An Evaluation of the Developing Countries Economic Progress Performance in the European Region using DEA

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Abstract

The opportunity for a potential flow of direct foreign investments strongly affects the economic development; this is specifically true for the developing countries (according to IMF listing, year 2014). In addition, the follow-up in the import-export commercial balance and the capital development are irreplaceable factors that strongly influence the economic development of any country. Persistent management of debt agreement and payment so that they do not burden the economic development progress.To the above mentioned problems dealt in the study, the GNI index per capita is attached. Using DEA as methodology, specifically Malmquist index, this work studies the period of time 2008-2014. Identification of the economic development opportunities variables for the efficiency and productivity increase the understanding and judgment ability for the evaluation of the economic performance efficiency and productivity in the developing countries in Europe.

Keywords: Performance, efficiency, Malmquist index, efficiency scale magnitude.

Introduction

This study deals with economic development progress issues for the developing countries in the European region (according to IMF listing of year 2014, excluding the EU countries that became EU members before 2007) in the period of time 2008 – 2014. During this period of time, after 2007, only Croatia became EU member (July 2013), while countries like Serbia, Macedonia, Montenegro and Albania, that are Western Balkans countries, have only gained the candidate country status. The average of GNI per capita, PPP (gross national income converted into dollars using buying, parity norms of buying power) for year 2014 is $ 15151, which varies from $ 5500 for Moldova to $ 21710 for Kazakhstan. Non EU members Western Balkans countries, but aspiring to get integrated, of which Albania is also a part, have the following GNI value per capita: Albania - $ 10180, Bosnia and Herzegovina - $ 10010, Kosovo - $ 9300, Macedonia - $ 12800, Montenegro - $ 14530, Serbia - $ 12150; so all have GNI values ranking lower that the average GNI.

In 2008, the GNI average value for all the 17 developing countries was $ 12523.5, where Albania - $ 8810, Bosnia and Herzegovina - $ 8940, Kosovo - $ 7550, Macedonia - $ 10660, Montenegro - $ 14130, Serbia - $ 11570; so, of the above mentioned Western Balkans countries, only Montenegro's GNI was above the average GNI. As far as the Human Development Index (HDI) (Human Development Report 2015, Work for Human Development), only Croatia and Montenegro had it bigger that 0.8 (based on this index evaluation criteria), following are countries like Belorussia, Romania, Kazakhstan, and Bulgaria which rank close to 0.8 coefficient, while the other countries rank lower.

EU member countries have altogether a population of 557.4 million inhabitants, while the countries in study have altogether a population of 208.7 million inhabitants. Thus, these countries have a very big weight in the European population and their full integration is not only to their benefit but to that of the European region as well. The economic development, specifically of the Western Balkans countries where Albania is also included (regardless its geographic location with a very long coastal line that favors tourism, not mentioning the other resources) is lower than the EU countries development level and with considerable differences. In the export-import commercial balance for 2014 as a percentage, (average TRADE, sum of export and import of goods and services measured as share of the gross domestic product) the exports occupied 40.9% and the imports 50.98%.

