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BASIC DETERMINANTS OF BULGARIAN INDUSTRIAL GROWTH AFTER THE EU ACCESSION BULGARIA

Abstract:
Bulgarian industry has lost many of its positions since of the beginning of 1990s. Structural reform during transition period resulted in markets' lost; lack of innovations, low product quality, inefficient organizational and production structure. This has changed after the end of the economic crisis of 1996. Industry growth in Bulgaria has been driven by two factors: 1) the increase in the effectiveness of use of the existing capital and labor resources, resulting from the financial stabilization, privatization, liberalization and institutional reforms, and 2) the gradual recovery of the physical capital lost during the transition period through a pick-up in domestic and foreign investment. The paper analyses basic determinants of industrial growth such as innovation behavior on sectorial and micro level, deregulation and investments, education, competitiveness, and the overall impact of macroeconomic environment respectively – fiscal policy, inflation, international trade, financial system. This problem is not deeply studied and only a few economists do a research on it after Bulgarian accession to the EU. The analysis reveals the level of impact of each factor on Bulgarian industrial growth before and after accession to the European Union.

Keywords:
Industrial growth, innovations, investment behavior, Bulgarian economy

INTRODUCTION

Bulgarian industry has lost many of its positions since of the beginning of 1990s. The structural reform during the transition period resulted in loss of markets, lack of innovations, low product quality, inefficient organizational and production structures. All this changed after the end of the 1996 economic crisis.
Industrial growth in Bulgaria was driven by two factors: 1) the increase in the effectiveness of the use of existing capital and labor resources, resulting from the financial stabilization, privatization, liberalization and institutional reforms, and 2) the gradual recovery of the physical capital lost during the transition period through a pick-up in domestic and foreign investment.

In this paper we claim that the problem has not been studied in depth and that only a few economists have researched it after Bulgaria's accession to the EU. The analysis reveals different factors that have influenced Bulgarian industrial growth before and after the accession. The assessment of the endogenous and exogenous factors determines the key role of innovation, R&D and human resource development, and demonstrates the interrelation between innovations – investments – industry growth.
Section one of the paper is Introduction. Section 2 provides a brief explanation of the current situation, while Section 3 is focused on the analysis of the basic determinants of industrial growth in the last eight years (2000 – 2008), based on macro and firm level data. The conclusions of the study are presented in Section 4.

CURRENT SITUATION

Many and different interpretations of growth and dynamics may be found in literature. According to Krafft [1], there is a different explanation of industrial dynamics and the role of industrial growth. One of the most common definitions treats industrial dynamics as a result of the increasing ability to enforce the industry evolution (Forrester [2]) for long-term periods. Industrial dynamics does not only describe and analyze the current industrial structure, but also those market-driven factors that can change the economic structures over time. (Krafft [3]).

Therefore, the adoption of the "evolutionary approach" of industrial dynamics is fundamentally set by Schumpeter's entrepreneurs. Thus, the existence of "entrepreneurial governance" as an economic phenomenon changed the industry from the inside. Not surprisingly, managing the endogenous factors for dynamic are the same which are the major challenge for industrial growth (Krafft [3]).

Bo Carlsson and Gunnar Eliasson [4] define economic growth as a result from the interaction of all market actors. From this point of view, economic growth looks like a continuous enlargement of present and potential markets. Therefore, economic growth is in many cases measured by the growth of GDP (Ju, Lin and Wang [5]).

According to the definitions, both industrial dynamics and economic growth are macroeconomic phenomena which are driven by micro level factors. Evidence and proof of both processes can be found at national, sectorial and micro level. Therefore, three essential steps that reveal the factors driven by industrial dynamics are defined:

- *to analyze changes of national growth indicators, such as GDP and GNP;*
- *to analyze some key structural changes, such as: level of competition; level of labor force absorption; level of innovation;*
- *to analyze intra-firm changes which are directly connected to economic growth.*

The ability to explore the link between economic inputs and outputs is essential in identifying industrial dynamics. We therefore need to focus our attention on "the systemic characteristics" of industrial development. We should mention that economic growth is not a result of single firm activities, but a result of market players' activities (see Ju, Lin and Wang [5])

ANALYSIS OF INVESTMENT AND INNOVATION BEHAVIOR IN BULGARIA IN THE LAST EIGHT YEARS (2000 – 2008)

