

The Nexus between Globalization and Income Inequality in Sri Lanka

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Abstract: This study examines the impact of globalization on income inequality in Sri Lanka for the period of 1980-2015 based on the Cointegration technique and Vector Error Correction Model. The results of the study show that foreign direct inflows affect negatively the income inequality in long run implying that FDI inflows help to mitigate the income inequality. However, trade openness affects positively the income inequality in long run showing that although the country engages in global trade and does have comparative advantages, the income accumulation through this process is convergent. Moreover, School enrollment ratio (primary) has the negative impact on the income inequality implying that increasing the school education level may lead to have high level of employment and then it leads to decrease the income inequality through the distribution of income. These findings of the study lead to timely guidance for policy compilations on income inequality in the country. The government can tend to give more incentives for attracting FDI while imposing proper restrictions on imports, incentives for more exports and ensuring fair distribution of benefits from external trade. Moreover, it is necessary to create more employment opportunities to rise up the labor force participation through increasing the level of education.

Keywords: Foreign Direct Investment, Trade Openness, Income Inequality, Cointegration Technique, Error Correction Model

I. INTRODUCTION

Globalization tightens the interaction and integration among diverse economies and countries together through international trade, investments, information technology and outsourced manufacturing. Benefits as well as adverse effects can be arisen due to globalization. Among those, the impact of globalization on inequality is under heated debate. Globalization leads to increase in inequality because, trade increases differentials in returns to education and skills, and globalization marginalizes certain groups of people or geographic regions (Wan et al, 2007). In contrast, globalization helps to reduce the inequality (Srinivasan & Bhagwati; 2002 & Ben- David; 1993). Thus, it is clear that existing empirical evidences support both for negative and positive impacts of globalization on income inequality.

Under Sri Lankan perspective, Sri Lanka was a hub in the silk route in past and it allowed to gain benefits from international trade. With introducing the liberalization economic policy in 1977, significant changes happened in Sri Lankan economy through the openness. Thus, openness of the economy and globalization affected in various ways especially, to expand the industries such as rubber industry, mining industry,

service industry, health care and education, communication, banking sector, tourism, garment industry, IT industry etc. However, some adverse effects also have arisen due to globalization process especially, neglecting the poor class for economic contribution, low rate of job creation and offering higher wages by multinational companies, threatening the infant and less competitive industries. Through these adverse effects the income distribution among different groups of the society is heavily concerned. Meanwhile, persistent income inequality in the country also one of major concerns in the current economy since high and growing inequality makes inclusive growth more difficult. Although there was no specific goal on inequality under sustainable development goals (SDGs), the main target under the 'Reduce Inequality within and among countries by 2030' progressively achieve and sustain economic growth of the bottom 40% of the population at a rate higher than the national average in Sri Lanka (Nanayakkara, 2016). With this backdrop, it is advisable to look into the impact of globalization on income inequality in order to find feasible solutions to mitigate the burden of income inequality problem. Hence, focusing on the globalization and income inequality, this study aims to examine whether there is a long run/short run impact of globalization on income inequality in the Sri Lankan economy.

II. REVIEW OF THE RELEVANT LITERATURE

The nexus between globalization and income inequality has been mostly discussed under existing literature and a major concern of current academic discourses. Most of studies come up with different conclusions based on the countries' specific scenarios. According to Bukhari and Munir (2016) trade and technological globalization in the selected Asian economies significantly contributes to reduce income inequality while financial globalization increases income inequality. Education has an inverse impact on income inequality while foreign direct investment has a positive relationship with income inequality. In contrast, a study conducted by Meschi and, Vivarelli (2007) pointed out that aggregate trade flows are weakly related with income inequality. However, after disaggregating total trade flows according to their areas of origin/destination, it was found that trade with high income countries worsen income distribution in developing countries. Similarly, findings of another study based on developing countries show that an increase in globalization in developing countries leads to an increase in the level of income inequality

(Atif et al, 2012). Moreover, higher levels of globalization are correlated with higher levels of income inequality (Park , 2017). A study based on Pakistan found that foreign capital penetration through investments inflows has an inverse influence on income inequalities in Pakistan. Further, interest rate, urbanization and remittances also seem to be helpful in decreasing income inequalities (Munir et. al 2013).

