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Comparative Analysis Based on New Competitiveness Index

Summary: The current economic crisis points out to an even greater need to improve competitiveness. Since 2005, numerous developing countries have succeeded in increasing their competitiveness scores and decreasing the difference relative to advanced countries. The countries of Central and South Eastern Europe, to which Serbia belongs, have recorded an increase in their score by 0.3 on average, whereby the region of South Eastern Europe has achieved poorer results. During the period 2005-2011, Serbia recorded an increase in its score by 0.5, from 3.38 to 3.88. In 2011, Serbia was ranked 95th among 142 countries, with the score of 3.88. This is a decline relative to 2008 and 2005, when Serbia was ranked 85th with the scores of 3.38 and 3.90 respectively. However, this increase was not sufficient to improve Serbia's ranking, which shows that other countries were more successful. This faces Serbia with the task to strengthen its efforts towards improving competitiveness.

Key words: Competitiveness, Porter's diamond, Productivity, Serbia.

JEL: F23, O57.

The current economic crisis points to an even greater need to improve competitiveness. Since 2005, numerous developing countries have succeeded in increasing their competitiveness scores and decreasing the difference relative to advanced countries (Xavier Sala-I-Martin et al. 2011). The countries of Central and South Eastern Europe, to which Serbia belongs, have recorded an increase in their score by 0.3 on average, whereby the region of South Eastern Europe has achieved poorer results. During the period 2005-2011, Serbia recorded an increase in its score by 0.5, from 3.38 to 3.88.

The aim of this paper is to assess Serbia's competitiveness position in 2011 and define recommendations for improving it.

1. The Methodology of Competitiveness Assessment

The significance of improving national competitiveness is a widely accepted. In order to define this concept in an adequate way, it is necessary to proceed from the improvement of the standard of living of all citizens as the foundation of national prosperity.

Productivity depends on the value of goods and services expressed in the world prices achieved by an economy and on the efficiency of that production. Raising the productivity level enables a country to follow the path based on high wages, attractive returns on capital and a strong currency, accompanied by a high standard of

living. The standard of living, that is prosperity, is determined by an economy's productivity level, which is expressed by the value of goods and services produced per unit of human capital, physical capital and natural resources used in their production (Michael Porter et al. 2008).

The market value is created only by companies, which are limited only by the intensity of their innovation and dynamism. Although the government plays a significant role in the provision of conditions that enable value creation, it cannot create value.

Raising competitiveness is the process of improving the business environment, which enables a rise in domestic investment, foreign and domestic investment inflows, exports, imports and the like. Each of these factors depends on a country's level of competitiveness. Domestic and foreign investors will not invest their capital in a country unless it offers an attractive value proposition, while its exports will begin to increase only when its products obtain necessary quality, based on efficient production. Direct government subsidies for a rise in exports, investments and the number of innovations contribute only modestly to a rise in productivity.

In 2008, Porter and his associates made synthetic competitiveness index - New Global Competitiveness Index (NGCI) (Porter et al. 2008). The NGCI is concentrated on the determinants of an economy's sustainable level of productivity, while the level of competitiveness is the ultimate agent of national prosperity. The NGCI is calculated on the basis of public data and a unique opinion survey, which have also been used in the GCR so far.

Competitiveness is what determines the productivity with which endowments are used to create goods and services (Porter et al. 2008, p. 45). The aim of the NGCI is to identify the sources of productivity. Therefore, according to the NGCI, a country's level of competitiveness is determined by the following three factors (Porter et al. 2008, pp. 45-48): (i) endowments; (ii) macroeconomic competitiveness; and (iii) microeconomic competitiveness.

In the theory of competitiveness endowments include available natural resources, a country's geographical location and the size of the domestic market and populations. Whether these resources will be put in the service of a country's prosperity depends primarily on the policies being implemented (in this respect, the experiences of countries are widely varied).

In essence, this determinant of competitiveness is related to the level of productivity with which we use natural resources, available human capital and the like.

The second determinant of competitiveness is macroeconomic competitiveness which consists of the following two components: (i) macroeconomic policies (MP); and (ii) social infrastructure and political institutions (SIPI). The factors of macroeconomic competitiveness have an indirect impact on the productivity level of firms due to which they are very important but not sufficient for raising productivity. The second factor of macroeconomic competitiveness is the SIPI, which is primarily linked to institutions (Douglass C. North 1990). The three most important components of the SIPI are: available basic human capital, political institutions and the rule of law.