Basic Determinants of Industrial Growth in Bulgaria

Macroeconomic stability. *Since 1999, the Bulgarian economy can be described as stable. One can see that all macroeconomic indicators, such as GNP, GDP unemployment, inflation, salaries, etc., have went up. The Bulgarian economy retained the strong growth of the past few years. The stable economic growth supports the industrial dynamics.*

Currency board. *A Currency Board was introduced in Bulgaria in 1998. The exchange rate of the Bulgarian national currency (BGN) was fixed at 1.95583 Euro. Currency board guaranteed the investments in Bulgarian economy have been guaranteed. Therefore we find that the stable currency, in combination with the economic growth, is used by investors to generate greater added value from their investments. Hence we can make the conclusion that the currency board has stabilized innovation growth in Bulgaria.*

Access to international markets. *Bulgarian exports, and especially the exports to the EU partners, has also increased in the last 10 years. The main reason for export growth is the free market access for Bulgarian industrial products. As a country of a pre-accession status, in 2000-2007 Bulgarian producers had free access to the EU markets. However, EU clients typically had higher product quality requirements. As a result, there was a growing need for innovative products and technologies. Therefore, the free access to markets was one of the engines of innovation growth on Bulgaria during the last decade.*

Innovations. *Today, the development of science, innovation and related investments is increasingly seen as a tool for solving important social and economic problems and overcoming the impact of economic crises at global, regional and corporate level. Therefore, they invariably become the strategic objective in the concept of sustainable industrial growth. To secure sustainable industrial growth in the long term, innovations have to support the improvement of human resources quality, the creation of new*

products and technologies and their timely implementation and use in industries, the development of markets and the availability of financing innovations. Despite some achievements in this respect, numerous shortcomings and lag from the leading countries in innovations have been observed. To overcome this lag, a decision was made to establish a national innovation system. The Bulgarian national innovation system is still under development. This is evident by the absence or the insufficient number of units specialized in brokering and transfer functions in the innovation process. Such organizations are the business incubators, the innovation centers, the technology parks. The measures undertaken so far at national and regional level have not produced all desired effects.

Finance. *Generated in recent years, industrial growth is concentrated in innovative companies from rapidly growing sectors of the economy. To ensure growth of industrial growth a great contribution and impact on innovations has the innovation policy and access to various sources of finance for innovation and innovation activity. Such sources of funding are the EU Framework Programs, the Scientific Research Fund, the National Innovation Fund, the EU Structural Funds. Experience shows that Bulgarian firms prefer to finance their activities either with personal funds (reinvestment of profits) or through bank loans. Another source of funding for company activities that became widely used in recent years is the issue of shares of public companies in the country. Initial public offerings have become a fashion trend and an easy way to raise funds for innovation and investment. It was a prerequisite for the establishment of a unified stock exchange and the possibility of listing the shares of most companies in the country. All this is a catalyst of the economic process and a prerequisite for ensuring industrial growth in the national economy*

Tax policy. *During the last seven years the tax policy was changed and enhanced in favor of the entrepreneurs. Since 1 January 2008, a 10% corporate income tax was introduced and Bulgaria becomes the country with the lowest flat rate tax in the whole EU. The main objectives of the scheme are to modernize the tax system and to provide an incentive to dynamic companies to develop at a rapid pace through the use of their generated profit. Taxation affects the incentives for the creation of more wealth and jobs. Lower taxes lead to more entrepreneurship and more investments. Therefore, lower taxes are important for increasing the rate of economic growth and play important role in industrial dynamics. Moreover, the dividend tax was cut by half to 7% (0% for EU residents). Furthermore, the tax-deductible depreciation rates for new production equipment were increased. All these tax measures have a positive effect on industrial growth.*

Competitiveness. *The key national priority is development of competitive and efficient business structures. The state developed an Operational Programme (OP) "Competitiveness of the Bulgarian economy 2007 – 2013". The overall objective of OP "Competitiveness" is to develop a dynamic economy competitive at the European and world market. The general objective of the operational programme is to implement through two specific objectives that cover both aspects of competitiveness – the readiness of Bulgarian enterprises for the Single European Market and for the fast changing conditions on international markets, as well as the condition of the environment in which they function.*

Analysis of Investment and Innovation behavior in Bulgaria

There are several studies focused on Bulgaria and Bulgarian economic changes before and after the EU accession. The questions which interest most economists are: What changes have occurred in the Bulgarian economy over the pre-accession period? Is there enough ground for fast industry growth? Was the pace of industrial growth retained after the accession? What are the main characteristics of industrial development and the future development paths? To answer these questions, the analysis is based on the growth indicators.

