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1st International Conference - Global Ethics - Key of Sustainability (GEKoS) | May 15th, 2020 | Bucharest, Romania

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https://doi.org/10.18662/lumproc/gekos2020/07

How to cite: Neagu, O. (2020). Does Globalisation Promote Sustainable Development and an Equal Distribution of Income around the World? An Econometric and Ethical View. In A. Grigorescu & V. Radu (vol. ed.), *Lumen Proceedings: Vol. 11. 1st International Conference Global Ethics - Key of Sustainability (GEKoS)* (pp. 56-64). Iasi, Romania: LUMEN Publishing House. https://doi.org/10.18662/lumproc/gekos2020/07

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Does Globalisation Promote Sustainable Development and an Equal Distribution of Income around the World? An Econometric and Ethical View

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Abstract

The paper deals with the two ethical aspects related to globalisation impact on: (i) sustainable development and (ii) distribution on income in the world economy. Times series covering the period of 1990 to 2015 of statistical indicators reflecting globalisation, sustainable development and national income for 134 economies are explored. The methodology of the paper consists of a panel data analysis including as variables: the sustainable development index (SDI), the KOF index of globalisation. The standard deviation of GDP per capita in the 134 economies is calculated and analysed. The findings show a positive weak bi-directional link between globalisation and sustainable development accompanied with a worsening of income inequality in the examined period of time.

Keywords: *globalisation; sustainable development; income inequality; global ethics.*

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1. Introduction

Globalisation may be seen as a multidimensional process. The world economy is the expression of global connectivity, involving globalisation of production and consumption, information, governance and also, ethics.

There is an impressive literature documenting that the globalisation process may stimulate economic growth across the world, but its beneficial effects are not fairly distributed, favouring developed countries while the gap between wealthy and poor countries is still rising. Moreover, global economic growth comes generally with the environmental costs and there is a discussion if it contribute or not to sustainable development. As conclusion, can globalisation address extreme poverty and the environment protection issue? Can globalisation become more sustainable and inclusive?

The paper tries to give answer to these questions through a panel analysis including 134 economies. The impact of globalisation on sustainable development and the dynamics of income inequality between 134 economies is explored for a time span of 26 years (1990-2015) [1].

2. Overview of literature related to globalisation, income inequality and sustainable development

The link between globalisation and economic output was the focus of several studies, mainly after Dreher (2006) [2] launched the globalisation index (KOF) [3]. The positive impact of globalisation on economic prosperity was revealed by Dollar and Kray (2004) [4], Dreher (2006) [2], Villaverde and Maza (2001) [5].

The impact of globalisation in well developed countries is differentiated in time (it is weak on short run and strong on long term). Also, it is found that general, economic and social globalisation and economic growth are strongly connected [6].

Globalisation induced economic prosperity within developing economies, as Pakistan (Shaikh and Shah, 2008) [7], India, Thailand, Malaysia and Philippines [8], India [9], Bangladesh [10]

Some studies [11], [12], [13], [14] identified a rising negative effect of globalisation on income distribution, in spite of the little doubt that globalisation induces significant gains in the world economy. Other studies suggest that inequality may reduce the durability of growth and its pace [16], [16].

On the other side, there are some studies suggesting that the process of globalisation would make world development more sustainable [17], [18].

By using various sustainability indices, Tisdell (2001) [19] considered the impact of globalisation on the world economy and concluded that globalisation is more complicated and more surprising than was anticipated as well as that the process of globalisation interacts with sustainable development at different levels.

These conclusions could suggest that the process of globalisation may induce non-ethical dimensions related to an unfair prosperity distribution across countries, a weak durability of growth and also, a harmful effect on environment. It is to be mentioned that it creates its own shared ethics meaning a normative framework regarding global interconnections on trade, investment, migration, debts, governance, social life and politics. Ethical aspects of sustainable development under globalisation were investigated in Lithuania and guiding principles are formulated [20].

In an ethical view, economic growth should not conflict with environmental and social dimensions of sustainable development. On the contrary, it should create a prerequisite for the reduction of poverty, income inequality and negative impact on environment.

