., Chobanov P. Simulation (model) of Bulgaria's Investment in Long-term Advance <http://www.eufunds.bg/bg/page/872>).

That model is based on the perceived by the European Commission and Member States approaches in modelling the impact of Structure Instruments (SI) as well as contemporary macroeconomic theory with components which are entirely adapted to the specifics of Bulgarian economy. That model allows evaluation of the net effects of single operational programme (or combination of programmes) as well as single priority/procedure (or combination of priorities/procedures). That is the only existing model which can be used as a guide during the decisionmaking for the next programming period.

Last measurements based on the method indicate the following important results and forecasts for the end of the current Programming period:

- In case of full absorption of EU funds the real GDP in 2015 will be 9.3% higher than if there were no EU funds for the last seven years.
- Despite of the decrease in the European and Bulgarian economy, the absorption of EU funds will lead to significantly higher levels of real GDP in the mid-term.

Regarding the measured net effects of the absorbed EU funds the model provides the following results:

Assessed net effect from the absorption of EU funds so far is:

2011 – 1.5%

2012 – 2.9%

The conclusion is that European Structural Funds are vital for the growth in the Bulgarian economy during 2011 and 2012. If there were no EU funds, the growth levels of the Bulgarian economy would be close to zero. There have been also indicated positive relations between EU funds, employments rate and incomes.

The abovementioned sources of information as well as the existing empiric data arise the necessity of more detailed analysis on microeconomic level (company level) where those findings can be confirmed or questioned.

4. Quantitative Analysis Based on Key Financial and Non-financial Indicators Compared for the Year before the Implementation of the Grant Project by the Company and the Year Following the Implementation of the Grant Project

4.1. Methodology of the analysis

The performed quantitative study is a complex analysis of financial and non-financial indicators for each company with completed project before and after its implementation. 272 companies with completed projects have been examined among 620

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companies with completed projects till 31.12.2013 under the main Priority Axes 1 and 2 of OP Competitiveness. All the data for the analysis have been taken from official public sources. The examined companies represent nearly 44% of all completed projects under OP Competitiveness for the period 2007-2013. Table 1 shows the analyzed companies by procedures and granting schemes.

Table 1: Number of analyzed companies by procedures and granting schemes

	Name of procedure	№ of procedure:	Priority axis №:	№ of completed projects	Number of analyzed projects	Percentage of the analyzed projects
1	Support for the establishment and development of innovative enterprises	BG161PO003-1.1.01	1	21	11	52.38%
2	Support for implementation in the production of innovative products, processes and services	BG161PO003-1.1.02	1	2	2	100.00%
3	Technological modernization in enterprises	BG161PO003-2.1.01	2	46	31	67.39%
4	Compliance with internationally recognized standards	BG161PO003-2.1.02	2	129	65	50.39%
5	Compliance with internationally recognized standards	BG161PO003-2.1.03	2	114	55	48.25%
6	Technological modernization in small and medium enterprises	BG161PO003-2.1.04	2	112	56	50.00%
7	Technological modernization in large enterprises	BG161PO003-2.1.05	2	33	15	45.45%
8	Technological modernization in small and medium enterprises	BG161PO003-2.1.06	2	145	35	24.14%
9	Technological modernization in large enterprises	BG161PO003-2.1.07	2	18	3	16.67%

Source: Information system of monitoring and management of funds granted by the Operational Programme

The analyzed information was extracted from different public sources – profit and loss accounts and balance sheets of each company for the different years taken from the official public trade register in Bulgaria, information about the implementation of the projects taken from the official public Information system for monitoring and management of projects realized by EU funds. The following **financial indicators** have been extracted and analyzed in the frames of the study:

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- Net sales incomes for the year before and the year after the project (in thous. of BGN);
- Net revenue for the year before and the year after the project (in thous. of BGN);
- Operational expenditures for the year before and the year after the project (in thous. of BGN);
- Operational incomes for the year before and the year after the project (in thous. of BGN);
- Amortization for the year before and the year after the project (in thous. of BGN);
- Total assets for the year before and the year after the project (in thous. of BGN);
- Equity for the year before and the year after the project (in thous. of BGN).

