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A COMPARATIVE ASSESSMENT OF THE BULGARIAN ECONOMIC COMPETITIVENESS

The paper provides an economic interpretation of the assessments of the level of competitiveness of the Bulgarian economy presented in official international studies. The key factors for the competitiveness of the Bulgarian economy have been analyzed. They are ranked in comparison with other countries. The dynamics of these factors are traced before and after the economic crisis. Special attention is paid to the impact of the geoeconomic factor on the comparative economic competitiveness – what is the geoeconomics specificity and what impact has on the economic development of Bulgaria. Some conclusions about the Bulgarian competitiveness are made based on the results of the study; pointing out certain opportunities for increase.

JEL: O49; O57

The term competitiveness is used more widely in economic studies to assess the ability of an economy to develop in the globalizing world market. It is closely associated with the level of performance of an economy, measured with the capabilities to implement effectively its products on the international market; respectively assessment of the competitiveness of an economy can be obtained by benchmarking its performance against that of other countries.[1] An idea of the comparative competitiveness of the Bulgarian economy as a whole can be obtained from the results presented in prestigious studies of the level of this indicator in various countries.[2]

Evaluation of the Bulgarian economy competitiveness

The recent reports of the World Economic Forum[3] in 2014 and 2015 highlight that the global economy is in a "key" status when on the one hand we witness delayed economic growth and geopolitical tensions and on the other hand, the development of the globalizing economy leads to innovation, which are a prerequisite for the formation of conditions for the start of the so-called "Fourth industrial revolution" (The Global Competitiveness Report 2015-2016, p. xiii). The report from 2014 (The

[1] This definition of competitiveness does not intend to be the most comprehensive one; in this case it just presents the approach taken in the study to assess the competitiveness of the Bulgarian economy.

[2] See for example the European Commission reports: "European Competitiveness Report"; "Report on Single Market Integration and Competitiveness in the EU and its Member States"; "Member States' Competitiveness Report" and others.

[3] World Economic Forum (WEF) is an international non-governmental organization based in Geneva, Switzerland, founded in 1971 by the Professor in economics Klaus Schwab. The organization is famous for the annual meeting of international economic and political leaders, intellectuals and journalists who discuss major world issues in Davos.

Global Competitiveness Report 2014-2015) provides an assessment that focuses on changes in the competitiveness of the economies of the countries in the period after the financial and economic crisis. The comparison of the results of the last two reports with previous identical reports allow to assess, to what extent and how the economies of various countries and especially that of Bulgaria have been stabilized after the economic crisis and what new processes in the development of its economic competitiveness are observed. The study does not address the general evaluation of global trends, but rather the positioning of Bulgaria in comparison primarily with that of countries with similar economic development within Europe.

It should be emphasized that such a vast information provided in these reports is not quite accurate. On the one hand they are a result of the fact that the information is mainly based on primary data collected on purpose for the report (ad hoc approach), on the other hand such an approach does not allow achieving a highly harmonized information on each country. Therefore, when interpreting and analyzing the data the established trends should be defined (eliminating to a great extent the effect of the insufficient harmonization). In the same time it is attempted to avoid "unnecessary" explicitness in the economic interpretation and conclusions.

The approach in these reports in determining the Global Competitiveness Index (GCI) is in search for possible inclusion of a variety of factors affecting competitiveness - it displayed 12 main "pillars" determining competitiveness, covering 111 indicators. The idea is GCI to reflect the impact of, as much as possible factors relevant in one or another degree to the competitiveness of the monitored countries. The goal is through it to present a summary assessment of the weighted values of the indicators.[4]

It is assumed that the first four pillars are crucial for the development of economies that are in the stage of 'building the foundation of the competitiveness'; (so-called "Factor-driven economies").[5] Economies whose development is associated mainly with indicators included in the next six pillars are defined as those in the stage of 'development effectiveness' (so-called "Efficiency-driven economies". Bulgaria is in the group of those economies, which means that these six pillars play a decisive role in developing the country's competitiveness.[6] The

[4] The methodology for determining the GCI is presented on p. 35 of "The Global Competitiveness Report 2015 – 2016". The assessments for the years 2015 to 2016 actually refer to 2015 and that for 2014 to 2015 concerned 2014. Same is the logic for the other reports.

[5] The four key pillars to these economies are linked to the so-called "*Basic requirements*" (Basic requirements sub-index): 1. Institutions; 2. Infrastructure; 3. Macroeconomic environment; 4. Health and primary education. The evaluation of the GCI for these economies ("factor-driven economies") are obtained by giving weight of 60% to the obtained estimations for the first four pillars, 35% to the assessments of the next six pillars and 5% to the last two pillars.

[6] The six key pillars for these economies are linked to the so-called "*Efficiency enhancers*" (Efficiency enhancers sub-index): 5. Higher education and training; 6. Goods market efficiency ; 7. Labor market efficiency; 8. Financial market development; 9. Technological readiness; 10. Market size. The evaluation of the group of "efficiency-driven economies" is formed by giving the first four pillars weight of 40%, the second six pillars weight of 50% and to the last two pillars weight of 10%.

last two pillars are crucial for economies with 'innovation focus in its development' (Innovation-driven economies).[7]

The estimated GCI for Bulgaria places the country on 54th position in 2015 (2015-2016) with index 4.32.[8] For 2015 the highest rank 1 has Switzerland with index 5.76 (highest global competitiveness); the country - ranked last on 140th place is Guinea with index of 2.79.

