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BUILDING A KNOWLEDGE-BASED SOCIETY: THE CASE OF REPUBLIC OF MACEDONIA

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Abstract:

Creation, dissemination and use of knowledge together with appropriate human capital development have become important competitive factors for businesses and economic growth. At the end of the 20th century, knowledge production has been radically transformed. It has boosted the so-called "second university revolution", urging policy makers to shape the environment in such way that science promote innovation, education increase human capital and both are becoming more active economic players.

The actualization of the "knowledge factor" as a solution to the general problems of economic growth is a very important and controversial subject of economic policy in Macedonia. Global Competitiveness Index indicates weak points of Macedonia in human capital development and innovation. Macedonia needs faster economic growth, which is impossible to achieve without sufficient investments in education and innovation.

This paper begins with theoretical analyses of issues relating to creation and use of knowledge in the knowledge-based economy. Then, recent EU policy, aimed at improving incentives for developing a knowledge-based economy and achieving growth and competitiveness is discussed. The paper concludes with overview of the recent economic growth and competitiveness and evaluation of the knowledge-based policy in Macedonia and suggests what can be learned for the future.

Keywords: knowledge creation, innovation, economic growth, Global Competitiveness Index, GDP, EU, Macedonia

JEL Classification: M20, M29,D8

1. Aims and scope of research

Main research question:

How do creation and use of knowledge and promotion of innovation affect the growth and competitiveness in case of Macedonia?

Two key pillars are identified in order to analyse the changes influenced by the transition of countries towards the knowledge-based economy (KBE):

- **Higher education system and training**
- **Technological innovation and R&D**

In KBE, innovation will be very difficult without a well-educated and trained workforce that are adept at absorbing new technologies, and without sufficient financing for R&D.

2. Literature review

- Key determinant of a knowledge-based economy is human capital, or its essential knowledge, expertise and capabilities.
- Barro, Sala&Martin (1995) have shown that the level of education of the workforce (measured by years of schooling) and public sector allocation for education is closely linked to the growth rate of real income per capita.
- Bassani and Scarpetta (2001) found a high level of cohesion between the increased level of education and economic growth of the country. According to their research, any additional year of education of the population allows individual countries to increase production per capita for 4-7%.

2. Literature review cont'd

- The maintenance of competitive advantage is a continuous process of improvement and upgrading because competitors are able to imitate any competitive advantage.(Porter)
- Porter argues that competition takes place around the creation and assimilation of knowledge and insists that the nation's competitiveness depends on the potential of national industry to innovating and developing.

3. Methodology

- A desk research of secondary sources was conducted to screen publicly available national and international sources related to the performance of the education and training systems and innovation policy across Europe and in Macedonia.
- Wide range of publicly available national and international reports, studies and researches (the reference list summarizes all the documents examined); World Bank and OECD database; National Statistical Office websites and statistical reviews; National legislation on education and training (laws and regulations).

2. Findings/dates

The World Bank Institute has developed a framework for analyzing the various policies and institutions required to develop a knowledge economy. There are four critical requisites for a country to be able to fully participate:

- (1) An institutional and economic environment that enables the free flow of knowledge, investment in Information and Communications Technology (ICT), and encourages entrepreneurship;
- (2) An educated and skilled population to create, share and use knowledge;
- (3) A dynamic information infrastructure ranging from radio to the internet, in order to facilitate the effective communication, dissemination and processing of information;
- (4) A network of research centers, universities, think tanks, private enterprises and community groups to tap into the growing stock of global knowledge, assimilate and adapt it to local needs, and create new knowledge.

2. Findings/dates

The Global Competitiveness Report has proposed broadly similar framework:

- Challenge of many middle income countries is to attract high flows of foreign direct investment, which brings new products, new technologies, new markets and capital. To move out of middle income status is a difficult jump, requiring high rates of innovation and commercialization of new technologies.
- To achieve this requires good economic policy, good governance, social capacity to improve its technological capacity, institutional changes, higher education, R&D, improved capital markets, and regulatory systems

5. Results and Discussions

- In terms of WEF GCI, Macedonia is at 82.1% of EU27 average in 2008-09.
- Compared to EU27, Macedonia is the best in 'basic requirements' (84.6%) and somehow less successful in terms of 'efficiency enhancers' (76.2%) and 'innovation and sophistication factors' (73.1%).
- The lag is the most considerable in terms of infrastructure (61.3%), market size (61.7%), technological readiness (63.0%), innovation (72.8%), business sophistication (73.0%), institutions (75.5%) and higher education and training (76.6%).
- Apart from market size, where one cannot do much about it, all other areas request a lot of investment, human resource development and well defined and implemented policies.
- In the group of South East Europe (SEE) economies undergoing transition, Macedonia ranks higher in terms of education and innovation only than Bosnia and Herzegovina and Albania, but lower than Serbia and Montenegro and much lower than Bulgaria and Croatia in 2009/10.

5. Results and Discussions

Comparison of Macedonia with EU countries in fact reveals the main weaknesses/lags of the country as far as the factors of competitiveness are concerned:

- Low expenditures for R&D, low innovation and R&D activity, low level of technological readiness and high tech exports, low level of business sophistication;
- Deficiencies of infrastructure, network industries, including low level of ICT and information society;
- Non-sufficient and inadequate higher education and training, low proportion of science/technology graduates;

6. Concluding Remarks

The two-level model (modern education and continued learning and sustainability of innovation policy) seems like the most appropriate approach for Macedonia both with regard to the robustness of the tasks that should be performed in the next development phase and to the tasks that result from our going in the direction of the new economic and social changes in EU.