The following **non-financial** indicators have been extracted and analyzed in the frames of the study:

- Employed people in the enterprise before and the year after the project (in thous. of BGN);
- Economic sectors in which beneficiaries are operating.

4.2. Results of the Analysis

4.2.1. Employment Rates

Table 2 shows that the total number of job placements in the examined enterprises have decreased after the implementation of grant projects. The reasons for that decrease can be searched in the financial and economic crisis which has emerged during the years of implementation of the projects on one hand. On the other hand, reason can be found in the fact that under the schemes related to technological modernization companies are purchasing innovative and modern equipment and technology which replaces old production lines. As the new machines are highly automatized, some job positions might be closed.

Table 2: Employment rates in Bulgarian enterprises before and after the implementation of their projects

Nº	Name of procedure	Nº of procedure:	Employed people before the implementation of the project	Employed people after the implementation of the project	Variation (number)
1	Support for the establishment and development of innovative enterprises	BG161PO003 -1.1.01	45	50	5
2	Support for implementation in the production of innovative products, processes and services	BG161PO003 -1.1.02	1303	1385	82
3	Technological modernization in enterprises	BG161PO003 -2.1.01	2216	2285	69

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4	Compliance with internationally recognized standards	BG161PO003 -2.1.02	7122	5686	-1436
5	Compliance with internationally recognized standards	BG161PO003 -2.1.03	6469	6052	-417
6	Technological modernization in small and medium enterprises	BG161PO003 -2.1.04	4242	4016	-226
7	Technological modernization in large enterprises	BG161PO003 -2.1.05	8263	7872	-391
8	Technological modernization in small and medium enterprises	BG161PO003 -2.1.06	1614	1890	276
9	Technological modernization in large enterprises	BG161PO003 -2.1.07	878	1151	273
Total			32 152	30 387	-1 765

Source: Information system of monitoring and management of funds granted by the Operational Programme, Official Trade Register, APIS

Serious problem related to the measurement of the effect of the employment rate before and after the implementation of the projects is that the Managing Authority of OP Competitiveness (Ministry of Economy and Energy) require only labour contracts for new opened positions as proof for opened vacancies under the project but that is not enough and is often precondition for terminating the labour contract of an employee under one position and hiring the same person with new labour contract under different position.

4.2.2. Gross and net added value

For the purposes of the analysis the gross added value is calculated as a difference between operational incomes and costs (EBITD) and the net added value is EBITD before amortizations (EBITDA). The results are presented in Table 3.

Analysis shows that for some of the procedures there is no positive effect on the gross and net added value. Despite of that fact the overall effect from the Programme is positive as it has contributed for increase of the net added value with 11.48%. It could be observed that the procedures with negative effect regarding EBITDA are also the procedures where there is highest decrease in employment rates which is logical as when revenues are going down, job positions are being closed. In addition, it could be implied that the negative effect of the economic crisis has been stronger than the positive effect of the grant.

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Table 3: Gross and net added value of the completed projects under OP Competitiveness

Procedure	EBITD before grant project (thous. BGN)	EBITD after grant project (thous. BGN)	Change of EBITD in absolute value (thous. BGN)	Change of EBITD %	EBITDA before grant project (thous. BGN)	EBITDA after grant project (thous. BGN)	Change of EBITDA in absolute value (thous. BGN)	Change of EBITDA %
BG161PO003-1.1.01	27	473	446	1652%	30	978	948	3160%
BG161PO003-1.1.02	5 343	7 053	1 710	32%	16 971	15 758	-1 213	-7%
BG161PO003-2.1.01	25 572	15 271	-10 301	-40%	34 676	25 915	-8 761	-25%
BG161PO003-2.1.02	38 476	15 766	-22 710	-59%	57 529	33 906	-23 623	-41%
BG161PO003-2.1.03	30 527	32 364	1 837	6%	45 796	53 381	7 585	17%
BG161PO003-2.1.04	27 642	16 930	-10 712	-39%	41 342	37 388	-3 954	-10%
BG161PO003-2.1.05	13 359	40 477	27 118	203%	57 584	107 540	49 956	87%
BG161PO003-2.1.06	10 546	12 544	1 998	19%	15 937	21 830	5 893	37%
BG161PO003-2.1.07	7 684	10 510	2 826	37%	13 447	19 149	5 702	42%
Total:	159 176	151 388	-7 788	-4.89%	283 312	315 845	32 533	11.48%

Source: Profit and loss accounts of companies as well as balance sheets taken from the official Trade Register of the Republic of Bulgaria.

