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THE MODEL OF COMPETITIVENESS AT THE LEVEL OF COMPANIES AND REGIONS

Abstract: *Competitiveness of a country is a field of economic theory, which analyzes the facts and polices which shape up the ability of the country to create and maintain the environment which brings about higher value for companies and prosperity for its inhabitants. This paper presents a model for assessment of competitiveness at the level of companies and regions. An original method for simulation of the hierarchical model of competitiveness has been developed and an original simulation software based on the previously defined model as well.*
Keywords: *competitiveness, company, region, simulation model*

1. INTRODUCTION

Consideration of the issues of competitiveness implies also distinguishing two basic concepts. One is micro- competitiveness - competitiveness of companies is base on relative prices and quality of products, in relation to those offered by other manufacturers and the other is macro competitiveness, whose basis is built in such a way that the country, by increase of export of goods and services, covers the import and at the same time achieves the incomes which can be " competitive" to the incomes of the countries with which it mostly has foreign trade exchange.

The imperative of the national strategy of competitiveness is the growth of productivity and transformation of economic growth into the growth of standard of the citizens. On the other hand, competitiveness at the level of companies today is more and more based also on low cost (rationalization of production with

application of effects of economy of scale) and on product differentiation (large investment into research, new technologies, development, marketing). Namely, many companies nowadays manage to be superior both in product differentiation at the target segment chosen and in low cost segment.

According to the report on global competitiveness 2010/2011. published in September 2010, Serbia takes 79. places out of 133 countries included in the research. In the period from 2007-2010. Serbia has advanced and moved up by 12 places, that is, from 91. in 2007. to 79. place in 2010. According to this report, at the scale of global index of competitiveness in 2010-2011, Serbia comes before Macedonia (88), Albania (96) and Bosnia and Herzegovina (102), and behind Croatia (77), Montenegro (49) and Slovenia (45). (Table 1.)

Table 1. Position of Serbia in global competitiveness in relation to the counties in the region

Country/Year	GCI 2007-2008.	GCI 2008-2009.	GCI 2009-2010.	GCI 2010-2011.	Change 2007-2010.
Slovenia	39	42	37	45	-6
Montenegro	82	65	62	49	+33
Croatia	57	6	72	77	-20
Serbia	**91**	**85**	**93**	**79**	**+12**
Bosnia i Herzegovina	106	107	109	96	+10
Macedonia	94	89	84	88	+6
Albania	109	108	96	102	+7

According to World Bank Report 'Doing Business", at the position list for 2012. Serbia takes 92. places by the easiness of operation. Out of EU members, only Greece is behind Serbia, at 100. place, and from the Region Bosnia and Herzegovina - at 125. place.

Table 2. Comparative analysis 2011/2012. for easiness of operation

SERBIA	DB 2011.	DB 2012.	Change of position
Starting business	88	92	-4
Construction permit issuing	176	175	+1
Propety registration	100	39	+61
Obtaining loans	15	24	-9
Protection of investos	74	79	-5
Tax payment	138	143	-5
Overborder trade	71	79	-8
Peformance of a contract	94	113	-19
Closing business	86	86	-15

Albania is at 82. place, five place lower than in 2010. Croatia moved back by one position, to 80. Montenegro remained stable at 56. place although it conducted three reforms, and the best in the Region is Macedonia, which made progress from 12. to 22 position with the reforms conducted in four areas covered by the report.

As far as Serbia is concerned, as shown in Table 2., it conducted two reforms in the area of registration of property by accelerating the procedure and in the field of solving insolvency problem. By property registration, therefore, Serbia took 39. places with 6 procedures, duration of 11 days and the expense of 2,8% of the value of the property, while the last year it was at 100. position.

In solving insolvency problem, Serbia is still below the average - at 113. place, with the procedure lasting 2.7 years, the expense amounting to 23% of the total property, and return rate of 24.4 cents on dollar. The best indicator for Serbia is obtaining loans - taking 24. places with high grades concerning the rights, details of information about loans, and coverage of adults by private credit bureau.

