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IMPACT OF GLOBALISATION ON ECONOMIC GROWTH IN ROMANIA: AN EMPIRICAL ANALYSIS OF ITS ECONOMIC, SOCIAL AND POLITICAL DIMENSIONS

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Abstract: The paper analyses the link between globalisation and economic growth in Romania for a time span of 24 years. Data from World Bank were used in an econometrical model in order to highlight the impact of globalisation, expressed by the KOF globalisation index and its components (economic, social and political globalisation indices) on economic growth rate. A statistical strong and positive link is found between GDP per capita dynamics and overall globalisation index as well as between GDP growth rate and economic and political globalisation, except the social dimension of globalisation which has a negative impact on economic growth in Romania for the time span 1990-2013.
Key words: open economy, economic growth, macroeconomic impacts of globalisation
JEL Codes: F41, F43, F62

Introduction

As a multidimensional concept, globalisation convers mainly, three areas: economic, social and political dimensions of human activity. In its content, globalisation means the integration of capital, investment and labour markets or its integration with world markets (WTO, 2008). Any country has to take advantage from its international connections, economic, trade, technology transfers or information flows in its economic growth process and benefit from the general process of markets integration and globalisation.

A critical problem of academics and scientists remained how to express the effect of globalisation on economic outcomes, taking into account its complex content. Dreher (2006, 2008) calculated a globalisation index including three subglobalisation indexes: economic, social and political. In the present paper this approach is used and the impact of these three dimensions on economic growth in Romania is analyzed.

The aim of the paper is to highlight the impact of globalisation on the Romanian economy, by analyzing the effect of overall globalisation index values and of economic, social and political indexes on economic growth during 1990-2013.
The paper is organised as follows: after a short literature review on globalisation and economic growth, the methodology of the study is presented, the third section exposes the main findings and the final section is dedicated to conclusions.

1. Globalisation and economic growth: a short literature review

The impact of globalisation on economic output is a concern of economists and researchers from developed countries as well as from developing ones.
Many of them appeared after 2006, when Dreher launched firstly the KOF globalisation index, with its three subindexes (economic, social and political).
Dreher (2006) found out that globalisation affects economic growth in a positive way in his investigation of 123 countries from years 1970-2000.
The Pakistanese economy was explored by Afzal (2007) and Shaikh and Shah (2008) by using different methods and concluding that globalisation had an effect of development on economic growth in long term and influenced the Pakistan's macroeconomy performance in a positive way, leading to a fast economic growth.
The economic growth in well developed countries (OECD countries) is differently affected by globalisation, including its components: on the short term the influence is weak, whereas on the long run, there is a connection from general, economic and social globalization to economic growth (Chang and Lee, 2010).
Regarding the regional growth in the European Union (EU-27) countries, globalisation affected it in a positive way according to Polasek and Sellner (2011).
As the globalisation grows in Malaysia, Thailand, India and Philippines, the economic growth rates are higher too in these countries (Rao et al., 2011).
For the case of Romanian economy, there are valuable the conclusions of Mutascu and Fleischer (2011) stating that on middle and log run, globalisation would maximize the economic growth. But during 1992-2011 globalisation in Romania conducted to a higher income inequality (Neagu, 2014), .although a strong positive and statistical validated link is found between globalisation and FDI, between trade openness and FDI, and between FDI and globalisation (Dima, 2016) and the impact of globalisation on Romanian SMEs could be treated as an opportunity or as a threat (Zamfir, 2015).
Between the years 1995-2008, in the American economy globalisation increases and provokes the economic growth (Leitão, 2012).
Globalisation could be seen as an engine for economic growth (Iovițu et al., 2015) and there is a mutual causality connection between globalisation and economic

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growth in developing countries (Morita et al., 2015) such as: India (Ray, 2012), Nigeria and Bangladesh (Umaru et al., 2013; Meraj, 2013) India and China (2015).
In ASEAN countries, globalisation affects positively economic growth, but social and political globalisation in a negative way (Ying, 2014).
In a panel data analysis including 74 developing countries, Kilic (2015) found that economic growth is positively affected by economic and political globalisation whereas social globalisation affects it negatively. Moreover, he has revealed two types of causality relationships: (1) one way causality relationship between economic growth and globalisation and (2) two way causality relationship between political and social globalisation and economic growth.
In the last years, it raised the attention given the political dimension of globalisation, due to changes in the political arena, shifts in geopolitical arrangements, popular mobilisation and contestation over the direction of globalisation (Smith et al., 2017).