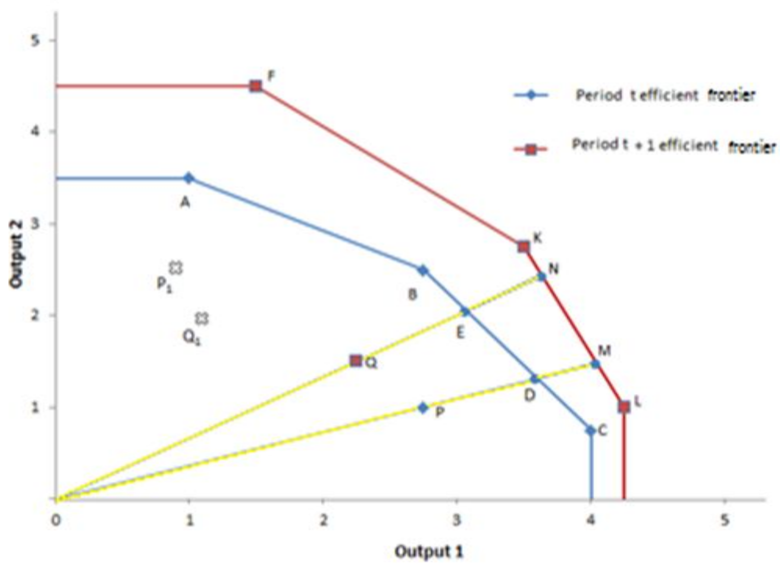
For the three EU countries that are still evaluated as developing countries (MF-2014) in the TRADE balance numbers, Hungary shows 89.25% (exports) and 81.99% (imports), Lithuania shows 81.22% with 79.3%, Poland 47.45% with 46.19%. The same numbers for Albania are 28.25% with 47.25%, where a considerable unbalance is noted compared to the above mentioned average for the countries in study. Foreign direct investments average expressed in percentage of the country GDP for year 2013 (which pertains to the period 2008-2014) in these countries reaches to 4%. Crediting level from their bank sector is still very low. A problem for Albania has also been the high level of foreign debt. Albania is evaluated as an agricultural country, as 44% of the employed people, are in agriculture and only 36% are in the services sector, but the export and import of alimentary goods is unfavorable in the commercial balance. The employment in agriculture for the other Western Balkans countries is: Montenegro 5.7% (62% in services), Macedonia 18% (51% in services), and Serbia 22% (52.9% in services). The above facts are evidence for backwardness in the organization structure of the economic factors that is reflected in the lack of markets, features that make a considerable difference with the western countries economies. The above mentioned numbers give only a general view, but that shows the need for profound studies. Therefore, in my study I have identified some factors with influence in the economic development progress (evaluated as inputs and outputs) to be studied.

2.Methodology

To measure the efficiency and productivity change in time, there are several methods and ways that different researchers use. But among those, the one that has become well-known in the scientific literature is Malmquist productivity index (Malmquist 1953). This index has a broad implementation in many application fields using DEA models. Malmquist index has its own extensions where desirable and undesirable factors are used and included, specifically in some production processes. In its beginnings, this index is defined and refined as Malmquist index of productivity by Caver DW, Christensen LR, Diewert WE (1982), Fäа re et al (1989), have later used DEA to calculate Malmquist index that is related to productivity change. They evaluated the fact that productivity change may be an extended combination of productivity change in time and operating units change of efficiency (DMUs).

Productivity changes in definite time intervals, the economists have simply considered with the technological renovations, without considering the impact to productivity and the efficiency change as impact factors separately from the technological changes. We have the evaluations using DEA with an application of Malmquist index in Thrall R.M (2000). A work where the productivity changes were reflected in the cost of input-output values impact with the respective amounts in two time periods (called *t* and *t+1*) of a given interval, is developed by Maniadakis and Thanossolis (2000 and later). Malmquist index may be calculated with the oriented input or oriented output, but, with a constant returns to scale assumption, it is the same. Taking into account the two periods *t* and *t+1*, it may happen that the efficient frontier may change or not. In the real time flow, in the units operation, the efficiency frontier is not unchangeable.

In DEA model applications, for the evaluation of productivity changes, Malmquist index (MI) and Malmquist-Luenberger index (MLI) are used. Färe et al (1994) have examined the productivity rise in the industrialized countries (productivity growth, technical progress and efficiency change). In the atmosphere environment we have the environment pollution that is evaluated as undesirable, but in the economic environment also we have many factors that are not so much desirable. Before we deal with an application using Malmquist index approach, let's see the following figure where two outputs are produced by using one input. **(See figure)**



