INNOVATIONS AND INDUSTRIAL DEVELOPMENT IN BULGARIA

Julia G. Dobreva

VUZF University and CITY College, International Faculty of the University of Sheffield - Sofia, 1 Gusla str., Bulgaria

Abstract
This paper aims at identifying the most critical points of the Bulgarian industrial development for the last 20 years, following the political changes in the early 90s in Central and Eastern Europe. The analysis explores the most common characteristics of economies in transition by focusing on the primary causes for the dropdown in industrial production and the significant decrease in the country's GDP since the beginning of the transition period. The objective of the research is to highlight the major trends of transition economies that led to industrial decline as well as to offer sustainable mechanisms for overcoming such downturns. Hence, the analysis postulates that innovations have a crucial role and could be considered as an effective measure for reviving collapsing industries. The research methodology includes a literary review and macroeconomic data analysis for the period 1990-2012, along with current and future trends for the development of the Bulgarian industry.

Key words: *industrialization, privatization, sustainable development, innovations*

1. INTRODUCTION

The study of transition economies has always been a challenging issue, precisely due to the changes experienced in economic structures and industrial development. It has significantly raised scientific attention in the search for explanation of the common trends that led to the collapse of Central and Eastern European economies and their gradual but rather painful revival.

The Bulgarian economy, in particular, went through all stages of the transition period – high inflation, drastically decreasing GDP, unemployment and income inequality, industrial stagnation, political instability and corruption. The accession of the country to the European Union in the beginning of 2007 and the following years that coincided with the financial crisis have also contributed to the transformations in the profile of the Bulgarian economy. Therefore, the analysis on the transition period of the country is of crucial importance in forecasting future trends of its industrial development and drawing up scenarios for sustainable policy implementation.

This paper provides an overview of the major characteristics of transition economies. Particular attention is given to the study of economic downturns, experienced by such economies and their interrelation with income inequalities. The Bulgarian transition period illustrates the major patterns of the issues discussed, particularly with regard to the collapse of its industrial development and the overall restructuring and reorganization of the economy. The ultimate aim of the paper is to establish a connection between the major trends of an economy in transition and offer mechanisms for overcoming the drawbacks in industrial economic growth. It postulates that innovation has a decisive role in this process and should be considered as a key mechanism for overcoming economic downturns in transition economies and assuring sustainable industrial growth.

Part 2 of the paper provides an overview of the economic downturns and industrial collapse, experienced by economies in transition, along with income inequalities. Part 3 is focused on the role of innovations in overcoming economic downturns and income inequalities. Part 4 provides an overview of the Bulgarian transition economy and Part 5 speculates on the current status of innovations in Bulgaria. Part 6 summarizes and concludes.

2. ECONOMIC DOWNTURNS, INDUSTRIAL COLLAPSE AND INCOME INEQUALITIES IN TRANSITION ECONOMIES

The countries from the former Eastern block have gone through a number of drawbacks in terms of their economic and industrial development as a result of the long period of transition. This has resulted in an abundance of underutilized resources and a deterioration of the production technology. The severe economic downfall has also significantly contributed to the fragmentation and polarization of the party system, which in turn undermines the capacity to manage the economy effectively (Haggard 1995).

Most commonly, in an economic downturn the response of the industrial enterprises is to make employees redundant, to sell out assets and to dispose of adjoining business operations in order to bridge the gap of financial resources. This, respectively, results in a significant reduction of valuable resources, alienation of key customers and loss of competitive markets. A number of macroeconomic studies in the late 90s have analyzed the determinants of growth in transition economies (Havrylyshyn et al. 1998; Fischer et al. 1996; Svejnar 2002 and Abed 2000). Among their key findings is that structural reforms and reduction of government expenditures are required in all sectors of the economies and albeit the initial effect of reforms on output may be negative, over time the best growth performances are in those countries with the greatest progress in implementing reforms. Also, growth performance in general is better in those economies where stabilization has been achieved earliest and where structural reforms have progressed most (Havrylyshyn et al. 1998).

It was generally believed that the transition would start with a recession, caused both by restrictive macroeconomic policies and by restructuring of the economy as a result of the shift to a market economy (Fisher 1996). All countries experienced almost similar initial setbacks in their economic growth. Hence, they also carried out similar reforms in terms of macroeconomic stabilization, price liberalization, small-scale privatization and the break-up of state enterprises. Countries that developed a functioning legal framework and corporate governance have performed better than others (Svejnar 2002).