1. **Modern education and continued learning.**

- Initiating a process that focuses on building a workforce that is educated and trained to meet the needs of Macedonia's businesses, in other words, integration of education with business needs.
- Implementing in full the European credit-transfer system of adjusted higher education; developing proactive curricula; and providing high-quality teachers with international experience and scholarships that contribute to a higher standard for students.
- Promoting the idea of life-long education through public campaigns directed at business and aimed at raising the companies' awareness of the need and importance of permanent training in acquiring and upgrading of labor skills and knowledge.
- Enacting regulations that are needed for life-long education that promotes on-the-job training and upgrading professional skills and capabilities.

2. **Sustainability of innovation policy**

- Implementing the principles of the Republic of Macedonia Technology Development Policy that are market oriented and focused on firms' innovativeness;
- Creating conditions for promotion of research and development as the superior generator and instigator of innovation and technology;
- Strengthening the institutional infrastructure for development of and support to a business environment favoring innovation, providing tax incentives and other benefits to investors that apply new technology and innovation.
- Supporting transfers of technology and setting up "learning companies";
- Establishing an annual national innovations award for companies or individuals;

6. References

- Barro, J. R. and Sala&Martin, X., 1995. Economic Growth. New York: McGraw-Hill.
- Bassani, A. and Scarpetta, S., 2001. "Links between Policy and Growth: Evidence from OECD Countries". OECD Economics Department Working Papers. Paris: OECD.
- Council of the European Union, 2002. Council Resolution of 27 June, 2002 on life long learning 2002/C 163/01 (OJ 163/1, 9.7.2002) <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:002:163:0001:0003:EN:PDF>
- European Commission, 2004b. Communication on Innovation policy. Updating the Union's approach in the context of the Lisbon strategy - Commission pushed for a 'new deal' in innovation policy [online]. Available from: [<http://europa.eu.int/comm/enterprise/innovation/communication.htm>].
- European Commission, 2003a. European Innovation Scoreboard [online]. Technical Paper, No 1 Indicators and Definitions. Available from: [http://trendchart.cordis.lu/scoreboard2003/html/pdf/eis_2003_tp1_indicators_definitions.pdf].
- European Commission, 2003b. European Innovation Scoreboard [online]. Technical Paper, No 2 Analysis of national performances. Available from: [http://trendchart.cordis.lu/scoreboard2003/html/pdf/eis_2003_tp3_regional_innovation.pdf].
- European Commission, 2003c. European Innovation Scoreboard" [online]. Technical Paper, No 3 Regional innovation performance. Available from: [http://trendchart.cordis.lu/scoreboard2003/html/pdf/eis_2003_tp3_regional_innovation.pdf].
- European Commission, 2004b. Communication on Innovation policy. Updating the Union's approach in the context of the Lisbon strategy - Commission pushed for a 'new deal' in innovation policy [online]. Available from: [<http://europa.eu.int/comm/enterprise/innovation/communication.htm>].
- European Union, 2004. Towards a Europe of Innovation and Knowledge [online]. European Union document-summaries of the EU legislation. Available from: [<http://europa.eu.int/scadplus/leg/en/cha/c10241.htm>].
- Lisbon European Council. Presidency conclusion 24.03.2000. nr199/1/00

6. References cont'd

- Ministry of Economy of Republic of Macedonia, 2009. *Industrial Policy of RM, 2009 – 2020, Final Draft June*
- Markus Balzat & Andreas Puka, 2005. "Mapping Nacional Innovation System in OECD Area" Beitrag Nr. 279
- Ministry of Education and Science of the Republic of Macedonia (2006), *Nacionalna programa za razvoj 2015 (National Program for Development of Education 2005- 2015)*
- <http://www.npro.edu.mk/dokumenti/strategija-mk.pdf>
- OECD, 2003. *Improving Access and Opportunity: Higher Education in Transition in FYROM, report: OECD* <http://www.oecd.org/dataoecd/60/0/32109399.PDF>
- OECD, 2004. *Learning for Tomorrow's World – First Results from PISA 2003*, <http://www.oecd.org/dataoecd/1/60/34002216.pdf>
- Pecakovska, S& Lazarevska, S., 2009. *Long Way to Knowledge Based Society, Macedonian Education in the Light of the EC Foundation Open Society Macedonia;*
- Popovska Zlatka, 2000. *Politika na tehnološkiot razvoj Ekonomski fakultet .*
- Popovska, Z, 2007. *Annual of the Faculty of Economics – Skopje, Vol 42, p.141;*
- Porter, M., E., 1990. "The Competitive Advantage of Nations". *Harvard Business Review*, 68 (2), 73-93.
- Radosevic, S., 2003. "A two-tier or Multi-tier Europe: Assessing the Innovation Capacities of Central and Eastern European Countries in the Enlarged EU". *Centre for the Study of Economic and Social Change in Europe, School of Slavonic & East European Studies; Working Paper, No. 31.*
- *Statistical Yearbook of the Republic of Macedonia 2007, State Statistical office of the Republic of Macedonia;*
- World Bank, 2002. *Constructing Knowledge Societies: New Challenges for Tertiary Education. Washington: World Bank.*
- World Bank, 2002, *Europe and Central Asia Region environmentally and Socially Sustainable Development, A Preliminary Strategy to Develop a Knowledge Economy in Euroepan Accession Countries, Working Paper , January 2002*
- World Bank, 2005. *Hadzishce A. and Velkovski Z. Tertiary Education and Innovation Systems in Macedonia, report: World Bank*
- World Economic Forum (WEF), 2001/02. *The Global Competitiveness Report, op. cit.*
- World Economic Forum (WEF), 2008/09. *The Global Competitiveness Report*