To examine a given point (a given DMU) in the respective t period against the given efficiency frontier the note $H^t(x^t, y^t)$ is used, which note will later be used as a reference for the decision making units efficiencies, such as $E^t_{f_0}(x^t, y^t)$, $E^{t+1}_{f_0}(x^{t+1}, y^{t+1})$ respectively (the data are given with the respective values ofx^t_0andy^t_0 for the period *t*andx^{t+1}_0, $y^{t+1}_0$for the period*t+1*). For the illustration of DEA efficiency, radial projection is used to project an inefficient unit in the efficient frontier f(x,y)^t in a certain *t* time period. It needs to be emphasized that in order to avoid some DEA limitations, where it is used, the number of decision making units should be at least twice as the sum of the input-output variables (see Golany and Roll 1989). The variables in DEA are proportionally improved until the PPS efficient frontier is reached. Considering the above figure, the relative ratios with the respective limits f(x,y)^t and f(x,y)$^{t+1}$ may write:

$\frac{O_D^{t+1}(x,y)^{t+1}}{O_D^{t}(x,y)^{t+1}}and\frac{O_D^{t+1}(x,y)^{t}}{O_D^{t}(x,y)^{t}}$ therefore we have

$\left(\frac{OQ}{ON}\right) \div \left(\frac{OP}{OM}\right)and\left(\frac{OQ}{OE}\right) \div \left(\frac{OP}{OD}\right)$.

Based on the geometrical meaning, the following is given:

$$M = \{[\ (\tfrac{OQ}{OE}) \div (\tfrac{OP}{OD})\ ] \quad x \quad [(\tfrac{OQ}{ON}) \ \div \ (\tfrac{OP}{OM})\ \}^{1/2} \qquad (1.*)$$

Geometrical meaning of these two ratios is a measure of the unit productivity change as is the productivity change of the decision making unit, which in the period *t* operates in point P and in the period *t+1* operates in point Q. This geometrical average will express Malmquist index.

Malmquist index, with the oriented input and a constant return to scale assumption, is

expressed $M_0^{\ll I\_C \gg} = [\frac{Ef_0^t(x_0^{t+1}, y_0^{t+1}) \cdot Ef_0^{t+1}(x_0{}^{t+1}, y_0{}^{t+1})}{Ef_0^t(x_0^t, y_0^t) \cdot Ef_0^{t+1}(x_0^t, y_0^t)}]^{1/2}$. (2.*)

The respective efficiencies of each decision making unit in relation to the data and periods are calculated according to the following models in the General Approach.

3. General Approach

Let us suppose that we have n DMU_j (j=1,2,..,n) in a given time moment τ. The output vector that is produced y^τ_j = (y^τ_{ij} ,…, y^τ_{sj}), using the input vector x^τ_j = (x^τ_{ij},…,x^τ_{mj}) (τ implies periods *t* and *t+1*). We calculate the efficiencies of DMU_j using the following models:

- To calculate $E_{f_0}^{t}(x_0^t, y_0^t)$ we have the following CRS oriented input model (Comparison of $x_0^t$to the frontier in time *t*):

$E_{f_0}^{t}(x_0^t, y_0^t)$ = Min E_{f_0}

S.t $\sum_{j=1}^{n} \lambda_j x_{ij}^t \leq E_{f_0} x_{ij_0}^t$ i=1,2,…,m [M.1]

$\sum_{j=1}^{n} \lambda_j y_{rj}^t \geq y_{rj_0}^t$ r=1,2,…,s

$\lambda_j \geq 0$ j=1,2,…,n

where$x_0^t = (x_{1_0}^t, \dots, x_{mo}^t)$ and $y_0^t = (y_{1_0}^t, \dots, y_{s0}^t)$ are input and output vectors.