All countries of the former Central and Eastern European block have experienced common economic transformations in their transition from centrally planned to free market economy. Along with the political turmoil, the CEE countries went through economic crises, albeit with different duration. In half of the countries the period of the crisis was between 4 and 7,5 years, and in the others between 2,5 and 3,5 years. In most countries the crises has reached its lowest point in 1992-1994. The GDP per capita decreased by 33% to 68% in 18 of the CEE countries in 1991 as compared to the levels reported in 1989, whereas in the other countries the reduction was by 14-32%. The total amount of GDP reduction as compared to the pre-crisis levels is estimated at 2,1 trillion dollars (Berov 2008).

The privatization process of state industrial enterprises was of paramount importance but it was performed in a disorderly manner and at a rather slow pace. The first laws on privatization were adopted in 1991-1992 but only for the small-scale enterprises, whereas the privatization of the heavy industry commenced in 1994-1996 and in some countries in 1997-1998. The mass privatization, carried out by privatization funds, ended up in the formation of corporate holdings. In Bulgaria, the majority of these state enterprises were bought by the new holding structures at a price which was below the market price of the assets. Due to the loss of markets, outdated technology, vague competition and poor management, the privatized industrial enterprises gradually became insolvent and were declared bankrupt.

In genetral, all of these factors contributed to the severe negative transformations in the structure of the GDP. In the 90s, in 2/3 of the CEE countries the industrial share in the GDP was drastically reduced and the agrarian sector aquired a growing proportion. The tendency continues nowadays and characterises the economies with sectoral imbalances along with output produced in the shadow economy, which slow down the R&D process and the introduction of industrial innovation in the 21 century.

Increases in income inequality also tend to be correlated with increases in the share of output produced in the unofficial economy. These hypotheses are supported significantly by empirical data for sixteen transition economies between 1987 to 1989 and 1993 to 1994. Various causal mechanisms may operate in both directions, an increasingly large informal economy causing more inequality due to falling tax revenues and weakened social safety nets, and increasing inequality causing more informal activity as social solidarity and trust decline. (Rosser et al. 2000)

The main factor affecting income inequality is the economic growth, followed by inflation, government consumption, population growth, level of access to education and openness of the country for foreign trade (Kaasa 2003). A high correlation is found between GDP per capita decline and the increase in inequality, thus if growth is to overcome poverty, it will be necessary to stabilize income inequality at current levels (Milanovic 1998). Both government consumption and financial development reduce income inequality. Population growth and per capita income growth show that any increase in them will result in high income inequality. It is particularly so as income inequality increases first with the increase in income growth but after a certain level it decreases. It is generally believed that in order to decrease income inequality, policy makers should increase the literacy rate, raise openness and reduce government consumption.

3. THE ROLE OF INNOVATIONS IN ECONOMIC DOWNTURNS

In his paper "Endogenous Growth and Cycles", Joseph Stiglitz (1993) provides a detailed overview of the Schumpetarian analysis on recession and the arguments that economic downturns have positive effects in the incentives that they provided for firms to increase their efficiency. In his view, as firms face declining profits and cash reserves, they typically act to cut out or fire unnecessary workers, and to restructure the firm to make it "leaner and meaner". Firms that are less efficient, that have been surviving off previously earned capital, can no longer do so. The reduction in output reduces opportunities "to learn by doing". In this view, the loss from a recession may be more that just the large, but temporary, costs of idle and wasted resources: the growth path of the economy may be permanently lowered. The firms that are eliminated in the downturn of the recession may not be the "less fit" but rather those that are less adapted to surviving economic downturns (Stiglitz 1993).

In the Shumpetarian tradition, innovation is largely endogenous. It affects and is affected by market structure. This means that in the face of economic downturns, firms may be "forced" to cut back on their R&D expenditure. Economic downturns lead to less expenditures on R&D both because cash flow is adversely affected and because credit rationing is likely to be more severe.

The social benefits of R&D expenditures typically exceed the private benefits: firms seldom capture all the returns from their inventive activity. Indeed, when many firms engage in R&D activity, e.g. by enhancing the productivity of labor, wages are bid up and much of the gain is appropriated by workers. Thus, the social costs of cutting back R&D expenditures typically exceeds the private costs.

4. THE BULGARIAN ECONOMIC TRANSITION

Since the start of market reforms in 1989-1990, the socio-economic transformations in Bulgaria have passed through several stages, thus accelerating the social polarization in the country (World Development Report 1996). Economic modernization was severely hindered as a result of a number of deficiencies in economic policy making, significant industrial decline, collapsing infrastructure and the loss of human capital after a sequence of emigration waves. Bulgarian early transition is marked by scarce progress in social reforms, caused by a variety of economic, social and also psychological burdens, inherited from the 50 years of centrally-planned economy. Hence, the core of policy making for the last 20 years has been to respond to the public expectations for building successful mechanisms to implement anti-poverty measures.