As for tax payment, in Serbia 66 payments are necessary per year, which takes 279 hours, and total tax rate is 34% of the profit.

A new indicator in this year report is obtaining electricity connection, by which Serbia is at 79. place with four procedures, duration of 131 days and expenses of 5,45 times higher than income per capita. The weakest point are still construction permits, where Serbia, lacking the last year reforms is at 175. place; to obtain the construction permit is takes 279 days, 19 procedures, and the expense is 16 gross domestic incomes per capita. The other indicators by which the countries are ranked are establishing a company, where Serbia is at 92. place, international trade - 79. place, execution of contracts - 104. place, protection of investors - 79. place and tax payment - 143. place.

Insufficiently dynamic economic growth in the period after 2000., especially considering the lagging behind during the 90s and the lost potential gross domestic product (GDP) in that period is one of the reason why Serbia did not make new comparative advantages in the international trade. Another reason is the structure of that growth. Expressive over average growth rates of gross added value had the sectors: traffic, storing and communications (15,9 per year), trading (14,6%) and financial mediation. From the initial average participation in forming GDP, which was less than 18% in 2001, in 2008. these three sectors participated in forming GDP with 30%, in other words, they were the main components of economic growth. The share of indirect taxes (reduced by subventions) in forming GDP was also increased from 11,8% to 16,4%. On the other hand, the sectors

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where material goods are produced had the growth of gross added value (GAV) deep under the average; agriculture with 0,3% per year, processing industry with 1,5% (total industry 1,6%); somewhat faster, but also under average, was the growth of production and GAV in civil engineering (4% per year). Thus the participation of these production sectors in forming the total GDP, from the initial 39% in 2001 was decreased to about 31% in 2007. and 2008. The main conclusion concerning our foreign trade disbalance and future economic growth results from the relationship between the growth and participation of exchangeable and unchangeable goods in GDP, that is the possibility of export expansion, as a prerequisite for the growth of GDP, and slower growth of import, as the other prerequisite for reducing the participation of the negative net export (deficit of goods and services) to the level which will make possible balancing of the total balance of payments in the changed conditions concerning inflow of foreign capital. As a structural phenomenon this reduces available goods for export and increased demand for imported goods, even independently from the fact that the internal demand (and consumption within it) increased faster than GDP which, on its part required continual broadening of the deficit in the current part of the balance of payments. Direct reflection of this structural deformation is the increase of the share of the deficit of goods and services (negative net export) in satisfaction of the total internal demand. Negative net export in 2005. was about 6% GDP while in 2008. it reached almost 23% GDP. This is a constellation which by lagging behind of production growth and GAV of exchangeable goods, limits the growth of export and substitutes. The share of domestic offer at the internal market by the offer from import. Such a model, by itself is sustainable as long as there is sufficient inflow of foreign capital and

assignments of our workers from abroad which will, by adequate surplus in the balance of financial-capital transactions cover the deficit of the current transactions which keeps expanding all the time due to the growth of trading deficit.

By its structure, the economic growth achieved did not provide the prerequisites for the future stable development as well. The key question is what is behind the inability of economic policies to provide for a sustainable economic development? It is the non-reformed public sector and non restructuring of the institutions. Non reformed public sector is the foundation of the economic model as it used to be, because it was the lever of capital transfer which came from outside, either by privatization or loans, and of its transfer to consumption. Therefore, it was the lever that transferred the capital to consumption and caused disbalance regarding the growth, regarding the dynamics of investment and consumption. The non reformed public sector also necessitated procyclical fiscal policy. The level of public consumption was not significantly diminished. The public sector is the permanent focus of all the views on economic policies, regardless of whether at issue is the necessity for deeper structural reforms, or weak that is limited effects of the measures of economic policies. How tough is the problem of narrowing public consumption, politically challenging and intrinsically complex is demonstrated by the examples of the countries which, by general estimates, have made the transition successfully. It is important to realize that the monetary policy too is a consequence of the above cited fundamental characteristics of the development of Serbian economy. Foreign exchange rate is always a consequence, and never a cause if efforts are made to maintain price stability under conditions of destabilizing factor nested in disbalances and non-reformed public sector. Monetary policy is now almost completely incapacitated, it can

have only two goals: to preserve foreign exchange reserves and prevent destabilization of rate and shocks at the market to the extent allowed by the foreign exchange reserves in the middle term.