Is there a real industrial growth?

The Bulgarian national statistic data shows that there are enough evidences for industrial growth. Data analysis should be based on the differentiation of industrial sectors as follows: mining and quarrying; manufacturing; energy production.

According to the market variation index (Figure 1), there is a fairly strong differentiation between

the mining and manufacturing sectors. The mining sector shows a slight change in sales over the period in question. Vice-versa, manufacturing is a sustainably growing sector. Therefore, according to this picture, the industrial growth in the Bulgarian economy is based on manufacturing.

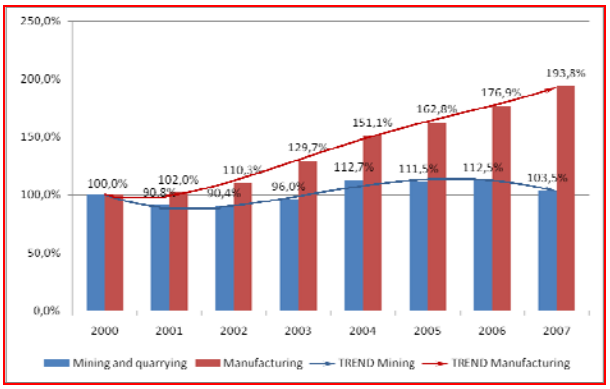

Figure 1. Market variation of industry growth (measured by total sells)[6]

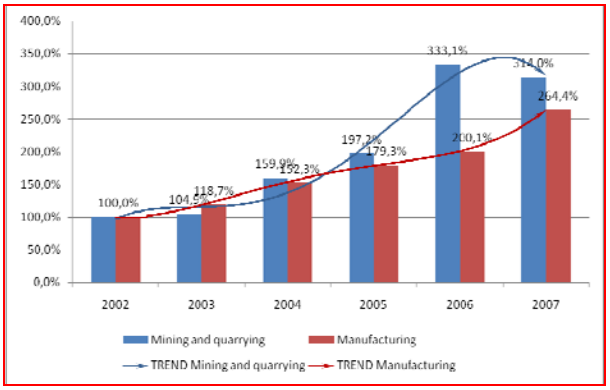

Figure 2. Quality market variation of industry growth (measured by added value)[6]

The Figure shows only the quantitative change of industry. But industrial growth is a long-term oriented concept and we need a confirmation of these results on a qualitative level. When we focus the attention on quality market variation (Figure 2), the interpretation of industrial growth changes radically. Despite the continuous increase of manufacturing sales, we find that quality changes in the sector do not occur very fast. Vice-versa, the mining sector shows sustainable sales but we find out a rapid increase of sales quality.

In conclusion, there is an evidence of industrial growth as a result of the increase in market sales and better product quality. But is this a long term trend? Which factors affect over Bulgarian industrial growth? To analyze industrial growth correctly, we should find out how different factors vary over the last few years. The most commonly used factors are the rate of investments (Figure 3) and the rate of newcomers (Figure 4).