In light of these above assertions, the paper intends to discuss the impact of globalisation on income distribution and sustainability.

3. Data and Methodology

The paper uses the following statistical indicators of 134 economies for the time period of 1990 to 2015: GDP per inhabitant (PPP, 2011 international dollars) extracted from the World Bank database and KOF globalisation index.

The paper uses also times series of Sustainable Development Index (SDI), proposed by Hickel (2020) [21]. SDI was developed from the Human Development Index (HDI) in order to cover ecological aspects. Adding ecological dimensions to indicators embedded in HDI (education, life expectancy and income), it includes CO2 emissions and material footprint.

In order to evaluate the influence of globalisation on income inequality, we compute the standard deviation of GDP per capita by using the following formula:

$$STDEV_i = \frac{\sum_{i=1}^{n}\left(x_i - \bar{x}\right)^2}{n} \qquad (1)$$

where: $\bar{x}$ means the average value of GDP per capita in the world economy, i denotes the country, x_i is the value of GDP per capita of the country i.

We investigate the impact of globalisation on sustainable development by using the following regression equation:

$$SDI_{it} = \alpha_i + \delta_i t + \beta_i \cdot GI_{it} + \varepsilon_{it} \quad (2)$$

where: SDI_{it} represents the Sustainable Development Index in the country *i* and year *t*, GI_{it} means the Globalisation Index, α_i is the intercept, δ_i is a parameter associated to the trend and ε_{it} is the error term, *i* index denotes the country (i=1,...,134), and *t* the time.

The paper uses a heterogeneous panel data method, due to the differences between countries under examination (134 economies of all development levels -low, medium, high). The methodology of the study consists of the following steps: (1) testing the stationarity of variables; checking the presence of cointegration relationship; (3) estimation of the long-run parameters with FMOLS and DOLS models; (4) examination of causality relationship.

The stationarity of examined variables will be checked with the test developed by Levin et al. (2002) [22]. If we detect the presence of unit root and the first-differences series are stationary, the cointegration relationship will be further identified. A panel cointegration test will be used in this aim [23], [24]. We use the methods developed by Pedroni [25], [26] (FMOLS and DOLS) to estimate the long-term coefficients of the independent variable. Finally, the Dumitrescu-Hurlin (2012) [27] test will indicate the presence of the causality relationship between the examined variables and its direction.

4. Findings

As we can see in Table 1, the series of variables are integrated of the first order for 1% level of significance, meaning that they are not stationary at value level (the values of Prob are higher than 0.5 in almost all cases). This allows us to take the further step of the cointegration test.

Table 1. Results of LLC test

Variable	Individual intercept		Individual intercept and trend	
	Statistic	P-value	Statistic	P-value
GI	-1.677	0.001	-1.622	0.015
SDI	-1.063	0.112	0.472	0.449

ΔGI	-6.125	0.000	-3.866	0.000
ΔSDI	-6.590	0.000	-5.863	0.000

Source: author's own computation based on E-views software

Table 2 exposes the panel cointegration results. Due to the fact that for 9 of 11 test statistics the value Prob is under 0.05 a cointegration relationship between GI and SDI.

Table 2. Cointegration results (Pedroni Cointegration test for GI and SDI)

Test	Statistic	Prob.	Statistic	Prob.	
Panel v-statistic	13.702	0.000	9.363	0.000	common AR coefficients (within-dimension)
Panel rho-statistic	0.0610	0.524	-2.155	0.015	
Panel PP-statistic	-3.082	0.001	-6.199	0.000	
Panel ADF-statistic	-2.661	0.003	-3.770	0.000	
Panel rho-statistic	1.0282	0.848			individual AR coefficients (between-dimension)
Panel PP-statistic	-5.389	0.000			
Panel ADF-statistic	-3.027	0.0011			

The estimation of long-term parameters from the panel FMOLS and DOLS equations are exposed in Table 3. According to the panel FMOLS results, the coefficient of GI is statistically significant at 1% level of significance and positive. This indicates that globalisation has a significant and positive impact on sustainability in 134 countries from 1990 to 2015. In the case of panel DOLS equation, the situation is similar.