Long time relying of production upon domestic demand - and not on export demand, which implies presence of larger competition and thus lower prices due to productivity growth - raises inflation to a long-term higher level in the presence of otherwise same other circumstances and macroeconomic parameters. Monetary policy usually opposes the inflation by using reference interest rate as its basic instrument. The higher price increase, the higher reference interest rate. If export had a long-term greater share in GDP (that is increasing share), the interest rate could be lower since in that case the inflation would be lower. It is understandable that higher productivity can be achieved also independently from strengthening activity can be achieved also independently from strengthening of export sector, but there is not a mechanism which could force of export sector, but there is not a mechanism which could force productive companies to organize the production process at a higher productive companies to organize the production process at a higher technological level, if the existing production ensures a "satisfactory" income. The task of the National Bank of Serbia aimed at preserving stability and creating the bases for economic development will be impossible if a powerful adaptation of public sector in the broadest sense does not occur. Regardless of the monetary strategy and selection of the instruments of monetary policy, in the long term, it is not possible to ensure stability of prices, foreign exchange rate and financial system. The dominant cause of the problems of Serbia economy is excessive consumption (which generates high import and, therefore, inflation, balance of payment deficit and indebtedness) and low rate of investment

and National Bank of Serbia does not possess the instruments to change these fact. Under these conditions, insisting on short-term stability (of inflation and exchange rate) would only increase the risk of the future explosive destruction of economic system. It comes out that mutual action and coordination of monetary and fiscal policy, aimed at forming more efficient and export-oriented economy is a prerequisite for the new model of balance and growth.

There are also significant weakness shown within the context of realization of firm's strategies and rivalry. They are primarily associated with regulation of the market of goods and services and above all, the anti-monopoly policy, market domination and intensity of local competition where, again, the state plays the dominant part for a part of the weaknesses shown in the sphere of corporative governance (efficiency of corporative boards and influence of auditor's reports) the responsibility must be ascribed to the business sector as well.

2. THE MODEL OF COMPETITIVENESS AT THE LEVEL OF COMPANIES AND THE REGIONS

This paper will show the research of competitiveness at the level of companies and the regions of Central Serbia. The research area included 83 companies (52 small, 21 medium and 10 big) in the region. The research was conducted on the basis of questionnaires containing questions about the level of competitiveness in the companies subjected to the survey. The questionnaire was made on the basis of studying the existing literature, local and foreign questionnaires for the similar purpose and estimation of the importance of individual characteristics based on experience. Analysis of all the parameters influencing

the level of competitiveness resulted in the specified model of competitiveness, which includes 15 characteristics which influence the level of competitiveness to a greater or lesser extent:

- Profit
- Average wages
- Value of export
- Value of equipment
- Value of investment
- Capacity utilization rate
- Competitiveness level in Serbia
- Competitiveness level in EU
- Competence level
- Development
- Innovations
- Certificates
- Foreign license
- Age of equipment
- Judicial processes

If competitiveness at the level regions is observed, the characteristics of competitiveness differ from those related to a company. According to the report on development of Serbia for 2010, the following characteristics were taken into account:

- GDP and economic sectors,
- Participation of non-financial market services in GAV,
- GDP and basic aggregates of consumption,
- Inflation,
- Employment and unemployment,
- Public finances,
- Balance of payment,
- Coverage of imports by exports,
- Foreign trade openness,
- Foreign indebtedness,
- Public debts,
- Credit rating and risk premiums of the country,
- Productivity of operation,
- Unit operation costs,
- Market share,
- Structure of goods export by factor intensity

- Investment into fixed assets,
- Foreign direct investment,
- Bank assets,
- Insurance sector,
- Capital market,
- Budget consumption,
- Governmental support

The suggested competitiveness models at the level of organization and the region have some common characteristics, such as investments or exports. However, the model observed from the aspect of a company is greatly different by types and numbers of influential characteristics, as well by relationships existing between them from the competitiveness models at the level of regions.