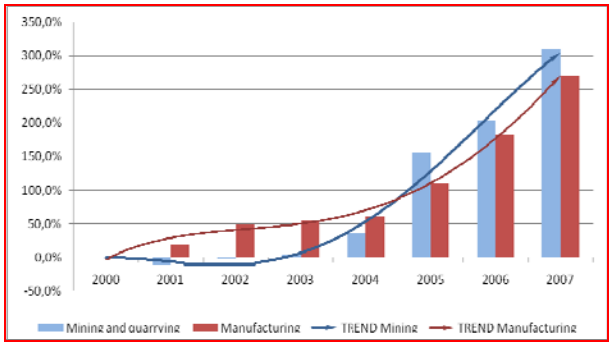

Figure 3. Investments' variation

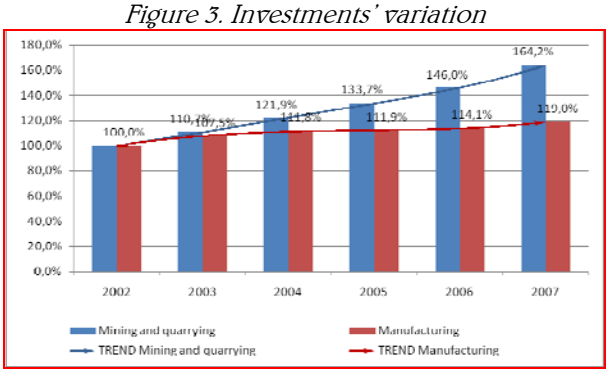

Figure 4. New comers' variation

Investment changes show a very fast increase of investment in the pre-accession period. This result is the first proof of EU trust in the Bulgarian industry of the increase of investments, especially in new technologies and products, is a guarantee for long-term economic growth.

In comparison, the newcomer's variation shows which market actors make these investments. The picture shows that there are not many new investors in manufacturing, but there are a lot of newcomers in mining. This is an indicator that manufacturing has stabilized its structure while the process of re-structuring mining has continued in the pre-accession period.

What is the impact of investments on Bulgarian industrial growth? The qualitative and the quantitative indicators show a stable industrial growth. But the question is: How stable is it?

We need to compare the conditional changes in observed indicators (Figure 5 and Figure 6).

In conclusion, investment growth is a result of the diversification and the expansion of company activities, which leads to increased market potential in several industrial sectors. In general, investments in technology resulted in value added growth. In some industrial sub-sectors, the decrease of value added is due to the use of recycled technologies and equipment.

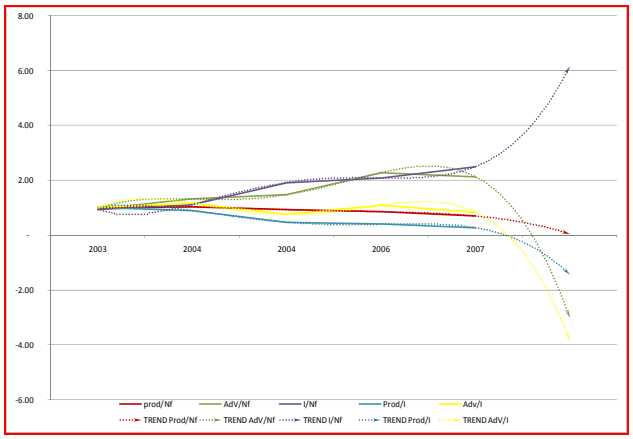

Figure 5. Dependency indexes in sector: Mining and quarrying

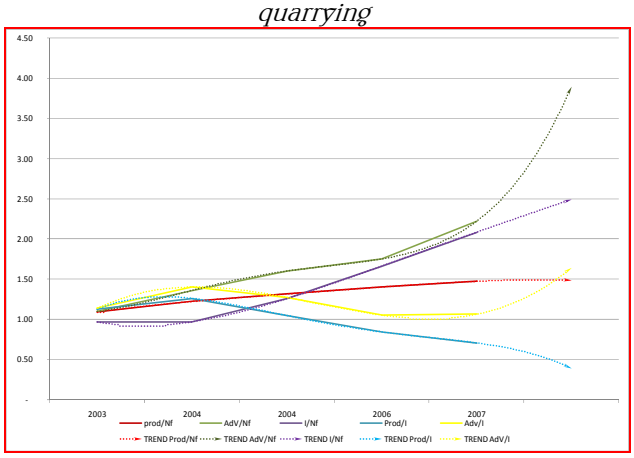

Figure 6. Dependency indexes in sector: Manufacturing

After the 1996-1997 financial and economic crisis, the Bulgarian economy experienced eight consecutive years of economic growth. Fixed capital investment reached 20% of GDP in 2004, for the first time since transition started, and continues to increase; credit activity booms and unemployment are steadily decreasing.

At present, Bulgaria competes with homogeneous, labor- and material-intensive products and low costs are the driving factor behind its competitiveness. Escaping from this low technology trap requires the development of a flexible and open national innovation system within a competitive market economy framework that would ensure an influx and wide diffusion of foreign innovation in the country, and gradual development of local innovation capacity of European and global quality.