Since July 1997 Bulgaria has adopted a currency board arrangement, thus facilitating the macroeconomic stabilization and the gradual economic growth in the years prior to the country's EU

accession (in January 2007). According to the data from the Bulgarian National Statistical Institute, real GDP growth rates varied between 4.1% and 6.6% in the period 2001-2008 and at the same time the nominal GDP per capita has increased from 1919 EUR in 2001 to 4 475 EUR in 2008. According to initial data, during the first quarter of 2013 the GDP is 8,2 MEUR while per capita GDP is 1 100 EUR. Meanwhile, the official average income level in Bulgaria is still the lowest among the new EU member states.

As observed by Mintchev, Boshnakov and Naydenov (2011), during the last 20 years Bulgaria was affected by various adverse economic and demographic processes, which were particularly severe during the first half of the 1990s. The Bulgarian population decreased by about 13% during the first 15 years of transition (1989-2004) – or 1.2 million in absolute figures – of which 500 000 were due to natural disease and 700 000 due to emigration. Additionally, the increased migration from underdeveloped regions to more developed ones intensified the existing regional disparities.

5. INNOVATION IN THE BULGARIAN POST-TRANSITION ENVIRONMENT

According to a recent World Bank report (WB report number 66263-BG 2012) Bulgaria's transition was characterized by considerable macroeconomic turbulence and structural transformation, during which export-oriented industries generally declined. The country's competitiveness has improved in the last years but not strongly enough to catch up with its EU peers. While in 1990 the industry comprised 50% of GDP and 43% of employment, in 2001 it fell down to 18% GDP and 23% of employment. It is precisely innovation that could help industries in which Bulgaria has a comparative advantage to move up the value chain and expand the high-tech export base of the country. The Bulgarian government has committed to meeting a target of R&D/GDP of 1.5% by 2020, which is three times the current level. A large share of the new investments is expected to come from industrial enterprises. However, the report points out that while greater R&D levels are important, it is also important to upgrade relevant institutions, policies and legislation. These would ultimately provide the necessary strategic support to research and innovation and thus respond to the urgent need to reverse the erosion of Bulgaria's technical and scientific competences.

In order to meet the targeted R&D/GDP level of 1.5% by 2020 there should be a substantial increase in R&D investments to exceed the current level of 0.48% (compared to 1.85% in the EU-27). Due to the economic downturn and its impact on the capacity of the state budget, there have been 2 consecutive years of real decline in public spending on R&D (2011-2012). The propensity to export is higher for innovating firms with foreign ownership and, according to the World Bank data, in 2008 only 28% of Bulgarian companies invested in R&D. Meanwhile, annual sales for innovating firms grew 26% per year in the pre-crisis period (2005-2007).

Another World Bank report (WB report number 62774-BG 2012) elaborates further by pointing out that Bulgaria's per capita income at PPS is only about 44% of the EU-27 average. Given the country's unfavorable demographic situation, higher productivity is critical for sustainable growth and only significant improvements in production competitiveness would allow a shift to export-led growth, making the economy more resilient to external shocks.

Recent data shows that Bulgaria's economy has performed relatively well during the crisis and it is gradually reviving. During the period 2000-2010 output expanded by close to 50% (4.7% per year). In 2009 the GDP declined by 5.3% and remained flat in 2010 (WB report number 63457-BG 2011). Thus, in 2010 the country lost 3 years of economic growth and household consumption fell by 7.5% in 2009 and 1.3% in 2010.

In terms of income inequality, it is reported that in February 2010 one third of Bulgarian households suffered economic shocks, particularly unemployment.

In order to meet the target of 1.5% R&D/GDP by 2020, the Bulgarian government has to focus on the following three main objectives:

1. **Increase the absorption of EU funds and reduce the emigration of young and talented population**

This will be achieved through the continuity in financing projects under the various structural and cohesion funds. The main objective is to trigger the available funds towards projects that contribute to industrial development both on a microeconomic and macroeconomic level and that are at the same time environmentally and socially oriented. Their pre-conceptual and implementing phase incorporates innovation as a major tool. In particular, these projects are mainly oriented towards the setting up and development of small and medium enterprises (SMEs) and also family businesses. The social trait of such projects is mainly related to overcoming income inequalities and settling the demographic problem by creating jobs and keeping valuable workforce in rural regions. Ever since the first "big wave" of emigration, starting from the early 1990s, the small towns and villages in Bulgaria have become almost desolate and the main reason for this has been the growing unemployment due to the closing of the former state industrial enterprises and the lack of opportunity for alternative income.

Indeed, the role of innovation technology, financed through such projects, is to replace the outdated machinery and equipment, using the existing infrastructure of the pre-transition industrial enterprises. The final outcome is to overcome the economic downturns through a continual rise in GDP, decrease of the unemployment level and significant reduction in the number of young and qualified Bulgarians who emigrate as a result of being permanently unemployed. Therefore, a significant contribution is the development of specific programs which are meant to strengthen the institutional framework for R&D through investments in teaching and research.