For 2015, the average index for all countries calculated as median (median average) is 4.20 (Bulgaria - 4.32) for 2006 it was 4.07 (Bulgaria - 3.98). So the competitiveness of Bulgaria from lower than the average in 2006 is positioned now in the group with higher indexes than the average. For the years 2010 - 2015 the country showed an increase of the GCI from 4.13 to 4.32 that resulted in improving of the positions by 17 places - from 71st to 54th place. For comparison, Romania is on the 53rd place in 2015 with index 4.32 and has moved to that position from 67th place with an index of 4.16 in 2010. The corresponding figures for Greece are 81st with index 4.02 for 2015 and 83rd place with 3.99 in 2010. Turkey is on 51th place with an index of 4.37 for 2015 and was on 61st place with an index of 4.25 in 2010. In other words, similar processes, with the possible exception of Greece have been observed in other Balkan countries, but at least in terms of positioning, Bulgaria has implemented the most significant changes. Generally it can be assumed that the country stabilized its performance in terms of this index. These changes show that the period after the economic crisis has enabled an improved relative competitive position as compared to the other monitored countries.

From the EU countries except Greece, Slovenia, Hungary, Cyprus, Slovakia and Croatia have lower rank than Bulgaria. It is partly due to the fact that for their assessments used other weights – the ones for countries in the group "Innovation-driven economies" or countries in transition to this group. Thus, if the index for Bulgaria is calculated with same weights as for countries Slovenia, Cyprus, Slovakia and Greece, for 2015 the index for Bulgaria will be 4.04 -- placing the country only in front of Greece. If calculated with weights as for Hungary (4.25) and Croatia (4.07) the index for Bulgaria would be 4.24 - shortly after Hungary and before Croatia.[9]

Data presented in Table 1 provide detailed assessments for Bulgaria by separate individual indicators (same information is given for each of the monitored 140 countries). So Bulgaria's aggregate assessment for the first group of countries with four pillars "*Basic requirements*" is on 68th place with an index of 4.6. In 2010 (during the crisis) Bulgaria was on 72nd place with 4.4 value of this index. Regarding the

[7] The two key pillars for these economies are linked to the so-called "*Innovation and sophistication factors*" (Innovation and sophistication factors subindex): 11. Business sophistication; 12. Innovation. The evaluation of the group of "Innovation-driven economies" is formed by giving the first 4 pillars weight of 20%, the next six pillars weight of 50% and to the last two weight of 30%.

[8] The number of the observed countries in the last 5 reports varies from 139-148; practically the first 120 countries are present in each report.

[9] For this, as mentioned above, more comprehensive indicator is not the position that occupies a country but the established trends in the individual performance.

summary evaluation of the second group of six pillars "*Efficiency enhancers*" is on 50th place with an index of 4.3 - in 2010 was on 65th place with an index of 4.1; when ranking by the last group "*Innovation and sophistication factors*" Bulgaria is on 94th place with a score of 3.4 (in 2010 the country was on 95th place with an index of 3.2).

Table 1

Global Competitiveness index (GCI) for Bulgaria

	Rank (of 140)	Result (1-7)
GCI 2015-2016	54	4.3
GCI 2014-2015 (out of 144)	54	4.4
GCI 2013-2014 (out of 148)	57	4.3
GCI 2012-2013 (out of 144)	62	4.3
Basic requirements (40.0%)	68	4.6
1st pillar: Institutions	107	3.4
2nd pillar: Infrastructure	72	4.0
3rd pillar: Macroeconomic environment	53	4.9
4th pillar: Health and primary education	53	6.0
Efficiency enhancers (50.0%)	50	4.3
5th pillar: Higher education and training	64	4.5
6th pillar: Goods market efficiency	61	4.4
7th pillar: Labor market efficiency	68	4.2
8th pillar: Financial market development	59	4.0
9th pillar: Technological readiness	38	4.9
10th pillar: Market size	65	3.9
Innovation and sophistication factors (10.0%)	94	3.4
11th pillar: Business sophistication	98	3.6
12th pillar: Innovation	94	3.1

Source. The Global Competitiveness Report 2015-2016, p. 124.

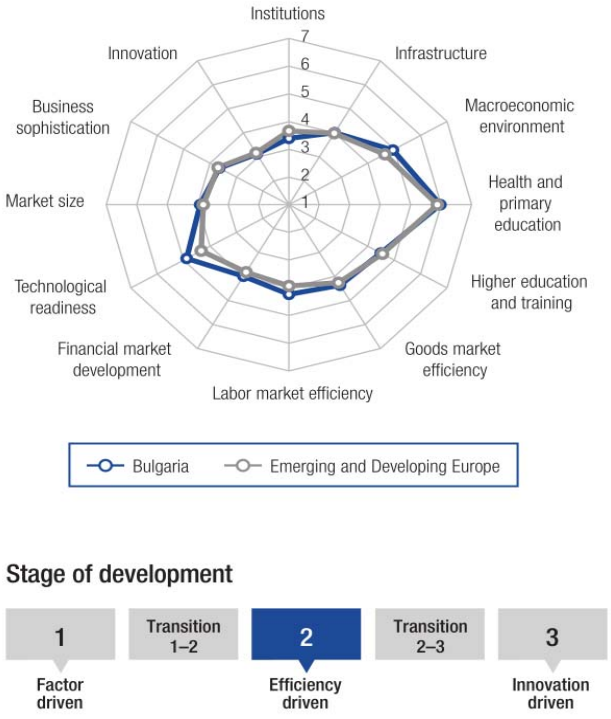
There is a notable improvement for the first and especially the second pillar (respectively "*Basic requirements*" and "*Efficiency enhancers* ") during the global crisis period. The fact that the country improves its position by just one place in the "*Innovation and sophistication factors*" ranking, (where the gap is most significant), is indicative of relatively low potential of the Bulgarian economy to improve its competitiveness in this group. This indicator is essential for the competitiveness of countries within the group, labeled as "Innovation driven" in their development. In the same time this is the area where Bulgaria has the most significant lag in comparison to neighboring Balkan countries. In 2015 Bulgaria is on the 94th place, Romania - on the 84th, Greece is 77th and Turkey takes of 56th place.