Investment in innovation is an instrument for industrial growth through improving the competitiveness of Bulgarian enterprises in the long-run. During the last few years, R&D expenditure in Bulgaria has been limited.

In the past ten years, R&D expenditure as a percentage of Bulgaria's GDP (0.5% in 2006) has remained approximately six times lower than the EU27 average. In addition, the contribution of enterprises in total R&D expenditure remains less than half that of the state, which is exactly the opposite situation as observed in the leading innovation economies in Europe. As a result, the physical R&D capital in Bulgaria has been almost completely depreciated and the accumulated human capital has lost a substantial amount of its value.

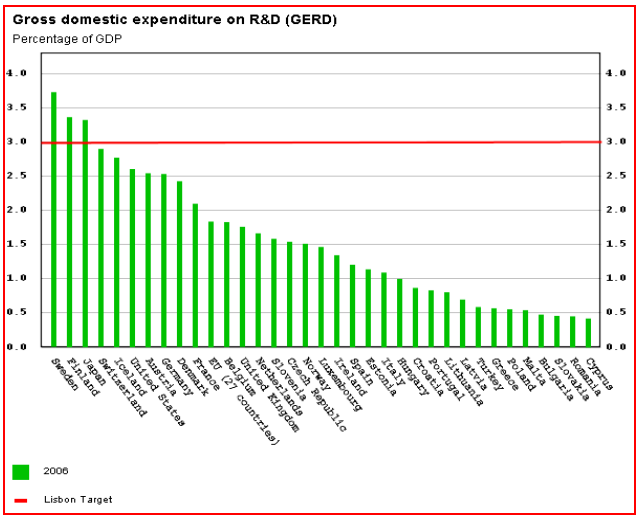

Figure 7. Gross Domestic Expenditure on R & D (GRED) [7]

Bulgaria ranks twenty-second among EU27 by Gross Domestic Expenditure of R&D (GERD), a highly unfavorable position. Bulgaria spends less than 0.5% of GDP on R&D.

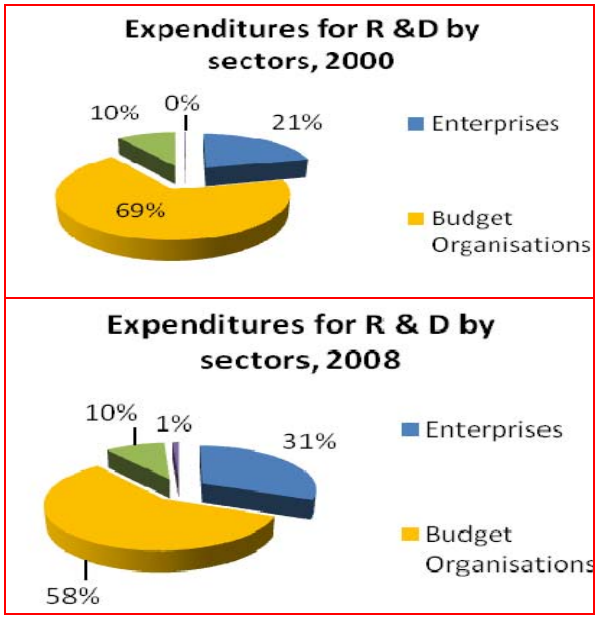

Figure 8. Expenditures for R &D by sectors, 2000 - 2008

Most of the R&D expenditures are concentrated in the group of Budget Organisations/ Government Sector. This group consists of research institutes, research centers and R&D laboratories that are funded by the state budget. More than 50% of all expenditures are done by Budget Organisations. Since 2000, there is a slight decrease in this group. In contrast, the Enterprises and Non-commercial Organisations group has increased its share of R&D expenditures.