2. Data and methodology

In the paper, World Bank data series of GDP per capita (2005 constant USD) and GDP growth rate (%) for the time span of 1990-2013 were used.
From the KOF globalisation index data base were extracted data series for Romania regarding: overall index of globalisation, economic, social and political indexes.
The overal globalisation index has three components: economic globalisation index (36%), social globalisation index (37%) and political globalisation index (27%). Economic globalisation index includes two sub-indexes: flows (50%) (trade, foreign direct investment, portofolio investments, income payment to foreign nationals) and restrictions (50%) (hidden import barriers, mean tarrif rate, curent revenue percentage of taxes on international trade and capital account restrictions). Social globalisation index inclues three sub-indexes: personal contact (33%) (telefon traffic, transfers, international toursim, the foreign population according to the total population and international letters per capita), information flows (35%) (internet usage per 1000 people, television per 1000 people and trade in newspapers) and cultural proximity (32%) (number of McDonald's restaurants per capita, numebr of IKEA per capita and trade in books). Political globalisation index is calculated with four sub-indexes: number of embassies in country, membership in international organisations, participation in United Nation (UN) Security Council mission and international treaties.
We assume that economic output is a function of globalisation index, other factors remaining constant:

$$GDP_{pc} = f(GI) \tag{1}$$

where: GDP_{pc} is GDP per capita (in 2005 constant USD) and GI is the overal globalisation index.
We transpose the relation (1) in a linear regression equation in order to estimate the impact of overall globalisation index (GI) on economic output (GDP_{pc}):

$$GDP_{pc} = C + \alpha \cdot GI + \varepsilon \tag{2}$$

where: C is a constant (intercept), α is a parameter and ε is the error.
We intend to test the effects of all globalisation components en economic growth in the following regression equation:

$$GDP_{rate} = C + \beta_1 \cdot EGI + \beta_2 \cdot SGI + \beta_3 \cdot PGI + \varepsilon \tag{3}$$

where: GDP_{rate} is the annual growth rate of GDP, β_1, β_2, β_3 are regression parameters to be estimated, *EGI* is the economic globalisation index, *SGI* is the social globalisation index, *PGI* is the political globalisation index and ε is the error.
Data were processed by Eviews 8.0 software.

3. Main findings

The globalisation index evolved in Romania in the period of 1990-2013 in a strong connection with GDP per capita (Figure 1).

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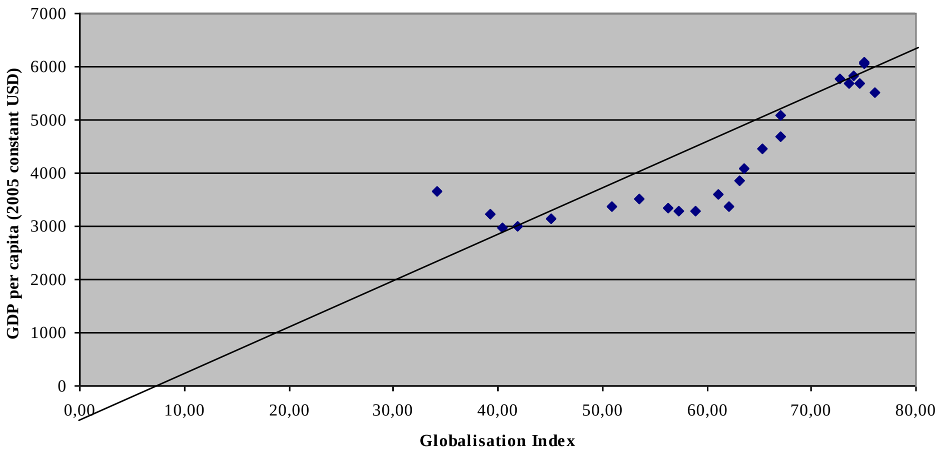

Figure 1. The dependency between economic output and globalisation in Romania (1990-2013)

Source: author's own computation based on World Bank data and KOF globalisation data

The results of estimation of equation (2) are displayed in the Table 1.

Table 1-Results of estimation equation 2

Dependent Variable: GDPPC
Method: Least Squares
Date: 06/25/16 Time: 18:24
Sample: 1990 2013
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-238.6371	614.2310	-0.388514	0.7014
GI	74.74457	9.964158	7.501343	0.0000

R-squared	0.718922	Mean dependent var	4272.224
Adjusted R-squared	0.706146	S.D. dependent var	1131.274
S.E. of regression	613.2443	Akaike info criterion	15.75506
Sum squared resid	8273509.	Schwarz criterion	15.85323
Log likelihood	-187.0607	Hannan-Quinn criter.	15.78110
F-statistic	56.27015	Durbin-Watson stat	0.252079
Prob(F-statistic)	0.000000		

Source: author's own computation using Eviews 8.0 software

The estimated equation 2 is the following:

GDP_{pc} = -238.6372 + 74.74457 $\cdot GI$

For 5% significance threshold, the regression equation is validated due to the fact that Prob (F-statistic) is 0.000<0.05 and F-statistic is 56.27 > $F_{0,05;1,24}$ =4.26.