The general context for improving the current level of competitiveness is created on this second layer of competitiveness.

The third and the most important determinant is microeconomic competitiveness. It is the most important due to the fact that it is only one dimension of competitiveness which has a direct impact on a company's productivity level. The main components of microeconomic competitiveness are company sophistication and strategy (COS), the quality of the national business environment (NBE) and the state of cluster development (SCD), which is closely related to agglomeration economics.

Value is created only on this layer of competitiveness due to which it has a direct impact on the level of productivity. In view of the fact that value is created only by firms, it is crucial that business environment quality, which is the most important component of this determinant of competitiveness, is at a higher level.

2. An Assessment of Serbia's Competitiveness Based on the NGCI

In continuation we will analyze Serbia's competitiveness position based on the GCR data for 2011-2011. According to the level of GDPpc adjusted by purchasing power parity Serbia holds 70th place in the world, which should also correspond to its competitiveness level. We have analyzed all four components of Porter's diamond using more than 100 subindices.

The first analysis of Serbian competitiveness based on this new methodology was made a year ago (Nebojša Savić 2010).

Our assessment, based on extensive calculation, has shown that in the period 2005-2008 Serbia's SIPI was 70. In other words Serbia falls into the group of the first seventy countries in the world. We have obtained such a rank using a somewhat shorter series than the one used by Porter and associates (it covered the period 2002-2008).

We have defined as competitive disadvantages or advantages all ranks that deviate up to 10 places upward or downward from the SIPI rank (according to which Serbia ranked 70th). All ranks from 1st to 59th (compared to the SIPI) are treated as competitive advantages, while all ranks from 81st to 142nd (compared to SIPI) as competitive disadvantages.

We begin an empirical analysis with the quality assessment of the business environment. The superior method for this assessment is the implementation of Porter's diamond framework, because it enables a comprehensive view of productivity through four elements of the national business environment – factor conditions, demand conditions, the context for firm strategy and rivalry, and related and supported industries (Porter 2008a, pp. 171-211).

Factor conditions. – Globalization and a rise in the volume of trade have increased the demand for transport and communication infrastructure, capital market infrastructure and quality education. The development level of physical infrastructure, available capital and quality of education, especially higher education embodied in human resources (Alan B. Krueger and Michael Lindahl 2001; Robert Barro 2002), have a very favourable effect on prosperity. Administrative infrastructure, that

is, bureaucratic red tape, is also of great significance. In recent times, this component has been regarded as being significant for competitiveness, primarily thanks to the analyses conducted by the World Bank (Antonio Ciccone and Elias Papaionnou 2007; World Bank 2009).

Serbia has significant competitive advantages in the part of communication infrastructure, thanks to the number of telephone lines and computers, and in the part of innovation infrastructure, thanks to the tertiary enrollment and the quality of mathematics and scientific education. Also, there is an advantage in getting credit on capital market infrastructure.

Table 1 Relative Position of Serbia's Factor Conditions in 2011

Competitive advantages		Competitive disadvantages	
Capital Market Infrastructure		Logistical Infrastructure	
■ doing business-getting credit	+55	■ quality of port infrastructure	-63
Communication Infrastructure		■ quality of air transport	-62
■ telephone lines	+44	■ quality of roads	-61
■ mobile telephone subscribers	+42	■ quality of rail road infrastructure	-32
Innovation Infrastructure		Capital Market Infrastructure	
■ tertiary enrollment	+20	■ protection of minority shareholders' interests	-70
■ quality of math & science education	+12	■ venture capital availability	-51
■ quality of scientific research institutions	+9	■ regulation of security exchange	-51
Administrative Infrastructure		■ soundness of banks	-46
■ time required to start business	+19	■ financial market sophistication	-33
		Administrative Infrastructure	
		■ paying taxes	-68
		■ burden of government regulation	-23
		■ burden of custom procedures	-23
		Innovation Infrastructure	
		■ brain drain	-69
		■ quality of management schools	-44
		■ quality of educational system	-41

Note: Author's recalculations (SIPI=70). Rank versus 142 countries; overall, Serbia ranks 70th in 2011 PPP adjusted GDPpc and 95th in Global Competitiveness Report.

Source: Global Competitiveness Report (2011-2012).