- To calculate $E_{f_0}^{t+1}(x_0^{t+1}, y_0^{t+1})$ the following model is used (Comparison of x_0^{t+1} to the frontier in time *t+1*):

$E_{f_0}^{t+1}(x_0^{t+1}, y_0^{t+1})$ = Min E_{f_0}

$S.t \sum_{j=1}^{n} \lambda_j x_{ij}^{t+1} \leq E_{f_0} x_{ij_0}^{t+1}$ i=1,2,…,m [M.2]

$\sum_{j=1}^{n} \lambda_j y_{rj}^{t+1} \geq y_{rj_0}^{t+1}$r=1,2,…,s

$\lambda_j \geq 0$ j=1,2,…,n

- To calculate $E_{f_0}^{t+1}(x_0^t, y_0^t)$ the following model is used (Comparison of x_0^t to the frontier in time *t+1*):

$E_{f_0}^{t+1}(x_0^t, y_0^t)$ = Min E_{f_0}

$S.t \sum_{j=1}^{n} \lambda_j x_{ij}^{t+1} \leq E_{f_0} x_{ij_0}^{t}$ i=1,2,…,m [M.3]

$\sum_{j=1}^{n} \lambda_j y_{rj}^{t+1} \geq y_{rj_0}^{t}$ r=1,2,…,s

$\lambda_j \geq 0$ j=1,2,…,n

- Also for $E_{f_0}^{t}(x_0^{t+1}, y_0^{t+1})$ we have the model (Comparison of $x_0^{t+1}$to the frontier in time *t*):

$E_{f_0}^{t}(x_0^{t+1}, y_0^{t+1})$ = Min E_{f_0}

$S.t \sum_{j=1}^{n} \lambda_j x_{ij}^{t} \leq E_{f_0} x_{ij_0}^{t+1}$ i=1,2,…,m [M.4]

$\sum_{j=1}^{n} \lambda_j y_{rj}^{t} \geq y_{rj_0}^{t+1}$ r=1,2,…,s

$\lambda_j \geq 0$ j=1,2,…,n

Malmquist index, with an algebraic manipulation that may be applied to relation (1.∗), expressed in the respective efficiencies, may be written:

$$M_0^{\ll I\_C \gg} = \frac{E_{f_0}^{t+1}(x_0^{t+1}, y_0^{t+1})}{E_{f_0}^{t}(x_0^t, y_0^t)} \times \sqrt{\frac{E_{f_0}^{t}(x_0^{t+1}, y_0^{t+1}) \cdot E_{f_0}^{t}(x_0^t, y_0^t)}{E_{f_0}^{t+1}(x_0^{t+1}, y_0^{t+1}) \cdot E_{f_0}^{t+1}(x_0^t, y_0^t)}}, \qquad (3.*)$$

Where we have the production of two factors:

- The first factor is called <<Catch –up >>(or recovery)
- The second factor is called <<frontier shift>> (or innovation)

But with an algebraic manipulation, $M_0^{\ll I\_C \gg}$ may also be decomposed to:

$$M_0^{\ll I\_C \gg} = \frac{E_{f_0}^{t}(x_0^{t+1}, y_0^{t+1})}{E_{f_0}^{t+1}(x_0^t, y_0^t)} \times \frac{1}{<<frontier\ shift>>\ Factor} \qquad (4.*)$$

(the first factor in this relation is called<< in-between factor>>or<< interact factor >>).

As the scale, efficiency measures the impact of the scale size in the decision making unit productivity, which is defined by:

Input scale efficiencyofDMU $j_0 (S_e) = \frac{Technical\ input\ efficiency\ of\ DMU\ j_0 \quad (ef\ CRS)}{Pure\ technical\ input\ efficiency\ of\ DMU\ j_0 (ef\ VRS)}$,

which may by > 1, or = 1 or < 1, Malmquist index may decomposed to:

$$MI_{j_0} = \frac{(VRS)_- E_{f_0}^{t+1} (x_0^{t+1} , y_0^{t+1})}{(VRS)_- E_{f_0}^{t} (x_0^t, y_0^t)} x \frac{S_{e-} E_{f_0}^{t+1} (x_0^{t+1} , y_0^{t+1})}{S_{e-} E_{f_0}^{t} (x_0^t, y_0^t)} \text{ x } \sqrt{\frac{E_{f_0}^{t} (x_0^{t+1} , y_0^{t+1}) \cdot E_{f_0}^{t} (x_0^t, y_0^t)}{E_{f_0}^{t+1} (x_0^{t+1} , y_0^{t+1}) \cdot E_{f_0}^{t+1} (x_0^t, y_0^t)}} . \qquad (5.*)$$