Figure 1 shows the differences between Bulgaria in separate pillars and the average performance of countries in the so-called "*Emerging and developing*

Europe".[10] Compared with the average values for this group of countries, Bulgaria performs better in general, as the advantages are most visible within the pillars of "*Technological readiness*" and to a smaller degree in "*Macroeconomic environment*". The country has noticeably low performance within the pillars of "*Institutions*" and (minor, but still obvious) within "*Innovation*".

Figure 1

Profile of Bulgaria and the "Emerging and developing Europe" in 2015



Source. The Global Competitiveness Report 2015-2016, p. 124.

Responses to the survey presented in Table 2, corresponding to „The *most problematic factors for doing business*" actually do not say anything different than the well-known problems of the local businesses. As the biggest obstacles there are pointed the "*Access to financing*", "*Corruption*" and "*Inefficient government bureaucracy*". What should be noted here is that the distribution of answers is fully corresponding with the lower meanings of the indexes within the "Institutions" pillar (value of 3.4 and 107th position).

[10] The group of "*Emerging and developing Europe*" includes the Balkan countries (except Greece and Slovenia), Poland and Hungary

Table 2

The most problematic factors for doing business

Access to financing	12.7
Corruption	11.4
Inefficient government bureaucracy	10.7
Inadequately educated workforce	9.9
Policy instability	9.6
Government instability/coups	7.1
Poor work ethic in labor force	6.0
Restrictive labor regulations	6.0
Tax rates	5.8
Inadequate supply of infrastructure	5.4
Insufficient capacity to innovate	4.7
Inflation	4.3
Complexity of tax regulations	3.2
Poor public health	1.1
Crime and theft	1.1
Foreign currency regulations	0.9

Note. From the list of factors, respondents were asked to select the five most problematic for doing business in their country and to rank them between 1 (most problematic) and 5. The score corresponds to the responses weighted according to their rankings.

Source. The Global Competitiveness Report 2015-2016, p. 124.

Some more complete picture of changes in the competitiveness determining factors can be obtained by dynamics of the 12 pillars forming the GCI, and the amendment of certain key sub-indexes for a longer period (Table 3).

Table 3

Pillars of the GCI – dynamics, variation coefficients and ranking of Bulgaria for the period 2006-2015

	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	*2015-2016/ 2006-2007*	*V %*
1st pillar: Institutions	3,05	3,22	3,28	3,19	3,29	3,32	3,39	3,38	3,32	3,39	1,11	3,1
2nd pillar: Infrastructure	2,92	2,91	2,79	2,88	3,57	3,62	3,79	3,93	4,06	4,00	1,37	14,2
3rd pillar: Macroeconomic environment	5,38	5,16	5,21	4,93	5,00	5,13	5,42	5,61	5,45	4,94	0,92	4,3
4th pillar: Health and primary education	6,04	5,57	5,53	5,54	5,85	5,80	5,92	6,00	6,03	5,97	0,99	3,3
5th pillar: Higher education and training	4,02	3,99	4,09	4,11	4,14	4,16	4,31	4,25	4,49	4,48	1,11	4,0
6th pillar: Goods market efficiency	3,75	3,89	4,11	4,02	4,00	4,08	4,17	4,19	4,37	4,35	1,16	4,5
7th pillar: Labor market efficiency	4,12	4,25	4,42	4,51	4,51	4,49	4,54	4,36	4,24	4,23	1,03	3,2
8th pillar: Financial market development	4,14	4,09	4,18	4,09	3,95	3,99	3,97	3,95	4,17	3,98	0,96	2,2
9th pillar: Technological readiness	2,91	3,11	3,65	3,82	4,01	4,11	4,30	4,45	4,73	4,87	1,67	15,6
10th pillar: Market size	4,12	3,66	3,83	3,94	3,79	3,80	3,82	3,87	3,87	3,91	0,95	2,9
11th pillar: Business sophistication	3,40	3,57	3,69	3,68	3,52	3,55	3,62	3,59	3,61	3,64	1,07	2,2
12th pillar: Innovation	2,99	2,96	2,91	2,90	2,91	2,94	2,98	2,97	2,94	3,11	1,04	2,0
Global Competitiveness index (GCI)	*3,98*	*3,93*	*4,03*	*4,02*	*4,13*	*4,16*	*4,27*	*4,31*	*4,37*	*4,32*	1,09	*3,6*
Rank of Bulgaria	*72*	*79*	*76*	*76*	*71*	*74*	*62*	*57*	*54*	*54*		8

Source. Global Competitiveness Report, the World Economic Forum – different years (reports for the years before 2006 to 2007 were made by calculating the GCI with 9 pillars).