The determination coefficient (R-squared) is 0.718922 meaning that 71.82% of the variation of GDP per capita can be explained by the variation of globalisation index (GI). The value of adjusted R-squared (0.706146) is close to the R-squared meaning that our sample is relevant for an accurate representation of the reality.

The parameter α has the value of 74.74457 showing that for an increase with one unit of GI GDP per capita will increase with 74.74457 units, if other factors are remaining constant.

In order to test the heteroskedasticity of errors we used the White test (Table 2).

Table 2-Heteroskedasticity test for equation 2

Heteroskedasticity Test: White

F-statistic	1.097165	Prob. F(2,21)	0.3522
Obs*R-squared	2.270552	Prob. Chi-Square(2)	0.3213
Scaled explained SS	1.359189	Prob. Chi-Square(2)	0.5068

Source: author's own computation using Eviews 8.0 software

Due to the fact that Obs R-squared has the value of 2.270552< $\chi^2_{0,05;2} = 5.99$, the null hypothesis is accepted, errors are homoskedastic, meaning that the variation of dependent variable (GDP per capita) is remaining the same for any level of independent variable (GI).

We intend to check the causality sense of the relationship between GDP per capita and globalisation index. We used the Granger causality test from Eviews. The result displayed in the Table 3 show us that the value of F-statistic (9.20395) is higher than $F_{0,05;1,22}$ = 4.3, meaning that the null hypothesis is rejected and GI does cause GDP per capita.

Table 3-Causality test

Pairwise Granger Causality Tests
Date: 06/25/16 Time: 20:09
Sample: 1990 2013
Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
GI does not Granger Cause GDPPC	23	9.20395	0.0066
GDPPC does not Granger Cause GI		0.38563	0.5416

Source: author's own computation using Eviews 8.0 software

We intend further to explore how the growth rate is affected by the three components of globalisation index: economic, social and political. The results of estimation of equation (3) are exposed in the Table 4.

Table 4- Estimation results of equation 3

Dependent Variable: GDPR
Method: Least Squares
Date: 06/25/16 Time: 20:44
Sample: 1990 2013
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-48.33516	9.919094	-4.872941	0.0001
EGI	0.636056	0.247003	2.575093	0.0181
SGI	-0.598024	0.185720	-3.220025	0.0043
PGI	0.547607	0.135323	4.046676	0.0006

R-squared	0.573061	Mean dependent var	2.416869
Adjusted R-squared	0.509020	S.D. dependent var	5.740691
S.E. of regression	4.022500	Akaike info criterion	5.772696
Sum squared resid	323.6101	Schwarz criterion	5.969038
Log likelihood	-65.27235	Hannan-Quinn criter.	5.824786
F-statistic	8.948365	Durbin-Watson stat	1.709481
Prob(F-statistic)	0.000582		

Source: author's own computation using Eviews 8.0 software

The estimated regression equation 3 has the following form:

$$GDP_{rate} = -\,48.33516 + 0.636056 \cdot EGI - 0.598024 \cdot SGI + 0.547607 \cdot PGI$$

The model is statistically validated for a significance threshold of 5%, due to the fact that Prob (F-statistic) is 0.000582<0.005 and F-statistic (8.948365) > $F_{0,05;3,20}$ = 3.10. The economic dimension of globalisation expressed by EGI has a positive validated impact on GDP rate: the coefficient of EGI is 0.660563 for a Prob of 0.0181 (<0.05) and a standard error of 2.57. The social globalization (SGI) has a negative validated influence on GDP rate, its coefficient is -0.598024 for a Prob of 0.0043 and a standard error of -3.22. The political index of globalization PGI has a positive impact on GDP rate: its coefficient is 0.547607 for a Prob of 0.0006 and a standard error of 4.04.

A possible explanation of this negative influence of social dimension of globalization on GDP rate could be that variables related to international connections such us: international tourism, foreign population, internet users, television, trade in newspaper, number McDonald's restaurants and of IKEA or trade in books were evolving in an inverse sense as the GDP rate. It is a paradox that a country such Romania, placed in Central-Eastern part of Europe open to both, Western and Eastern, economic and information flows couldn't benefit from this position. It is suggesting for more appropriate public policies to take advantage from this location for its integration in the global society.