4.2.3. Summarised data for main economic indicators of the analyzed enterprises

The results received are summarized in Table 4.

Table 4: Summarized data for main economic indicators of the analyzed enterprises

Grant procedure	Change in employment (number of employed)	Change in EBITD (%)	Change in EBITDA (%)
BG161PO003-1.1.01 Support for the establishment and development of innovative enterprises	5	1652%	3160%
BG161PO003-1.1.02 Support for implementation in the production of innovative products, processes and services	82	32%	-7%
BG161PO003-2.1.01 Technological modernization in enterprises	69	-40%	-25%
BG161PO003-2.1.02 Compliance with internationally recognized standards	-1 436	-59%	-41%

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BG161PO003-2.1.03 Compliance with internationally recognized standards	-417	6%	17%
BG161PO003-2.1.04 Technological modernization in small and medium enterprises	-226	-39%	-10%
BG161PO003-2.1.05 Technological modernization in large enterprises	-391	203%	87%
BG161PO003-2.1.06 Technological modernization in small and medium enterprises	276	19%	37%
BG161PO003-2.1.07 Technological modernization in large enterprises	273	37%	42%
TOTAL	-1 765	-5%	11%

Source: Profit and loss accounts of companies as well as balance sheets taken from the official Trade Register of the Republic of Bulgaria, APIS, Information system of monitoring and management of funds granted by the Operational Programme.

It could be implied that there is a tendency for negative overall results in some of the procedures where all or most of the measured indicators are negative.

Procedures related to support of large enterprises have positive financial effect on the companies. All of the beneficiaries under procedure BG161PO003-1.1.01 are start-ups which justifies the strong positive effect measured in the frames of the analysis. Projects under procedure BG161PO003-2.1.06 are completed after the peak of the economic and financial crisis which contributes to the positive effect of the implementation of the procedure for the companies – beneficiaries. It could be concluded that the absorption of EU funds has helped Bulgarian companies to minimize the effect of the economic crisis.

4.2.4. Sectoral analysis

The concluded sectoral analysis covers all completed projects by Bulgarian enterprises for the period 01.01.2007 г. – 31.12.2013. The total number of these projects is 1 315 where their distribution is as follows:

Table 5: Distribution of all completed project by Priority Axes

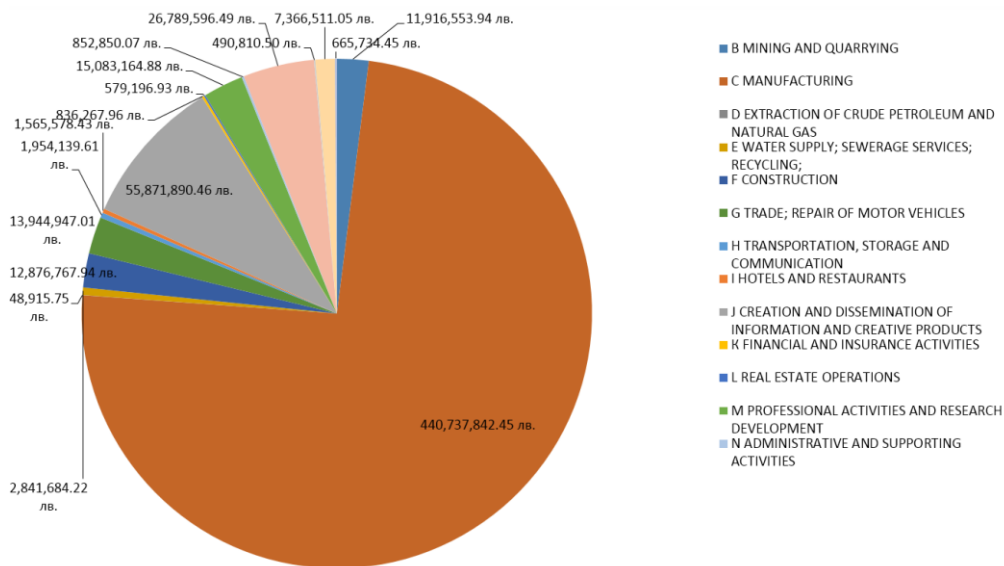
Priority axis 1	Priority axis 2	Priority axis 5
47	1 250	18