Bulgaria achieved some general progress in ranking according to the GCI for the period after 2006 (2006-2007) until now. The value of GCI rose from 4.0 to 4.32 in 2015 (2015-2016). This allows the country to move from 72nd place to 54th place in the last year of the period of observation. The profile of the main pillars involved in composition of the aggregate GCI, as well as individual sub-indexes of these pillars, however, still assigns Bulgaria to the group of not so well-developed economies. The country is seriously lagging behind in terms of innovativeness of the economy (pillar 12 - *Innovations*), efficiency (pillar 11 - *Business sophistication*), the institutional framework (pillar 1 - *Institutions*) and the 10th pillar - *Market size* (Table 3).

For example, the index of "*Market size*" (10th pillar) decreased from 4.1 in 2006 to 3.9 in 2015, mainly at the expense of sub-index of scale in the domestic market (see sub-index 10.01), which decreased from 4.1 to 3.6 for the period. Adverse changes in these indexes are largely influenced by the limited purchasing power of the population, but also from insufficiently strong action against monopolies that prevent the establishment and development of a competitive and efficient market. As an example, in sub-index „*Effectiveness of anti-monopoly policy*" (6:03), Bulgaria is ranked on 91st place. According to this indicator the country actually has made some progress during the observed period, but such progress has been made in other countries, so that the position remains the same, respectively sub-index of the "*Intensity of local competition*" (6:01) is moving in a negative direction from 99th position to the 104th position.

The insufficient improvement of pillars 11 and 12 is a serious obstacle of the innovative branches. Some of the sub-indexes have been detained, or deteriorated the (already low) positioning. One of the main drawbacks is the state of local environment. Obstacle to increasing the share of branches with higher value added is the workforce qualification. For example, the sub-index "*The quality of management schools*" ranks Bulgaria 111th place. The situation is similar with sub-index "*Extent of staff training*." By this indicator Bulgaria ranks at 118th place. The insufficient qualification largely is a natural consequence of the country's inability to attract and retain talent - indicators which Bulgaria is ranked respectively on 132nd and 133th place out of 140 countries.

Serious obstacle on the progress in any of the directions reviewed here is the weak institutional framework. It is well-known that the delay in the judiciary reform is a constant present in the reports on the country's progress in the of convergence process and is one of the main points of criticism to Bulgaria. The country is ranked on 116th place by the corresponding sub-index (*Judicial independence*) in last GCI report, 2015-2016. The situation is similar with sub-index measuring the "*Favoritism in decisions of government officials"* where the country is on the 122nd place. Problems with the judiciary independence are entirely associated with the poor performance in "*Efficiency of legal framework in Settling disputes"* - an indicator that the country is ranked on 116th place. A significant obstacle to development is the lack of predictability of the environment that is largely driven by the *Transparency of government policymaking*. By this indicator Bulgaria ranks at 120th place.

Category in which the country has a relatively good performance is the macroeconomic environment. For several years, Bulgaria has maintained a well-balanced budget, low inflation, high savings and low debt. This, however, is not a sufficient prerequisite for attracting investments (especially in high-tech industries), or popularization of products within this group on foreign markets.

In general, it can be concluded that the overall trend is towards improvement of the Bulgarian position by the 111 sub-indexes (indicators) as the most important among them for the last 5 years may indicate "*Strength of investor protection*", "*Quality of overall infrastructure*", "*Quality of primary education*" This trend is not ubiquitous. There has been deterioration in the position of significant metrics such as "*Pay and productivity*", "*Infant mortality*" and the "*Brain drain"*, (with a complex tendency of the latter two indicators which is difficult to break) so there can be expected to have a lasting negative effect. The mentioned indicators (and not only) where the country is lagging behind determine the areas in which it may seek a purposeful policy for improvement, respectively to improve the competitiveness in general.

As far as such indexes (estimating the country competitiveness) are loaded with certain limitations and conditionality, they still give the ability to estimate and to determine the actual direction of their change as well as to assess what position taken by Bulgaria in comparison with other countries (within the framework of a specific research). The estimates were made by the same methodology for each country subject. Comparing the dynamics of indexes in separate columns for the observed period (Table 3), provides an opportunity to assess the effect of the global financial and economic crisis upon the fundamentals defining the country competitiveness.

The first thing to note is that the measure of changes in the individual performance along the period of observation (given by the coefficient of variation – CV last column) shows no significant changes. The ratio is highest for the 2 and 9 pillar, which showed the highest growth of these indicators - 37% and 67% (next to last column of Table 3). Generally the global crisis has given a visible reflection to the most factors of competitiveness. An obvious negative impact can be observed by the dynamics of indicators related to pillar 3 - "*Macroeconomic Environment*" and pillar 8 - "*Financial market development*", where the levels of 2008 still cannot be reached back. The value of last index for 2015/2016 is below 100 (next to last column of Table 3).

Relevant information directly related to the competitiveness of the individual countries can be found in the recent reports of information technology development in 2015 and 2014, presented at the World Economic Forum (The Global Information Technology Report 2015, ICTs for Inclusive Growth; The Global Information; Technology Report 2014, Rewards and Risks of Big Data").[11] The main index, which is

[11] Big Data (big data) is a concept that began to be perceived in economics and statistics to determine the information that is not collected on the basis of traditional processing applications of statistics. It is information obtained from internet, financial and business information obtained through "traditional" information sources. It is assumed that "Big Data" allow improving accuracy in making decisions, giving

considered in these reports, is NRI (Networked Readiness Index), which is based on an assessment of the ability to absorb and use of information and communication technologies (ICT). It has been prepared by aggregation of sub-indexes, determined on the basis of their performance in an aggregation of 10 key pillars system. It contains the performance of 148 countries by 54 indicators (the logic is similar to the one of the GCI). The index is calculated as not weighted mean of the values of the sub-indexes "*Environment*", "*Readiness*", "*Usage*" and "*Impact*".