The impact of political dimension of globalization on economic growth is related to the Romania's international diplomatic involvement: membership in international organizations and treaties, participation in United (UN) Security Council missions and number of embassies. The coefficient of this variable is close to the economic dimension of globalization, showing a similar effect on the GDP rate.

We tested the heteroskedasticity of errors by using the White test (Table 5).

The value of Obs*R-squared (8.134322) is < $\chi^2_{0,05;4}$ =9.49, meaning that the model is homoscedastic for a significance level of 5% , the variation of dependent variable being constant for any level of independent variables.

Table 5-Heteroskedasticity test for equation 3

Heteroskedasticity Test: White

F-statistic	0.797532	Prob. F(9,14)	0.6250

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Obs*R-squared	8.134322	Prob. Chi-Square(9)	0.5207
Scaled explained SS	7.145797	Prob. Chi-Square(9)	0.6219

Source: author's own computation using Eviews 8.0 software

Regarding the errors autocorrelation, the Durbin Watson statistic (1.709481) is between $d_1 = 0.93$ and $d_2 = 1.9$ meaning that this test in not relevant. Therefore, we used the Breusch-Godfrey test (Table 6):

Table 6 -Errors autocorrelation detection

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.402964	Prob. F(1,19)	0.5331
Obs*R-squared	0.498435	Prob. Chi-Square(1)	0.4802

Source: author's own computation using Eviews 8.0 software

The value of Obs*R-squared (0.498435) $< \chi^2_{0,05;4}$ =9.49, meaning that the null hypothesis is accepted and the errors are independent.
We further tested the multicolinearity of explanatory variables with the Principal Components Analysis (Table 7).

Table 7- Detection of multicolinearity of explanatory variables

Principal Components Analysis
Date: 06/25/16 Time: 22:03
Sample: 1990 2013
Included observations: 24
Computed using: Ordinary correlations
Extracting 3 of 3 possible components

Eigenvalues: (Sum = 3, Average = 1)

Number	Value	Difference	Proportion	Cumulative Value	Cumulative Proportion
1	2.683411	2.406007	0.8945	2.683411	0.8945
2	0.277404	0.238219	0.0925	2.960815	0.9869
3	0.039185	---	0.0131	3.000000	1.0000

Eigenvectors (loadings):

Variable	PC 1	PC 2	PC 3

EGI	0.587992	-0.442357	0.677189
PGI	0.548444	0.833402	0.068195
SGI	0.594538	-0.331302	-0.732642

Ordinary correlations:

	EGI	PGI	SGI
EGI	1.000000		
PGI	0.764889	1.000000	
SGI	0.959289	0.796430	1.000000

Source: author's own computation using Eviews 8.0 software

All partial correlation coefficients: between EGI and PGI (0.764889), between EGI and SGI (0.959289) and between SGI and PGI (0.796430) are higher than the R-squared 0.573061 (Table 4) meaning that all explanatory variables are multicolinear.

4. Conclusions

The aim of the paper was to highlight the impact of globalisation on economic growth in Romania. Overall, in the period examined, a strong positive statistical validated influence of globalisation on economic growth is found for a statistical threshold of 0.05 and we found a significant causality running from globalisation index to GDP per capita. This result shows that if Romania tends to maximize its economic growth, it has to globalize more.

The estimated econometric model is stable due to the homoskcedasticity of errors, but as limits of it, we mention the multicolinearity of the explanatory variables of globalisation.

Regarding the components of globalisation, the economic side had the most powerful positive influence on GDP per capita, the social dimension influenced it negatively and the political side of Romanian globalisation process has a positive impact on GDP per capita.

According to our findings, that information exchanges, technology transfers, convergence in cultural activity or people interaction and other social elements have to be stimulated in order to contribute to the integration of Romania in the global economy.

Pointing out the link between national development and globalisation, the paper is relevant for the Romanian policy makers when they design economic policies aiming to stimulate the economic growth.

Our findings support previous literature on contribution of globalisation to economic growth. For example, in opinion of Dreher (2006) trade liberalization and export orientation can be a key driver of economic growth.

Further directions of research are needed to explain the impact of each component of globalisation index (economic, social and political) on GDP rate through their own structure (i.e. foreign direct investment, trade, people social interaction, culture convergence, international participation etc.). Another idea to extend the present study is to explore the effect of globalisation on economic growth within some groups of countries (developing or developed) with similar evolution, by using panel data techniques, in order to extract valuable conclusions for governments and policy makers.

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