Source: Information system of monitoring and management of funds granted by the Operational Programme

Analysis of the correlation between the concluded projects and the economic sectors of the beneficiaries shows that highest number of enterprises (805) operate in sector C: Manufacturing industry which represents 61.22% of all beneficiaries with completed projects. That is determined mostly by the fact that highest part of the projects are related to purchasing of new technological equipment, necessary for modernization of the production. Moreover, procedures financing such investments have criteria regarding the category of the company where companies in Sector C are funded with priority. Substantial part of the companies with completed projects under OP Competitiveness are operating in Sector J (11.33%). The share of the rest of the beneficiaries is shown in Figure 1.

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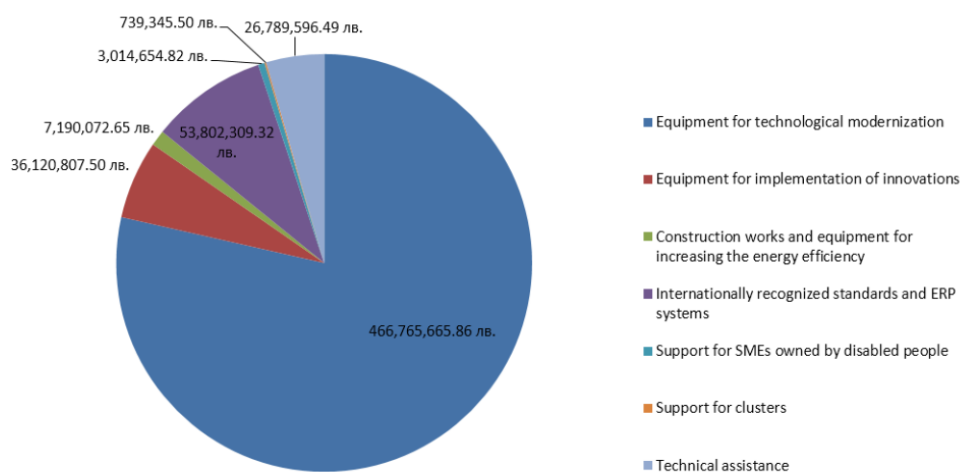
Figure 1: Distribution of completed projects by different economic sectors



Source: Information system of monitoring and management of funds granted by the Operational Programme

Figure 2 illustrates the received by the beneficiaries grants according to the type of intervention. Highest share has the grant received for technological modernization - 78,52% of all completed projects for the period 01.01.2007 – 31.12.2013.

Figure 2: Distribution of completed projects by different types of intervention



Source: Information system of monitoring and management of funds granted by the Operational Programme

It could be concluded that the interest of Bulgarian companies towards purchasing modern equipment financed through European funds is substantial. In addition, the efforts of the government to subsidize with priority certain economic sectors which are important for the country is successful.

5. Qualitative Analysis Based on the Assessment of the Companies (Beneficiaries) for the Effect of the Received Grants on their Businesses

5.1. Methodology of the analysis

The conducted qualitative analysis is based on detailed interviews. The chosen method allows the selection of respondents experienced in the absorption of EU funds on one hand and the examination of more than one effect which can be observed on the other hand. Therefore, the interviews are semi-structured with most of the questions being opened. Questions are then divided in two major groups – questions related to the experienced effects of the current Programming period and questions related to expectations for the next Programming period (2014-2020).

Main criterion for the selection of the respondents is their experience with EU grant projects. Additional criteria are related to the size of companies which is aimed to conduction of interviews with companies of different range (micro-, small, medium and large companies) as well as companies from all geographic regions of the country regarding the difference in their economic development.