Table 4 represents the estimates on individual indicators NRI for Bulgaria, as well as the ranking of the country for each of them (the same information is given for each of the 143 countries monitored).[12]

Table 4

Main pillars of Network readiness index (NRI)
for Bulgaria, 2015

	Rank (of 143)	Result (1-7)
Networked Readiness Index 2015	**73**	**4.0**
Networked Readiness Index 2014 (out of 148)	*73*	*4.0*
Networked Readiness Index 2013 (out of 144)	*71*	*3.9*
A. Environment subindex	**76**	**3.9**
1st pillar: Political and regulatory environment	108	3.9
2nd pillar: Business and innovation environment	50	4.6
B. Readiness subindex	**71**	**4.8**
3rd pillar: Infrastructure	34	5.9
4th pillar: Affordability	110	3.8
5th pillar: Skills	60	5.3
C. Usage subindex	**73**	**3.8**
6th pillar: Individual usage	47	4.9
7th pillar: Business usage	91	3.4
8th pillar: Government usage	118	3.1
D. Impact subindex	**77**	**3.6**
9th pillar: Economic impacts	61	3.3
10th pillar: Social impacts	84	3.8

Source. The Global Information Technology Report 2015, p. 134.

Table 5 represents the data on individual components of each pillar in 2015.

additional information, respectively help for more efficient analysis and reducing the risk of making wrong business decisions, including those at making predictions.

[12] The sub-index "*Environment*" (including two pillars "*Political and regulatory environment* " and "*Business Economic Environment*"); sub-index "*Readiness*" (including three pillars "*Infrastructure* ", "*Affordability*" and "*Skills*"); sub-index "*Usage*" (including three pillars "*Individual use*", "*Business use*" and "*Government use*" and sub-index "*Impact*" (including two pillars "*Economic Impact*" and "*Social Impact*". More detailed information can be found in The Global Information Technology Report 2015, ICTs for Inclusive Growth, p. 29.

Table 5

The networked readiness index (NRI)
for Bulgaria in detail, 2015

Indicator	Rank / 143	Value		Indicator	Rank / 143	Value
1st pillar: Political and regulatory environment				**6th pillar: Individual usage**		
Effectiveness of law-making bodies*	124	2.5	6.01	Mobile phone subscriptions/100 pop	30	145.2
Laws relating to ICTs*	60	4.0	6.02	Individuals using Internet, %	62	53.1
Judicial independence*	125	2.3	6.03	Households w/ personal computer, %	61	54.9
Efficiency of legal system in settling disputes*	123	2.8	6.04	Households w/ Internet access, %	56	53.7
Efficiency of legal sys. in challenging regulations**	124	2.5	6.05	Fixed broadband Internet subs/100 pop	39	19.3
Intellectual property protection*	107	3.0	6.06	Mobile broadband subs/100 pop	33	58.1
Software piracy rate, % software installed	61	63	6.07	Use of virtual social networks*	51	6.0
No. procedures to enforce a contract	77	38				
No. days to enforce a contract	75	564		**7th pillar: Business usage**		
			7.01	Firm-level technology absorption*	85	4.4
2nd pillar: Business and innovation environment			7.02	Capacity for innovation*	108	3.3
Availability of latest technologies*	91	4.4	7.03	PCT patents, applications/million pop	47	6.4
Venture capital availability*	79	2.6	7.04	Business-to-business Internet use*	54	5.1
Total tax rate, % profits	29	27	7.05	Business-to-consumer Internet use*	60	4.7
No. days to start a business	91	18	7.06	Extent of staff training*	126	3.3
No. procedures to start a business	23	4				
Intensity of local competition*	75	5.0		**8th pillar: Government usage**		
Tertiary education gross enrollment rate, %	34	62.7	8.01	Importance of ICTs to gov't vision*	104	3.4
Quality of management schools*	121	3.4	8.02	Government Online Service Index, 0-1 (best)	111	0.24
Gov't procurement of advanced tech*	96	3.2	8.03	Gov't success in ICT promotion*	113	3.5
3rd pillar: Infrastructure				**9th pillar: Economic impacts**		
Electricity production, kWh/capita	31	6,807.4	9.01	Impact of ICTs on new services & products*	92	4.1
Mobile network coverage, % pop	34	100	9.02	ICT PCT patents, applications/million pop.	40	1.9
Int'l Internet bandwidth, kb/s per user	22	128.2	9.03	Impact of ICTs on new organizational models*	91	3.9
Secure Internet servers/million pop	43	145.9	9.04	Knowledge-intensive jobs, % workforce	46	31.0
4th pillar: Affordability				**10th pillar: Social impacts**		
Prepaid mobile cellular tariffs, PPP $/min*	138	0.77	10.01	Impact of ICTs on access to basic services*	81	4.0
Fixed broadband Internet tariffs, PPP $/month**	34	23.98	10.02	Internet access in schools*	45	5.0
Internet & telephony competition, 0-2 (best)	104	1.33	10.03	ICT use & gov't efficiency*	91	3.7
5th pillar: Skills			10.04	E-Participation Index, 0-1 (best)	106	0.25
Quality of educational system*	91	3.4				
Quality of math & science education*	54	4.3				
Secondary education gross enrollment rate, %	59	93.1				
Adult literacy rate, %	24	98.4				

Note. Indicators followed by an asterisk (*) are measured on a 1 -to-7 (best) scale; PPP ** – see footnote 13.