①②③

- ① ‘Pure technical efficiency catch up’. If this factor is bigger than 1, this reflects efficiency progress in what pertains to the unit, which is closer to VRS frontier in the period *t+1* than when it was in the respective frontier in the period *t*. Similarly, the analogue interpretations may be made when it is smaller than 1 or equal to 1.
- ②‘Scale efficiency catch up’. This term catches the impact of any change in the scale size of DMU j_0 to its productivity. If its value is equal to 1, this means that the efficiency of scale is the same in both periods*t* and *t+1*. So, DMU j_0 has not had productivity attributable to the changes in its size of scale, but this does not necessarily means that DMU j_0 has the same magnitude of scale in the respective periods. If this factor is bigger than 1, this means that it is more scale efficient in the period *t+1* than it was in the period *t*, so we have a positive addition of its attributable productivity, that changes its scale magnitude between the periods *t* and *t+1*.It is highlighted that factors ①and ②are orientation dependent.
- ③ ‘Frontier shift’. This term is the same as that of the relation (3.∗).

4. Application

In this study, the data refer to the 17 countries listed as developing countries by IMF (2014) where the following input-output variables are defined:

Inputs:

Input 1 (X1): Foreign direct investment, net inflows (in millions of dollars)
Input 2 (X2): Imports of goods and services (in millions of dollars)
Input 3 (X3): Gross capital formation (in millions of dollars)
Input 4 (X4): Enlargement (addition) of foreign debt (in millions of dollars)

Outputs:

Output 1(Y1): Gross general product (in millions of dollars)
Output 2 (Y2): Export of goods and services (in millions of dollars)
Output 3 (Y3): GNI (Gross national income per capita with the parity of the buying power in dollars)
Output 4 (Y4): Shrinkage (reduction) of the foreign debt

Table 1: Year 2008 data

No.	Country	X1	X2	X3	X4	Y1	Y2	Y3	Y4
1	Albania	1241	7270	3615	1340	12881	3812	8810	0
2	Armenia	944	4741	4766	530	11662	1754	7520	0
3	Azerbaijan	3987	11464	9131	737	48852	32133	12310	0
4	Belarus	2188	41713	22868	2633	60752	37021	13740	0
5	Bos.andHerz.	100	11337	5092	565	18712	5131	8940	0
6	Bulgaria	10297	39342	20117	9242	54667	28591	14230	0
7	Croatia	5188	32786	22155	0	70181	27004	19900	0
8	Georgia	1583	7473	3321	4734	12795	3661	5610	0
9	Kazakhstan	16819	49571	36705	10498	133442	76257	15440	0
10	Kosovo	537	3085	1770	175	5687	891	7550	0
11	Macedonia	612	6773	2768	163	9910	4283	10600	0
12	Moldova	727	5668	2375	359	6050	2472	4100	0
13	Montenegro	975	4249	1838	202	4520	1784	14130	0
14	Romania	13849	83659	69609	15060	208182	56073	15580	0
15	Serbia	4056	26669	14938	4281	49260	14343	11570	0
16	Turkey	19851	206983	159081	30534	730337	174608	15010	0
17	Ukraine	10700	98836	50289	19337	179992	84458	8340	0

Source : Data from database: World Development Indicators. (Compiled by author)Last Updated: 02/17/2016