2. **Increase public R&D spending, consistent with the capacity of the state budget**

An important element of the EU project-financing is the assurance of state assistance as a co-financing element. In general, such state assistance is up to 20% of the grant. Hence, the governmental policy is of paramount importance in the process of strategy development and implementation of the specific measures which regulate the scope and eligibility of the projects. It is recognized that the public sector on all levels of the economy should be actively engaged in transforming the Bulgarian industrial sector by setting up and continuously developing the policy framework to stimulate the introduction of innovation in all projects that contribute to the general boost of the economy.

3. **Make industrial enterprises an active partner**

Industrial enterprises are encouraged to become an active partner in the development and implementation of the innovative projects through the private co-financing element, which estimates at 40-50% of the investment costs. This stimulates the companies to allocate and forecast their cash flows, so that they can be involved in the financing process and take up an equal responsibility for it. Furthermore, such financial cooperation establishes a close relationship between the private and the public sector, which gives rise to a strong public-private partnership in the co-creation process, namely in the design and completion of an innovative project.

6. CONCLUSION

The aim of this paper was to provide a general overview on the transition process, focusing on the case of Bulgaria as an example of a country from the former Central and Eastern European block. In essence, it established a close relationship between economic downturns, industrial collapse, and income inequalities as post effects of the transition and post-transition processes.

Furthermore, the paper discussed in detail the Bulgarian experience throughout the transition period and established the need for overcoming long-term economic imbalances in terms of GDP growth and social inequalities such as low income and unemployment.

The ultimate objective of the analysis was to highlight the importance of innovations for overcoming the problematic areas of Bulgaria's economy and ensuring sustainable industrial development. The absorption of EU funding should be considered as one of the paramount mechanisms for stimulating investments in R&D and also for strengthening the public-private partnership in this process. It was

proposed that problems related to industrial development could be overcome through innovation as a basic element in all investment projects, both on a macroeconomic and microeconomic level. Such are the increase in GDP, followed by reduction of income inequality and increase in job opportunities in less favored regions.

REFERENCES

Abed, GT & Davoodi, HR 2000, "Corruption, Structural Reforms, and Economic Performance in the Transition Economies", *IMF Working Paper*.

Berov, L 2008, *History of Economic Development*, 3rd edition, Planeta 3: Sofia.

Fischer, S, Sahay, R & Vegh, CA, 1996, "Economies in Transition: The Beginnings of Growth", *The American Economic Review*, vol. 86, No 2, Papers and Proceedings of the Hundredth and Eighth Annual Meeting of the American Economic Association, San Francisco, CA, pp. 229-233.

Haggard, S & Kaufman, RR 1995, *The Political Economy of Democratic Transitions*, Princeton University Press.

Havrylyshyn, O, Izvorski, I & Rooden, R 1998, "Recovery and Growth in Transition Economies 1990-1997: A Stylized Regression Analysis", *Working Paper WP/98/141*, International Monetary Fund.

Kaasa, A 2003, "Factors Influencing Income Inequality in Transition Economies", *University of Tartu Working Paper Series*, number 18.

Milanovic, B 1998, *Income, Inequality, and Poverty During the Transition from Planned to Market Economy*, Washington, D.C.

Mintchev, V, Boshnakov, V & Naydenov, A 2011, "Sources of Income Inequality: Empirical Evidence from Bulgaria", *paper presented at the Inequality and Public Policy Conference*, January 2010, Prague.

Rehman, HU, Khan, S & Ahmed, I 2008, "Income distribution, Growth and Financial Development – A Cross Countries Analysis", *Pakistan Economic and Social Review*, vol. 46, No 1, pp. 1-16.

Rosser, JB, Rosser, M & Ahmed E 2000, "Income Inequality and the Informal Economy in Transition Economies", *Journal of Comparative Economics*, March, 2000, vol. 28, no. 1, pp. 156-171.

Stiglitz, J 1993, "Edogenous Growth and Cycles", *Working Paper No 4286*, NBER, Cambridge, MA.

Svejnar, J 2002, "Transition Economies: Performance and Challenges", *The Journal of Economic Perspectives*, vol. 16, number 1, pp. 3-28.

The World Bank 2012, *Going for Smart Growth: Making Research and Innovation Work for Bulgaria*, Report number 66263-BG.

The World Bank 2012, *Bulgaria: Public expenditure growth and competitiveness***,** Report number 62774-BG.

The World Bank 2011, *Bulgaria: Household welfare during the 2010 recession and recovery*, Report number 63457-BG.