However, competitive disadvantages in this component are very pronounced and show that the basic weaknesses of Serbia's competitiveness are hidden just in this segment of business environment. The unsustainably low level of Serbia's competitiveness due to competitive disadvantages in logistical infrastructure, capital market infrastructure, administrative infrastructure and innovation infrastructure have substantively ranked Serbia very low. Factor conditions are the crucial component of the diamond that reduces Serbia's level of competitiveness.

Context for strategy and rivalry. – The context for firm strategy and rivalry has a significant impact on the way in which companies use factor conditions. The high level of competition on the local market is important for achieving high performance (Porter and Mariko Sakakibara 2004; William W. Lewis 2004; Wendy Carlin, Mark Schaffer, and Paul Seabright 2005). Competition determines firms' en-

try and exit. Since competition is so significant, the government's influence on productivity is of great significance, especially through tax incentives, competition law, etc.

Numerous studies have confirmed that there is a close link between openness and growth (Jeffrey Sachs and Andrew Warner 1995; Jeffrey A. Frankel and David Roamer 1999; David Dollar and Aart Kraay 2002; Robert Baldwin 2003).

Competitive advantages in the strategy and rivalry context are connected with openness and vigorous local competition and with rules and incentives which encourage investment and productivity. In this respect Serbia has many competitive disadvantages due to the very seriously endangered market character of the Serbian economy.

According to the local competition the following major weaknesses have been manifested: market dominance, efficiency of anti-trust policy and intensity of local competition.

Rules and incentives also generate weaknesses in the field of FDI inflow, taxation, prevalence of foreign ownership and corporate governance.

The manifested weaknesses point to the need for profound changes within structural adjustment, including both the role of government and the strengthening of rivalry on the domestic market, so that the Serbian economy can obtain all characteristics of a market economy.

Table 2 Relative Position of Serbia's Context for Strategy and Rivalry in 2011

Competitive advantages		Competitive disadvantages	
■ strength of investor protection	+10	■ extent of market dominance	-69
		■ extent of anti-trust policy	-67
		■ local competition	-66
		■ efficiency of corporate boards	-66
		■ cooperation in labor-employer relation	-66
		■ impact of rules on FDI	-55
		■ extent and effect of taxation	-48
		■ prevalence of foreign ownership	-46
		■ strength of auditing and reporting standards	-44
		■ FDI and technology transfer	-40
		■ pay and productivity	-33

Note: Author's recalculations (SIPi=70). Rank versus 142 countries; overall, Serbia ranks 70th in 2011 PPP adjusted GDPpc and 95th in Global Competitiveness Report.

Source: Global Competitiveness Report (2011-2012).

Related and supporting industries. – In the segment of related and supporting industries Serbia has no competitive advantage. The dominant characteristic of this segment is the low level of cluster development and availability of latest technologies. Weaknesses are also reflected in the local availability of research and training services and low level quality and quantity of local suppliers.

Table 3 Relative Position of Serbia's Supporting and Related Industries and Clusters in 2011

Competitive advantages	Competitive disadvantages
	<ul style="list-style-type: none"> ■ state of cluster development -58 ■ availability of latest technologies -53 ■ local availability of research and training services -43 ■ local suppliers quality -24 ■ local suppliers quantity -14

Note: Author's recalculations (SIPI=70). Rank versus 142 countries; overall, Serbia ranks 70th in 2011 PPP adjusted GDPpc and 95th in Global Competitiveness Report.

Source: Global Competitiveness Report (2011-2012).

Related and supporting industries help us perceive the ability of locally available suppliers, service providers and collaborative partners, as well as supporting industries, to specialize and, thus, raise competitiveness.

Demand conditions. – There are many competitive disadvantages in this segment characterized by a low degree of buyer sophistication.

Demand conditions, as the fourth component of the diamond, have not been devoted greater attention in economic literature. Since this component of the diamond refers to "expensive" items, considered from the firm viewpoint, such as, for example, consumer protection and environmental standards, these have often been neglected. In essence, demand conditions are linked to the consumer needs and are directly related to the standards and laws on consumer protection. Therefore, one can increasingly find the view in modern literature on management that consumers should have partner status in the innovation process.

Table 4 Relative Position of Serbia's Demand Conditions in 2011

Competitive advantages	Competitive disadvantages
	<ul style="list-style-type: none"> ■ buyer sophistication -66 ■ government procurement of advanced technology products -22

Note: Author's recalculations (SIPI=70). Rank versus 142 countries; overall, Serbia ranks 70th in 2011 PPP adjusted GDPpc and 95th in Global Competitiveness Report.