Table 1: Year 2014 data

No.	Country	X1	X2	X3	X4	Y1	Y2	Y3	Y4
1	Albania	1149	6243	3271	0	13212	3732	10180	430
2	Armenia	404	5461	2453	0	11664	3316	8450	126
3	Azerbaijan	4430	19718	19371	1398	75198	32551	16910	0
4	Belarus	1862	44106	25485	440	76139	43555	17600	0
5	Bos.andHerz.	497	10539	3405	0	18286	6279	10010	486
6	Bulgaria	1971	37424	12160	0	56717	36929	16260	3235
7	Croatia	3937	25265	10391	0	57113	26430	20500	0
8	Georgia	1647	9983	4921	188	16530	7090	7510	0
9	Kazakhstan	7598	56395	52740	7942	217872	85230	21710	0
10	Kosovo	7387	3734	1903	21	7387	1448	9300	0
11	Macedonia	61	7372	3462	504	11324	5420	12800	0
12	Moldova	350	6212	2070	0	7962	3315	5500	27
13	Montenegro	497	2752	928	0	4588	1842	14530	568
14	Romania	3864	81691	45823	0	199044	81866	19020	112827
15	Serbia	2000	23804	6829	0	43866	19448	12150	3
16	Turkey	12765	256958	161291	18817	798429	221465	18980	0
17	Ukraine	847	70174	18555	0	131805	64788	8560	1647

Source: Data from database: World Development Indicators. (Compiled by author)Last Updated: 02/17/2016

Table 3: Efficiency values,Malmquist index and Malmquistdecomposition factors

No.	Country	$E^t_{f_0}(x^t_0, y^t_0)$	$E^{t+1}_{f_0}(x^{t+1}_0, y^{t+1}_0)$	$E^t_{f_0}(x^{t+1}_0, y^{t+1}_0)$	$E^{t+1}_{f_0}(x^t_0, y^t_0)$	$M_0^{\ll I\_C \gg}$	<<Catch –up >> factor	<<frontier shift>> factor
1	ALB	0.82466	0.95665	0.70271	1.00000	0.81517	1.16005	0.70270
2	ARM	0.91894	1.00000	0.76821	1.00000	0.83597	1.08821	0.76821
3	AZE	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
4	BLR	1.00000	0.99018	0.80970	1.00000	0.80175	0.99018	0.80970
5	BIH	1.00000	0.90003	1.00000	1.00000	0.90003	0.90003	1.00000
6	BGR	0.50965	1.00000	0.62027	1.00000	1.21705	1.96213	0.62027
7	HRV	1.00000	1.00000	0.90335	1.00000	0.90335	1.00000	0.90335
8	GEO	0.77505	0.66773	0.71263	0.86107	0.71301	0.86153	0.82763
9	KAZ	0.67952	1.00000	1.00000	1.00000	1.47163	1.47163	1.00000
10	KSV	1.00000	0.91083	0.72822	1.00000	0.66328	0.91083	0.72821
11	MKD	1.00000	1.00000	0.71336	1.00000	0.71336	1.00000	0.71336
12	MDA	0.59793	0.66566	0.47442	1.00000	0.52816	1.11327	0.47442
13	MNE	1.00000	1.00000	0.63310	1.00000	0.63310	1.00000	0.63310
14	ROM	0.66695	1.00000	0.68937	1.00000	1.03362	1.49936	0.68937
15	SRB	0.68597	0.96399	0.65333	1.00000	0.91812	1.40529	0.65333
16	TUR	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
17	UKR	0.79480	1.00000	0.72969	1.00000	0.91808	1.25818	0.72969