Table 3 Panel long-term parameters GI (134 countries, 1990-2015)

Variable	Panel FMOLS			Panel DOLS		
	Coefficient	t-statistic	Prob.	Coefficient	t-statistic	Prob.
GI	0.000952	2.68779	0.000	0.001835	4.90485	0.001

The last step in our analysis is to check the direction of the causality between *GI* and *SDI*. The results of running the test developed by Dumitrescu and Hurlin (2012).are exposed in Table 4.

Table 4. Panel causality results for ΔGI and ΔSDI

Null Hypothesis	W-stat	Zbar-Stat	Prob
ΔSDI does not homogeneously cause ΔGI	3.62594	5.09635	3E-07
ΔGI does not homogeneously cause ΔSDI	6.71958	16.4338	0.0000

As it can be noticed, a bi-directional causality between GI and SDI is detected for a significance of 5%.

5. Discussion

In the examined period of time (1990-2015) in the world economy, the standard deviation of national income expressed by GDP per capita raised from 106399 dollars (1990) to 271305 dollars (2015) meaning a growth of 2,54 times (Figure 1).

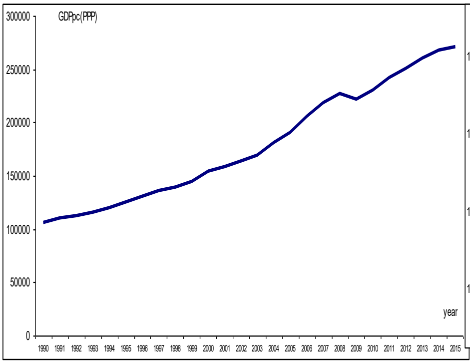

Figure 1. Dynamics of GDP per capita standard deviation (1990-2015)

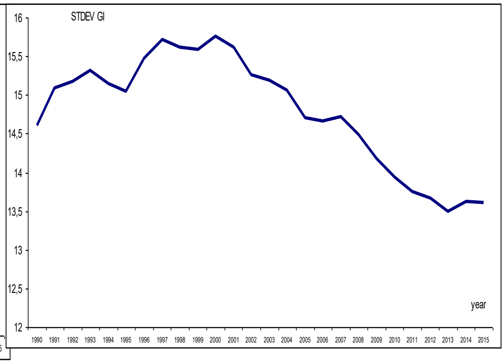

Figure 2. Dynamics of GI standard deviation (1990-2015)

This suggests that the income gap between economies is deepened in this period. In the examined period, the standard deviation of globalisation index evolved in a down turning trend from 14.6 to 13.6 indicating a process of a reducing globalisation gap across the economies (Figure 2). This means that countries are more uniformly globalised. They learned quickly in last decades how to be globalised.

On the other hand, the econometric analysis reveals a weak positive bi-directional link between globalisation and sustainable development index, indicating a beneficial effect of globalisation on sustainability. This give us hope that economic globalisation is not overall prejudicing the social and environmental sustainability and global ethics (meaning a normative framework for global connections) would bring us to the right pace towards the desired wellbeing of humanity.

6. Conclusions

The paper intended to shed light on two ethical aspects of world economic development: how globalisation impacts sustainable development and distribution of income around the world.. By using a heterogeneous panel approach for 134 economies examined from 1990 to 2015 a positive and weak association between globalisation and sustainable development is found. On the other hand, the process of globalisation induced an increase of income inequality between countries in the examined period of time.

Ethics came in last decades to include global issues. It is more and more focused on issues like: environmental problems, global poverty, foreign intervention, international trade rules, debt relief for poor countries and immigration. The present paper intended to point out that effects of globalisation may interfere with the sphere of global ethics.

As further research directions, extensive empirical work would be useful to detect the relevant causality relationship and mechanisms between globalisation and sustainable development.

It is obvious that the complexity of the globalisation processes requires an integrated approach, combining economic, social and ecological aspects that are common to the concept of sustainable development. The increasing interconnectedness between economies and people needs to be become a basis for generating sustainable global policies and global ethics. For example, the effects of consumerism and global economic processes on pollution and rise of social inequalities need to be discussed and put in an ethical norm indicating the right direction for the humanity.

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