Source. The Global Information Technology Report 2015, p. 134.

Singapore is the best performing for the year 2015 (with an NRI of 6,0), and the worst one is Chad with an index of 2.3 (ranked at 143th place). The overall NRI ranks

Bulgaria on 73rd place with a score of 4.0 (for the previous 2014 our country was again 73rd with a same score of 4.0, and in 2013 it took 71st place with a score of 3.9). For comparison, Romania is on the 63rd place in 2015 with a score of 4.2, and in the previous year it was on the 75th place; Greece is in 66th place with a score of 4.1 (74th in the previous year); Turkey takes 48th place with a score of 4.4 (as in 2014 it was 51st). The improvement of the neighboring Balkan countries positioning is quite visible within just one year and it is something that Bulgaria has failed to achieve. Our country takes the last place among the EU countries in 2015 as in between our neighbor only Serbia has a weaker rank (77).

Tracking Bulgaria and the other neighboring countries along the period of observation shows that there is a high variation in NRI, as it is significantly higher than the one of GCI. This in turn is a prerequisite for the acceptance of inaccuracies in the country ranking according to this index. However, this aggregated index gives some possibilities for overall estimate.

Bulgarian ranking according to the main sub-indexes of NRI is: 76th place for 2015 and 71st for 2014 for sub-index "*Environment*" respectively 71st and 75th place in sub-index "*Readiness*"; 73rd and 65th place for sub-index "*Usage*" and 77th and 86th place for the "*Impact*" sub-index. Out of the ten pillars in 2015 Bulgaria has the best position (34th) in relation to third pillar "*Infrastructure*" while the weak performance (119th) is observed in terms of "*Government usage*".

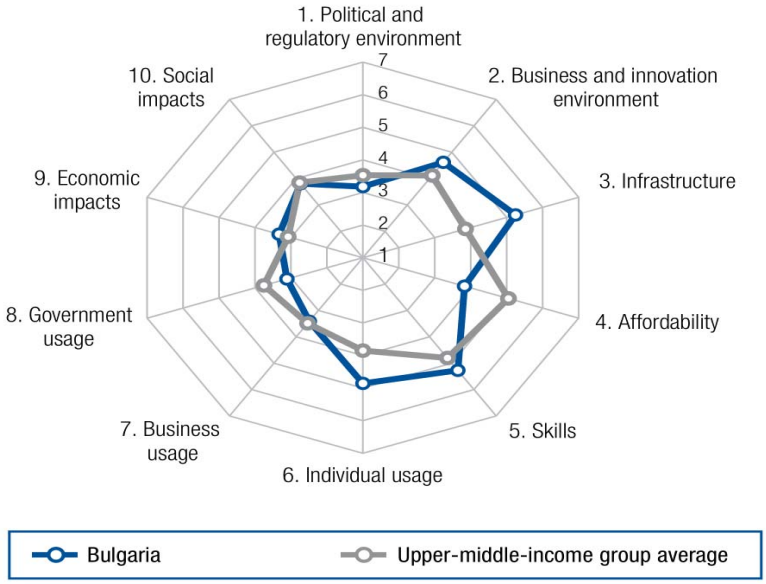
Bulgaria has the highest rank (22nd position) on the sub-index 3.03 "*International Internet bandwidth, Kb/s per user*" and sub-index 2.05 "*Number of procedures to start a business*" - 24th position. The lowest ranking is achieved by the sub-index in the first pillar "*Political and regulatory environment*", namely sub-index 1.03 "Judicial independence" (125th position), sub-index 1.04 "*Efficiency of the legal system in resolving disputes*" (123rd position) and „Efficiency of legal system in challenging regulations" (124th position).

As in Figure 1, the NRI is represented by the same manner - as a radar diagram showing the difference of Bulgaria in separate pillars to the average performance of group of countries with so called “Upper-middle-income” (see Figure 2). Compared to those countries Bulgaria is clearly in a better position in terms of the pillars "Individual Usage", "Infrastructure", "Business and innovative environment" and "Skills". The most noticeably lower performance is in terms of "Affordability", "Government Usage" and to some extent in "Political and regulatory environment.

NRI corresponds most closely with third group „Innovation and sophistication factors” of GCI (11 and 12 pillars). Bulgaria has the 73rd position out of 143 countries monitored by NRI, but the gap with EU countries is significant, a similar gap is observed in the third group "Innovation and sophistication factors” from the GCI. In other words the NRI confirms the conclusion that, despite the fact that Bulgaria no matter that is not lagging far behind in respect of the aggregate indicator GCI from other EU countries, the country does not have any good basis for development of its competitiveness in terms of innovation and business efficiency.

Figure 2

Main pillars of the NRI - data for Bulgaria and average values for the group of "upper-middle-income" countries in 2015



Source. The Global Information Technology Report 2015, p. 134.