Table 4: Efficiency values (VRS) and scale input efficiency values

No.	Coun-try	$VRS\_E^t_{f_0}(x^t_0, y^t_0)$	$VRS\_E^{t+1}_{f_0}(x^{t+1}_0, y^{t+1}_0)$	$\frac{VRS\_E^{t+1}_{f_0}(x^{t+1}_0, y^{t+1}_0)}{VRS\_E^t_{f_0}(x^t_0, y^t_0)}$	$S_{e-}E^t_{f_0}(x^t_0, y^t_0)$	$S_{e-E^{t+1}_{f_0}(x^{t+1}_0, y^{t+1}_0)}$	$\frac{S_{e-E^{t+1}_{f_0}(x^{t+1}_0, y^{t+1}_0)}}{S_{e-}E^t_{f_0}(x^t_0, y^t_0)}$
1	ALB	0.84592	0.98250	1.16146	0.97487	0.97369	0.99879
2	ARM	0.93947	1.00000	1.06443	0.97815	1.00000	1.02233
3	AZE	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
4	BLR	1.00000	1.00000	1.00000	1.00000	0.99018	0.99018
5	BIH	1.00000	0.93452	0.93452	1.00000	0.96309	0.96309
6	BGR	0.62216	1.00000	1.60730	0.81916	1.00000	1.22076
7	HRV	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
8	GEO	0.89796	0.69776	0.77706	0.86312	0.95696	1.10872
9	KAZ	1.00000	1.00000	1.00000	0.67952	1.00000	1.47163
10	KSV	1.00000	0.98414	0.98414	1.00000	0.92551	0.92550
11	MKD	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
12	MDA	0.91506	1.00000	1.09282	0.65343	0.66566	1.01872
13	MNE	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
14	ROM	0.74733	1.00000	1.33810	0.89244	1.00000	1.12052
15	SRB	0.68930	0.96654	1.40221	0.99517	0.99736	1.00220
16	TUR	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
17	UKR	1.00000	1.00000	1.00000	0.79480	1.00000	1.25818

5.Conclusions

From the summary review with the Malmquist index evaluations accompanied by the constituent components in its analysis, is noted that a bigger than 1 coefficient of this index have: Kazakhstan with 1.47163, Bulgaria with 1.21705, and Romania with 1.03362, while an equal to 1 coefficient have Azerbaijan and Turkey. The average value of productivity Malmquist index is 0.88626. In addition, is noted that for the Catch up factor, Kazakhstan has the value of 1.47163, Bulgaria 1.96213, and Romania 1.49936. Pure Technical Efficiency Catch up factor for these countries is: Bulgaria with the value of 1.60730, Romania 1.33810, and Kazakhstan 1, therefore we can say that for the three states above, as far as the change in the output for one input unit between the periods t and t+1, the one reached in the period t+1 prevails. It also reflects efficiency progress. At the same time and scale expansion is noted that this value for Kazakhstan is 1.47163, for Bulgaria 1.22076, and for Romania 1.12052.Albania has an efficiency progress as the pure technical efficiency catch up factor in the value of 1.16146, but the scale efficiency catch up factor is 0.99876 and therefore Malmquist index value for Albania is 0.81517, which value being under the average of this coefficient tells about the reasons that serve as arguments for it, such as poor commercial and import-export balance, and a big weight of the foreign debt.

In 2008, Albania's debt was $ 1438 per capita and the debt was also consequence of its increase with $455 per capita from 2007, in a time when the development of gross capital was $1403 per capita in 2008. This shows that when there is not enough possibility and capability to generate support for the debts, a bigger attention is required in the application of the financial policies. The investments should more be done in the profitable sectors of the economy. If we would consider Kazakhstan, the GNI value in 2008 was $15440 per capita, while in 2014 it reached $21710 per capita, with a growth of 40.6% which is higher than the average of the developing countries mentioned above. Albania that has a smaller than the average GNI value, in 2008 had it $8810 per capita and in 2014 reached $10180 per capita, with a growth of 15.5%. However,Kazakhstan invested the additional debt of $670 per capita in profitable sectors as it is noted that the development of gross capital in 2007 was 35.5% of the country GDP while in 2008 it was 27.5%. Albania has the gross capital development value for 2008 in the amount of 35% of the country GDP, but investments in profitable sectors have not been a priority. Therefore, we can mention agriculture in Albania where the ratio export-import in this sector for 2008 was 4.3% with 16.4% and in 2014, we again have a commercial unbalance of the alimentary goods import-exports where these values were 3% with 10%. So the conclusions of the summarizing tables in Malmquist index study with the analysis constituent components consist in an overview that shows the economic progress performance of any country. Therefore, DEA application in studding Malmquist index is of great interest to make more rigorous judgments and evaluations in order to draw conclusions for a better economic return.

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