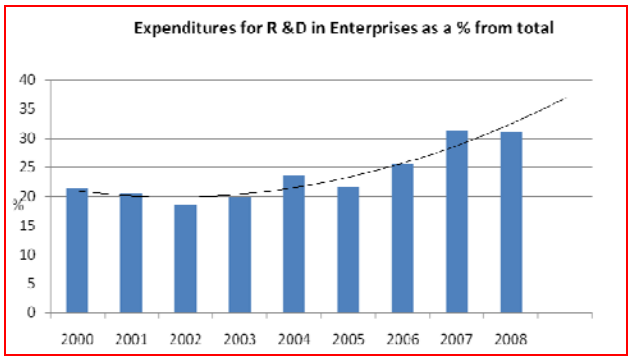

Figure 9. Expenditures for R &D in Enterprises as a percent from total expenditures for R&D (2000-2008) [9]

The analysis of the R&D expenditures of the enterprises shows a stable increasing trend. After the EU accession, there is an increase by 5 per cent in total R&D expenditures of enterprises compared to the pre accession period. In Bulgaria, the structure of expenditures by economic elements remained unfavorable in 2008 despite the small improvement over the previous eight-year period.

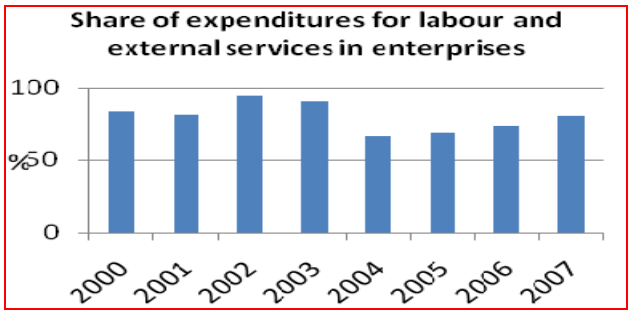

Figure 10. Share of expenditures for labour and external services in enterprises

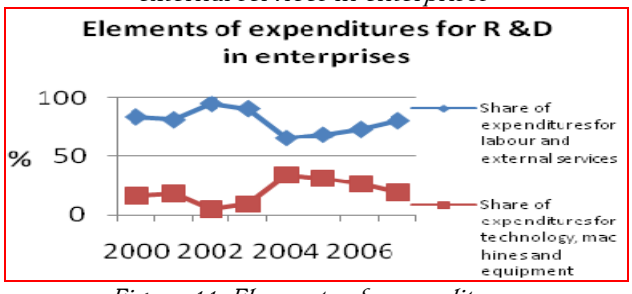

Figure 11. Elements of expenditures for R & D in enterprises

In the pre-accession period, two groups of R&D expenditures in enterprises show controversial tendencies. Since 2003, the share of expenditures for labor and external services has been increasing constantly, while the share of expenditures for tangible assets (technology, machines and equipment) decreased. Current expenditures amount to 80.79% of total R&D expenditures in 2008, while only 19.21% are allocated for the acquisition of tangible fixed assets (a 1% decrease compared to the previous year). Despite the increased share of R&D expenditures, this is a negative trend. Investments in innovation are funds spent on creating (or adapting) the innovation, technological and/or research product in the country. They are mainly used to cover the expenses for research and development (R&D). Investments in innovation depend on the functioning of the whole innovation system, yet they are most closely related to the presence of various funding mechanisms and tools, including venture capital [8]

In a dynamic pattern, Bulgarian enterprises focus mainly on the acquisition of machinery and equipment in their innovation activities. Innovative enterprises place R&D second and employee training comes third.

The sector with the largest share of innovation expenditures for the 2000-2007 periods manufacturing (more than 30%).

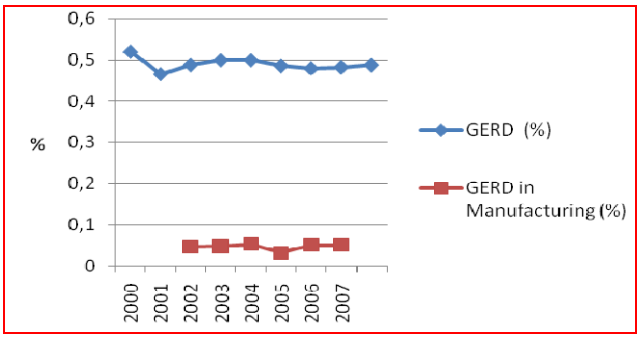

Figure 12. Gross Domestic Expenditure on R &D (GERD), % [9]

According to the latest available data of the National Statistics Institute, the share of innovation enterprises in the country is 16.2 % of the total number of working enterprises.

During the last years, a general increase in the number of innovation enterprises can be noticed, with the largest share being in the computer technologies, R&D, engineering and financial brokerage sectors (Figure 12).