The existing model further served for making the simulation model.

3. RESULTS OF SIMULATION

In the next step, original methods of simulation of an integrated hierarchical model of competitiveness were developed and original simulation software was developed based on the previously defined model. The program solution was made in Microsoft Excel ambient, primarily because of simplified input and multiple correlation both of basic quantities and influential values as well. The model reflects cause-and-consequence relations in the modeled system, where at the key role in modeling the cause-and-consequence relations have the levels of variables which make the structure of the system and defined elations of mutual influences between individual quantities. By applying simulation procedures we obtain the value the initial calculated values (B_VAL), as well as the values obtained after the first (VAL_FI) and the second (VAL_SI) iteration.

In order to overcome complexity of the given conceptual model, the program provides the user with a display of intensity of correlation of the quantities

with the ambient. The value of each quantity is a probable prerequisite, that is, the input value necessary for calculation of the values of other quantities in the model. The value IN, given by the program for each quantity indicates the number of quantities that influence the calculation of

the given quantity, while the value OUT indicates. The number of quantities is direct relationship, through influential coefficients, with the given quantity. The program provides the user with tabular and graphic (Fig. 1) values IN and OUT.
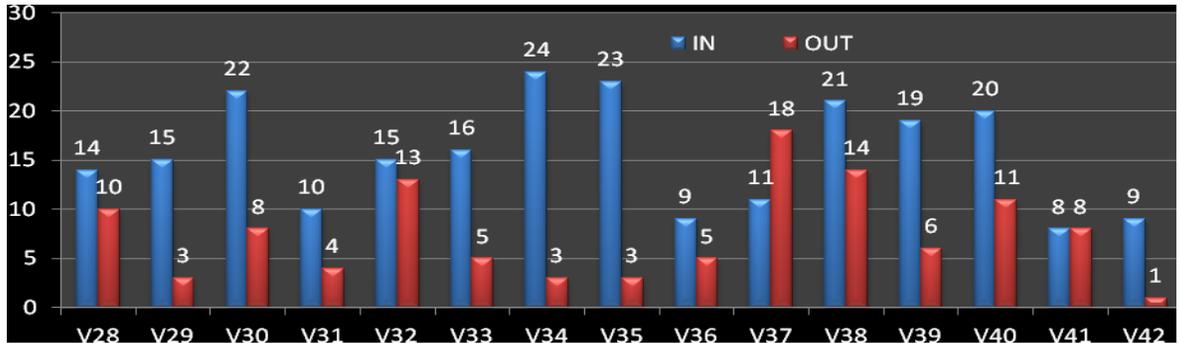
Fig. 1. Display of influential coefficients, initial and calculated values in the first and second interval for the competitiveness model

So, from Fig. 1. it can be seen that the criteria related to the equipment value and competitiveness level of a company in relation to the other companies in Serbia and EU have the greatest number of quantities influencing their calculation, while, on the other hand, the criterion related to development has the greatest number of quantities in direct relationship (18), and then follow the criteria related to the values of innovations and investments in the company.