For the relatively accuracy of the results of the calculation of the GCI and NRI one can judge on the results (positions) that Bulgaria receives, based on other indicators such as GDP per capita calculated on PPP as well from the particular level of the PPP.[13] According to the IMF in 2014 Bulgaria occupied 67th place out of 187 countries according the GDP per capita. Similar is the information of the World Bank, where for 2011-2014, Bulgaria is 69th out of 185 countries.[14]

In the case of Bulgaria PPP over the World Bank estimates is 2.12 for 2014, only Romania has a similar value (1.94), and therefore Bulgaria is defined as a

[13] PPP (Purchasing power parity) measures the purchasing power against the US dollar. In the case of Bulgaria PPP over the World Bank estimates is 2.12 for 2014. This means that in 2014, with the equivalent of 1 US dollar in Bulgarian currency can be obtained 2.12 more goods and services than in USA At the same time the very magnitude of the indicator PPP is regarded as an adequate indicator of the competitiveness of an economy. Higher values of PPP mean lower competitiveness (prices of goods and services are lower in countries with low competitiveness). In fact, the economies with low competitiveness are forced to maintain lower prices for their production, thereby achieving competitive advantage based on low price of their exports and thus make it more competitive on the global market. asis of lower prices for their exports, resulting in higher competitiveness on the world market.

[14] https://en.wikipedia.org/wiki/List_of_countries_by_GDP_%28PPP%29_per_capita

country with lowest competitiveness of all EU countries.[15] From 180 monitored countries, Bulgaria has 63 position of PPP, which means that this indicator places the competitiveness of the country in terms of PPP on 117 position (180–63=117). From EU countries, Norway has highest competitiveness rank 1, Finland is ranked 6, and Romania is ranked 102. Changes in the PPP for Bulgaria in the years after 1995 are as follows: 1995 – 3.57; 2000 – 3.94; 2005 – 2.63; 2010 – 2.23 and 2014 – 2.12.

Obviously, according to this indicator an increase of its competitiveness is observed for this period.[16] Apparently in practice the most favorable indicator for PPP was achieved in 2008 - 2.05, after that the mean of those years (2008-2014) is 2.12, which coincides as a magnitude with that of last year observed (2014). So, it appears that increased competitiveness took place in the period 1995-2008, after which the changes in this indicator were determined most likely by conjectural market changes.

The analysis allows making some generalizations, namely:

●The results obtained for the GCI and NRI are not different, as they do not contradict to the assessment of other indicators such as GDP per capita, PPP, etc. It is also a confirmation that despite all conventions and complicacy of the above estimates, they give fairly accurate characteristics, especially in terms of the dynamics of change of the observed indicators;

●The similar assessment obtained on the basis of GDP per capita shows that this indicator remains essential to obtain a general evaluation of the level of competitiveness. This very indicator is seen by the European Commission as the most reliable measurement of regional disparities by countries (European Commission, 2009). Therefore the dynamics of the indicators that form the GCI can first be perceived as such related to the changing of the GDP per capita (respectfully Gross Value Added - GVA) and also can be accepted as such that give enough adequate picture about the factors determining the amendment of the competitiveness;

●An approximate aggregate assessment of competitiveness can be obtained based on the changing indicators such as GDP per capita and PPP, but the assessing of the GCI and NRI as a result of the impact of dozens of indicators shows on the one side the effect of the individual factors determining the level of competitiveness and on the other side show that a rise in competitiveness is a complex process dependent on dozens of interrelated indicators. In other words, achieving higher competitiveness can be done only after a favorable change of the complex of factors forming the main "pillars" of the GCI and to a lesser extent of the NRI.

For that particularly important point that the so-called "Policy makers" should take into consideration that, without creating a socio-economic environment consistent with these factors, any "spells" to achieve "Sustainable increase in productivity and

[15] http://data.worldbank.org/indicator/pa.nus.pppc.rf?order=wbapi_data_value_2015+wbapi_data_value&sort=asc

[16] The Highest PPP for Bulgaria was in 1996, being 4.37 -- from 176 monitored countries in this year Bulgaria is on 17th place in terms of PPP, respectively on 159th place in terms of competitiveness.

competitiveness" through the "Restructuring the economy into a knowledge based economy", "Building innovation strategy for smart specialization", etc., will remain just a chatter;

●Tracing the ranks of the sub-indexes forming GCI and NRI is a good indicator of the "bottlenecks" for achieving greater competitiveness;

●There are bv87/ be achieved if there is a real will of the society, regarding the innovation and business efficiency such a change (if it can be achieved) will be a subject of a change of the generation. Unfortunately, in the presence of an aging population and ranking sub-indexes of GCI "*Country capacity to retain talent*" on the 133 place and "*Country capacity to attract talent*" of 132 out of 140 countries, that perspective at least for the moment seems like a "*Mission Impossible*".

No matter what indicator is used to estimate the competitiveness, the variation of the assessments for the Southeast European countries (Balkan countries) is insignificant (based on GCI, NRI and other indicators), which clearly shows that these countries form a homogenous group in terms of the level of competitiveness. In other words, the geographical location of these countries is probably a decisive factor for the level of their competitiveness.

Impact of geographical factors on the Bulgarian economic competitiveness

After the political division within the EU dropped, there is a new, different division within the Pan-European economic space formed by differences in the countries economies competitiveness. The most negative feature of this new division is the existing difference between the Balkan countries and the other EU countries regarding the degree of economic development. On the background of this new reality, the actual possibilities and prospects of the Balkan countries should be identified in order to implement convergence by improving their competitiveness. This situation raises two important questions. The first concerns the factors explaining this "phenomena", the second - the policies that can be implemented to deal with the consequences of it or at least to soften the adverse effects.