Source: Global Competitiveness Report (2011-2012).

The basic problem lies in the fact that buyer sophistication is very weak and the fact that the government insufficiently encourages quality in their procurements.

Company sophistication and strategy. – Company sophistication and strategy represent a special segment of microeconomic competitiveness. Many firms are burdened by the inherited organizational structure and (non-)market behaviour. The privatization process has not removed structural distortions – in some cases it has even deepened them – which has led to a break-up of value chains. Second, Serbia evidently lacks a developed SME sector.

There are many competitive disadvantages in this segment. They range from companies' strategy and operational effectiveness where, according to a number of subindices (technology absorption, nature of competitive advantage, degree of customer orientation, company spending on R&D and production process sophistication), Serbia is at the bottom, through weaknesses in organizational practice (re-

flected in low level of extent of staff training and reliance of firms on professional management).

Table 5 Relative Position of Serbia's Company Operation and Strategy in 2011

Competitive advantages	Competitive disadvantages
	■ firm technology absorption -66
	■ willingness to delegate authority -66
	■ nature of competitive advantage -66
	■ reliance on professional management -63
	■ extent of staff training -62
	■ degree of customer orientation -60
	■ company spending on R&D -60
	■ production process sophistication -59
	■ extent of marketing -58
	■ control of international distribution -56
	■ value chain breadth -43
	■ capacity for innovation -40

Note: Author's recalculations (SIPI=70). Rank versus 142 countries; overall, Serbia ranks 70th in 2011 PPP adjusted GDPpc and 95th in Global Competitiveness Report.

Source: Global Competitiveness Report (2011-2012).

Second, Serbia evidently lacks a developed SME sectors. There has been considerable public discussion about this problem, but there is no doubt that the current institutional framework has not been sufficiently attractive to encourage investors, especially domestic ones, to invest in this sector. Third, companies still rely excessively on competitiveness based on low prices and costs. Fourth, it has also been observed that the quality of management teams is not adequate, in addition to low investments in skills and technologies at this level of development. The evident weakness also lies in firms' insufficient focus on unique products and services, coupled with the low degree of innovativeness and corporate governance transparency.

3. Key Recommendations for Improving Competitiveness

The current economic crisis points to an even greater need to improve competitiveness. Since 2005, numerous developing countries have succeeded in increasing their competitiveness scores and decreasing the difference relative to advanced countries. The countries of Central and South Eastern Europe, to which Serbia belongs, recorded an increase in their score by 0.3 on average, whereby the region of South Eastern Europe has achieved poorer results. During the period 2005-2011, Serbia recorded an increase in its score by 0.5, from 3.38 to 3.88.

In 2011, Serbia was ranked 95th among 142 countries, with the score of 3.88. This is decrease relative to 2005 and 2008, when Serbia was ranked 85th with the scores of 3.38 and 3.90 respectively. However, this increase was not sufficient to improve Serbia's ranking, which shows that other countries were more successful. This faces Serbia with the task to strengthen its efforts towards improving competitiveness.

According to its competitiveness, Serbia is at an impermissibly low level, especially if one bears in mind its GDPpc ppp level or SIPI. At the same time, this

points out that there is great scope for improving competitiveness. The analysis of Porter's diamond has shown that Serbia has a number of competitive disadvantages and almost neglectable competitive advantages.

Those conclusions are going to be valid if we apply any other relevant methodology of competitiveness assessment.

The first and most important recommendation for raising Serbia's competitiveness is related to the improvement of factor conditions, including specifically infrastructure and institutions. Due to the weaknesses manifested in this segment, especially in logistic, administrative and innovation infrastructure, Serbia has found itself almost at the tail-end of Europe. Since the responsibility for the situation in this segment of competitiveness lies primarily with the government, the responsibility for solving this problem in the immediate future also lies primarily with it.

As for the improvement of education and innovation infrastructure, capital market and financial system, the government's responsibility must be shared with education, university, research and financial institutions.

Without upgrading this segment, Serbia will not be able to overcome the pit-fall of its own underdevelopment.