On the basis of the values obtained

during execution of the program diagrams are generated which define the trends of change of the quantities observed within the time intervals specified. The program generates graphic displays of the trends and corresponding mathematical equations as well, in this case polynom of second order. The program itself defines the form of equation which defines the required trends with minimal deviations. The graphics mentioned, together with the equations and deviations are shown in Figs. 2, 3 and 4. which follow in the paper.
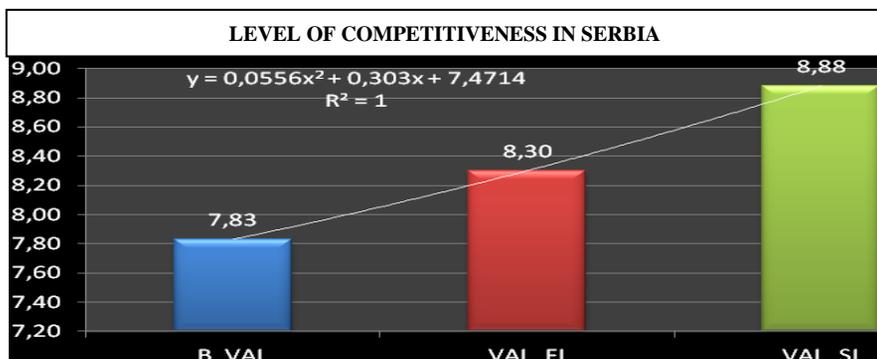

Fig. 2. Display of the trend of change of level of competitiveness in Serbia
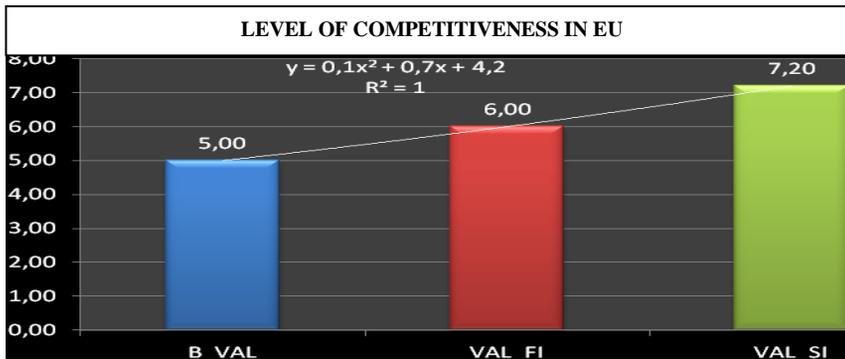
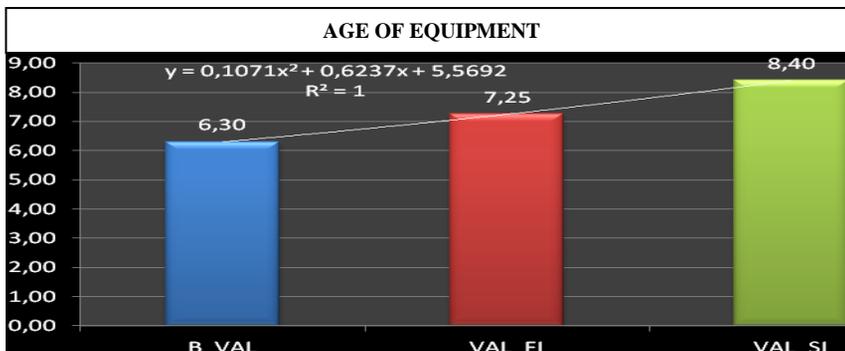**Fig. 3. Display of the trend of change of level of competitiveness in EU**

Fig. 4. Display of the trend of change of age of equipment

4. CONCLUSION

Serbia is on the 79. place of 133 countries included in the research according to the report on global competitiveness 2010/2011. It is necessary to eliminate or minimize all the above cited negative facts as soon as possible, not only because it is a condition to be admitted to EU but also because of the of the fact that these problems must be solved in order to increase competitiveness in Serbia.

The adopted Concept of development of Republic of Serbia up to 2010. will be the leadinf global strategic document in Serbia and the basis for operation of the National Council for competitiveness, as well as other different councils. (National Council for Infrastructure, Socio-economic Council, Busines Council, National Council for dezentralization, National Council for regional development, Council for European integrations and others) for making key sector strategies as well.

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