Interviews have been conducted with 20 companies (3 large, 14 medium-sized, 1 small and 2 micro-sized companies). The geographic coverage of the interviewed companies is as follows:

- Sofia – 7 companies;
- Plovdiv – 2 companies;
- Varna – 2 companies;
- Shumen – 2 companies;
- Stara Zagora – 4 броя;
- Ruse – 1 company;
- Gabrovo – 2 companies.

The total number of completed grant projects by the selected companies is more than 30. Those projects are completed under different priority schemes. There are projects related to technological modernization, implementation of ERP systems, innovations and energy efficiency.

The economic sectors in which the interviewed companies are operating are showed in Table 6.

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Table 6: Economic sectors and number of respondents operating in them

Sector	Number of respondents
Production of elevating and transporting equipment	2
Production of metal	2
Printing industry	4
Production of electronics	1
Chemical industry	1
Pharmaceuticals	2
Machine building	2
Agriculture	2
Information technologies	4

Source: Conducted interviews

The total amount of investments made by the selected companies in the frames of the OP Competitiveness is 34 mln. Euro which is nearly 5.6% from the whole available resource of the Programme.

5.2. Results of the analysis

The following results could be summarized from the conducted interviews:

- 1) All of the companies report a positive financial and non-financial positive effects as a result of the implementation of their grant projects.
- 2) 108 new vacancies have been opened as a result of the grant project implementation in the selected companies.
- 3) All interviewed companies report as a substantial effect from the implementation of their projects the high technological level they have achieved. 6 of the companies would not have taken an investment decision if there was no European grant. 8 companies would invest in second hand equipment without the EU grant and the rest of the companies report that they would make their investment without EU funds but the grant allow them to make bigger investments.
- 4) All interviewed companies appreciate the priorities set by the Programme and express their support for the same priorities during the next programming period.
- 5) All sectoral priorities of the Bulgarian economy were met.

6. Comparison Between the Results Received from Existing Models, Results Based Financial and Non-financial Indicators and Results Based on Beneficiaries' Self-assessment

Results on macroeconomic level differ from results received by the quantitative analysis on microeconomic level. Macroeconomic results present the absorption of EU funds as a key factor for the economic growth rate during the last years. On the contrary, analyzes on company level show serious decrease in main financial indicators after the absorption of EU funds. As the macroeconomic analyzes consider the external factors, it could be implied that the most serious obstacle for the negative financial effects on micro level is the economic and financial crisis in Europe and the world. In addition, it could be concluded that the absorption of EU funds has contributed to the minimization of the

negative effect of the crisis on micro-level. Despite all, all of the companies report a positive effect of the completed projects in the long term as a result of the achieved technological level, facilitated production processes and new markets approached.

7. Conclusion

The country has developed a successful model for measuring the effect of EU funds on macro-level but still doesn't have a working mechanism to measure the effect on micro-level. Example for that is the conducted research in which the information for each project was extracted manually for each year. Moreover, that information is accessible only for companies which have published their P&L accounts and balance sheets in the statistical forms. Companies which have published their consolidated accounts cannot be analyzed as not all of the necessary information is visible in those accounts. The Managing Authority itself requires financial accounts of the companies during the application phase but doesn't require financial information after the implementation of the project which results in lack of information and inability to measure the effect of the EU funds.

The financial crisis is a serious obstacle in measuring the real effect of the assimilation of EU funds as most of the projects have started their implementation with optimistic expectations based on their growing revenues, profits and markets.

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MERENJE EFEKATA FINANSIRANA IZ EVROPSKIH FONDOVA NA PREDUZEĆA IZ BUGARSKE (2007-2013)

Rezime: Okončan je prvi programski period, kojim je preduzećima iz Bugarske omogućen pristup fondovima iz EU. Dakle, potrebno je proceniti efekte upotrebe sredstava obezbeđenih za preduzeća iz Bugarske. U ovom radu predlažemo indikatore relevantne za merenje, i primenjujemo ih za procenu efekata na sektor malih, srednjih i velikih preduzeća koja funkcionišu u različitim sektorima privrede. Rezultate smo dalje analizirali i učinili konkretne preporuke.

Ključne reči: EU fondovi, Bugarska, pozitivni i negativni efekti, indikatori.