The second recommendation refers to the context for firm strategy and rivalry in which significant weaknesses have also been observed. They are primarily related to the regulation of the goods and services market, including specifically anti-monopoly policy, market dominance and intensity of local competition, whereby the government role is dominant once again. As for the weaknesses in the sphere of corporate governance (the efficiency of corporate boards and impact of audit reports), the responsibility must also be shared with the business sector.

We will limit ourselves to these two recommendations, although they do not deal with all open issues concerning competitiveness in Serbia. However, the depth and severity of the problems in these two segments are so pronounced that it is necessary to take urgent and resolute measures. Naturally, this does not mean that the relevant measures are not necessary in other segments but, at this moment, focusing on the mentioned two recommendations is of utmost significance.

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Appendix

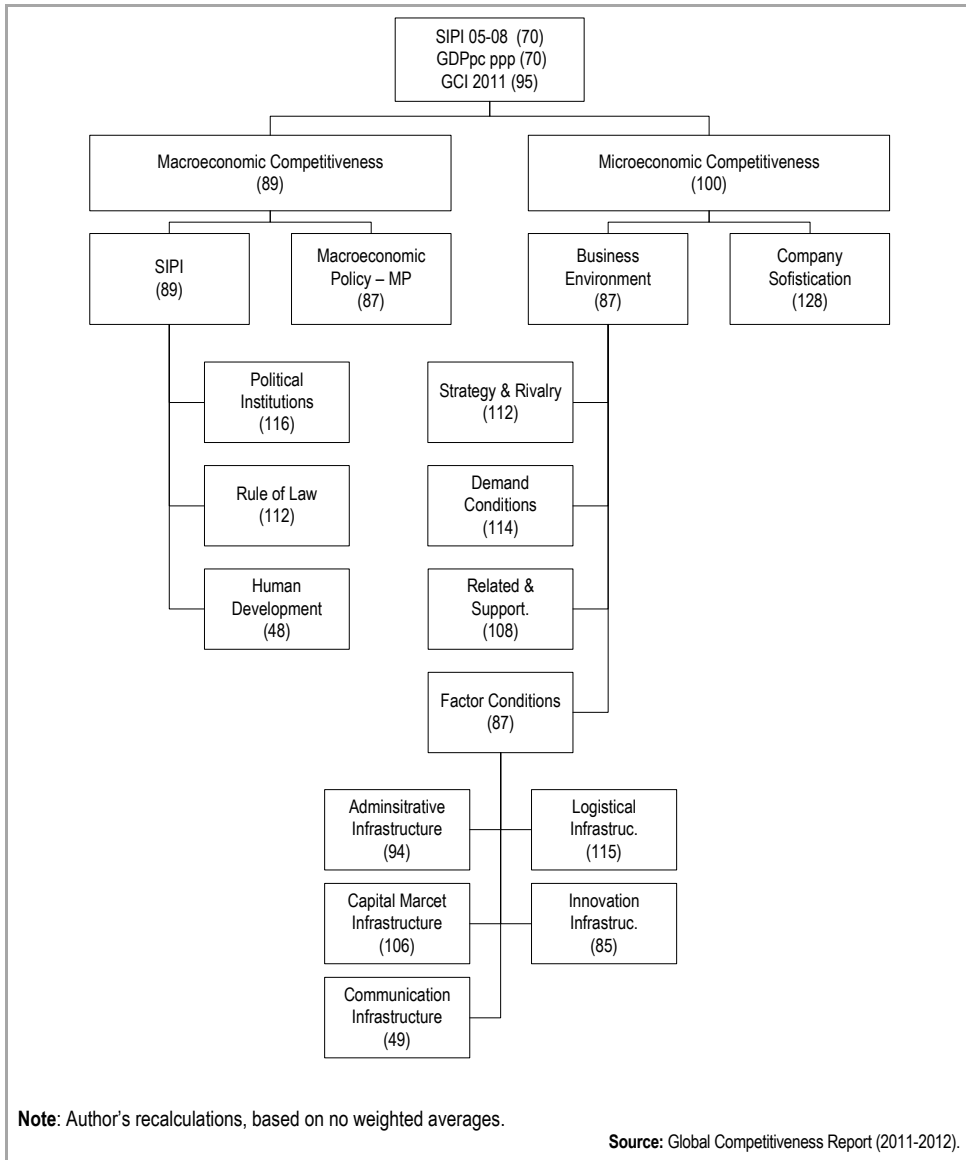


Figure 1 Competitiveness Profile of Serbia 2011 (Preliminary)

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