The share of enterprises in the fields of computer technologies, architecture and engineering

sciences represents only 6.46 % of the total number of enterprises in the country (39.9 % of the total number of innovation enterprises). The share of innovation enterprises in the transport, storage and communications sectors is low (7.2 %) and the same applies to the electricity, gas and water supply sectors (9.9 %).

The number of innovation enterprises in the country represents approximately one fourth of the same share in EU. According to 22.7 % of the enterprises covered by a survey, the lack of innovation activities is due to different problems which impede their activities and 53.9 % of them answer that those activities are not necessarily under the existing market conditions. This comes to show that a great number of the enterprises do not realize the character and the significance of innovations for ensuring their competitiveness.

Product innovations prevail in almost all sectors of the economy (44.8%). Process innovations are carried out only in 7.3 % of the innovation enterprises. They are predominant in enterprises in the mining industry and the production and distribution of electricity, gas and water supply. In the EU, the share of process innovations, which ensure to a greater extent the increase of competitiveness of the enterprises, is larger. The technical level of innovations is still rather low. A great number of product innovations have a limited scope and can hardly influence the increase of company competitiveness. As a result of the innovation activities, a large number of enterprises have widened their product range and increased the number of new services and goods they offer (42.7 %), and the quality of the existing products has also improved (45.5%). The market share has expanded and the entry on new markets has been favorably affected (32.8 %), the production power of enterprises has also been increased (23.3 %) and the prime cost of existing products and services has been reduced (35.8 %). These values apply to the predominant number of innovation enterprises in almost all economic sectors except the production and distribution of electricity, gas and water supply, where the main result for most of the innovation enterprises (61.6 %) is the reduction of prime costs and only 7.7 % of the enterprises have launched new products and services. The relative share of innovation products represents a small part of the total volume of products. For 12.4 % of the enterprises surveyed, this share is up to 5%, for 245% – between 5 and 10%, for 24.8% - between 11 and 20%, and only for about 145 of the enterprises the share is over 50%. [10]

Bulgaria needs to be very active in its efforts to attract investment and introduce innovative decisions, so that its production would be competitive on the international markets. The data in the latest World Bank report on global competitiveness for 2006–2007 show that our country's rating has deteriorated in the global context in respect to technological development (68th place) and innovation potential (87th place), and that once again there is insufficient and non-efficient interaction between the main sections of the national innovation system [5]. The major challenge in this respect is the most effective commitment of these institutions and organizations and their integration into the European innovation infrastructure, in order to gradually transfer activities and responsibilities to the private sector [5].

The analysis of the enterprises in Bulgaria by type of innovation reveals a positive trend for the economy as a whole, increasing the share of mixed innovation (both products and processes) at the expense of purely product innovation.

Given the fact that most Bulgarian companies focus on well established and saturated markets (EU) rather than emerging industries, the implementation only of product innovation without accompanying process innovation means that enterprises rely mainly on the low cost of products and that they will receive just a small portion of the added value of the end customer.

The analysis of the innovative behavior of Bulgarian enterprises confirms that the Bulgarian economy is still at an early stage of its innovation development, where capital investments prevail over innovation.

CONCLUSION

Until recently, Bulgaria's economic growth has been driven by two factors: 1) the increase in the effectiveness of use of the existing capital and labor resources, resulting from the financial stabilization, privatization, liberalization and institutional reforms, and 2) the gradual recovery of the physical capital lost during the transition period through a pick-up in domestic and foreign investment. Low labor costs were

the main competitive advantage of the enterprises so far. However, this advantage will quickly be eroded in the face of growing international low cost competition. Hence, the enterprises redirect their long-term growth strategy towards investment in technological upgrading, innovation and improvement of the quality of human capital. This new strategy is centered on the development of a dynamic, market-oriented and internationally open national innovation system, which encourages entrepreneurship and investment in the acquisition and creation of new technologies and skills.

Investment growth is a result of the diversification and the expansion of company activities, which leads to increased market potential in several industrial sectors. In general, investments in technology result in value added growth. In some industrial sub-sectors, the decrease of value added is due to the use of recycled technologies and equipment.

The most appropriate approach of subsectors and enterprises with potential for development is to retain the investment volume and to increase the effect and the quality of the investment output.

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