In the economic literature (and not only there) the problems of the Balkans countries in the years following their transition to a market economy are being discussed. The general conclusion, which is reached in the analysis, is that the observed processes in these countries are strongly influenced by national and regional specifics. There have been a number of attempts to identify the reasons for the unfavorable economic development of the region in the years after 1989.

One noteworthy attempt in this direction is that of Hoey and Kekic (1997), summarizing the results of different authors for the poor performance of the Balkan countries compared with Central Europe by coming to the following main reasons:

- the specifics of the Balkan cultures;
- insufficient commitment to the market and the possibilities for integration with the West;

- the lack of democratic traditions;
- differences in experience and consequences of development during the so-called "planned economy";[17]
- the effects of lower income levels and starting conditions;
- the effect of lasting political and administrative Ottoman heritage.

A number of other important reasons can be added as well. The population in countries such as Bulgaria, Romania and Albania has not been prepared for changes like this in Poland, Hungary and the Czech Republic. This is due to the fact that the society has a limited capacity to absorb a "number of reforms" at a certain point. This applies especially to the Balkan countries due to their long-term lack of democratic traditions, lack of historical experience with market institutions and last but not least, perhaps the main reason the historical attitude of neglecting the laws and the regulations. This is the reason, according Dobrinsky, reforms and structural changes (where and when to bring in these countries) to face much more obstacles and difficulties than in Central Europe, (Dobrinsky, 2001).

Proof of permanent differences between the Balkan countries and the countries of Central Europe is that if they are ranked according to the place they occupy in economic development now and in 1989 it will be established that their positions have not been changed – the ranks they currently hold in comparison to 1989 are almost the same. The only change is in the absolute differences measured by GDP per capita. Countries whose economic potential has been more constrained as a result of "need" to develop in a planned economy, now manage to realize it, these are the new member states from the region of Central Europe.

All this shows that the geographical location within Europe is crucial for the economic development of the Balkan countries. Backwardness of Balkan countries in recent decades is result not only of economic and political conditions, but also due to purely geographical factors. The geographical location affects the social and economic development of the Balkan countries in a different way. The countries of Central Europe have a direct border with the developed countries of Western Europe, which allow quick access to their markets. Balkan countries do not share those common borders and are on a considerable distance from the economic centers of Western Europe. Thus, the countries of Central Europe have a strategic advantage, what in the long run lead to more intensive interaction and integration with Western development centers (Totev, 2015).

The empirical studies also demonstrate the role of the geographical factor – the spatial location of a country on the map of Europe is as an explanation for the successful or not so successful adaptation of its economy. It is associated with differences in terms of proximity and accessibility to markets, foreign direct investment,

[17] As an example can be given different commitment of the countries to the former Soviet Republics and the long-term effect of that on their development in the transition period. An example of this is the economic development of Bulgaria in the last 25 years, which has been highly influenced by the political and economic relations with Russia.

barriers to the flow of information, knowledge and technology, the movement of people and other prerequisites for successful economic adjustment. The geographical location increases the opportunities for intra-industry trade, cross border cooperation with developed economies. Last but not least, the factor geographic location proved decisive and to the social attitudes, traditions, habits and mentality. This is one of the reasons the Balkan countries generally to have lower economic structures and economic performance, with pronounced problems in the process of their integration to the open European market.

The above information does not lead to optimistic views on the prospects of the Bulgarian economy and in particular to the domestic industry to significantly increase its competitiveness compared to average indicators of the EU countries. First, as pointed out, the opportunities for increasing competitiveness to one or another degree is a result of favorable development of a number of interrelated socio-economic factors. As Bulgaria shows no visible progress on these factors, objectively one can not expect visible progress in terms of increasing the relative competitiveness of the economy.

The authors adopt the view that an objective evaluation of the real possibilities and potential of Bulgaria in terms of increased competitiveness will be much more useful for economic policy than the "discovery" of opportunities based on well-meaning but unrealistic views. Another fact should be pointed out that will have long term negative effect on the overall economic development of our country. This is an extremely unfavorable demographic picture in terms of aging, which is further aggravated by the process of immigration of younger people.

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In summary, the result of the analysis stressed to the fact that the new member states from Central Europe have greater economic potential for development, including the development of the industry compared with that of Bulgaria, something that is high time to be accepted as a fact.

The economic convergence of Bulgaria, reducing economic disparities compared to the EU average (EU 28 average), including increasing its competitiveness will not continue to be implemented with the current relatively high rates, even on the contrary. They tend to diminish over time. An objective evaluation clearly shows that at least for the moment, Bulgaria has little potential to develop high-tech products based on existing market opportunities. Any initiatives in this direction will not be successful, especially in the framework of the single European market.

Certain manufacturing industries are areas in which Bulgaria is lagging to a lesser extent than other economic areas compared with more developed countries. The so-called "reindustrialization" of the Bulgarian economy could be achieved through structural changes in favor of industrial branches where the economy has comparative advantages, as well as "actions" directed towards moving towards the higher positions of the value chain in these branches. This would enhance the effectiveness not only of a particular production, but of the branch as a whole. Such a development does not

necessarily imply the use of high-tech innovation - an area in which our country is not very strong and in foreseeable future can not expect things to change.

When designing policies to increase competitiveness a particularly important fact should be considered, namely that in order to be effective and to result in real improvements in competitiveness, such policies should be based on a holistic approach, to cover a whole range of interrelated directions and to lead above all to the creation of adequate social-economic environment. Without such an environment, any efforts to improve productivity and competitiveness, as already mentioned, will remain in the sphere of good, but in practice unrealistic intentions.

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