A study based on international trade theories globalization and income inequality shows that technology flows from rich to poor countries; differences between rich and poor are greater than differences among rich countries; and since poor countries are likely to gain more from the trade gains due to lower living costs, globalization is likely to improve global inequality (Ruffin, 2009). Heshmathi (2005) pointed out that the low rank of globalization process is due to the political and personal factors with limited possibility for the developing countries to affect. The highly ranked developed countries are sharing similar patterns in the various components' distribution. Moreover, globalization is a multi-faceted process that entails both positive and negative effects on income inequality. Developing countries are narrowing the gap with developed countries, but this improvement rarely translates into more equal distribution of income within them (Gechev, 2017). According to a study based on OECD countries, mainly found that direct investment outflow/labor force has a positive effect on income inequality of the core inequality model and of other factors that have been invoked to account for the recent U-turn on inequality. North-South trade, as southern import penetration/GDP, is also found to have a positive effect on income inequality (Alderson and Nielsen, 2002). Similarly, a study based on the trade and FDI, mainly pointed out that the impact of globalization reflects two offsetting tendencies: whereas trade globalization is associated with a reduction in inequality, financial globalization and foreign direct investment in particular is associated with an increase in inequality (Jaomotte et.al, 2013). Moreover, the progress of globalization tends to deteriorate the situation of income inequalities in Korea (Mah, 2010).

Globalization and income inequality are highly discussed scope in Sri Lankan context, so that researchers' interest on studying this is growing rapidly. According to findings of a study, liberalization of the manufacturing industries is more pro-poor than that of the agricultural industries. Moreover, this study suggests that trade reforms may widen the income gap between the rich and the poor creating uneven gains across different household groups in Sri Lanka (Naranpanawa et al, 2011). Further, income inequality increases because of expansion of the service sector in the country but, expansions of off-farming income growth in rural sector decrease the income inequality (Karunaratne, 2003). According to a study conducted by Perera et al (2014), overall income inequality and income inequality among different household groups in the urban, rural and estate sectors in Sri Lanka fall under trade liberalization policies; the formation of a South Asian Free

Trade Agreement and unilateral trade liberalization in South Asia.

Hence, it is apparent that the nexus between globalization and income inequality is ambiguous and seemingly a contextual phenomenon. Most of studies concern that FDI and trade are the main dynamic forces of globalization process and the impact of these two variables including positive and negative effect on income inequality varies accordingly country's scenario.

III. OBJECTIVES OF THE STUDY

The main objective of the study is to identify the impact of globalization through FDI and trade openness on income inequality in long-run and/ short-run in Sri Lanka considering the period from 1980 to 2015 and the other objective is to identify the effects of selected other determinants on income inequality in Sri Lanka

IV. SCOPE AND THE SIGNIFICANCE OF THE STUDY

Under the globalized context, liberalized economies have gained more benefits from external transactions whereas; income inequality has arisen as an adverse outcome of the globalization phenomenon. With robust economic growth in many low and middle-income economies, the global income disparity has narrowed significantly over recent decades but, gaps within countries have widened significantly (Zhuang, 2017). In many countries in Asia face increasing trend in income inequality and it has worsened since 1990s. Under Sri Lankan context, in line with the liberalization economic policies Sri Lankan economy exposed to the world market by tightening the interactions with other economies in the world. Meanwhile, Gini index which represents the income inequality has fluctuated slightly and shows negligible increasing trend over the last few decades in Sri Lanka. Approximately 50 percent of the total income has been distributed among richest 20 percent of the household population in the country. Moreover, 44 percent and 6 percent of the total income have been distributed among middle income earning 60 percent and the poorest 20 percent respectively (DCS, Household Income and Expenditure Survey, 2016). This ambience of income distribution implies that the income inequality still prevails at a higher considerable level and an issue should be taken under consideration. Higher level of income inequality can hinder the long-term development through misallocating of human capital, creating social tensions, hollowing out the middle class and damaging the quality of a country's institutions. With this basis, mitigating the income inequality is one of key roles of the government for the sustainable development so that, taking proper measures is inevitable. Under this consideration, this study provides the evidences for the presence of the causal relationship between globalization and income inequality over the last three decades since globalization has affected many aspects of the economy including income inequality. Moreover, it purports to pave the

way for possible policy directions through managing the external sector transactions.

V. RESEARCH METHODOLOGY

5.1 Model Specification and Estimation

A number of researchers has employed time series econometric methods following ADF tests, co-integrating test and Vector Error Correction Model (VECM) in order to find out the relationship between the globalization and income inequality. Since these studies mainly focus on identifying long-run / short-run impact Johansen Cointegration technique and VECM are employed in order to accomplish the objectives of the study.

$$GINI = f(DCP, SEP, FDI, TO) \tag{1}$$

This function can be written as a regression.

$$GINI_t = \beta_0 + B_1 DCP_t + \beta_2 SEP_t + \beta_3 FDI_t + TO_t + \varepsilon_t \tag{2}$$

Where, variables GINI, DCP, SEP, FDI and TO denote respectively, Gini index which represents the income inequality, domestic credit to private sector, school enrollment ratio (primary), foreign direct investment (net inflows) and trade openness which represent the globalization. DCP, FDI and TO variables are presented as a % of GDP. ε is white noise error term, t is the Time Period (1980-2015).

Spurious regression problem arises whentime series are non-stationary. In order to avoid this problem, it has become a standard practice to begin the analysis with prior determination of unvaried properties of the time series. A long run relationship can exist when series follow the same order of integration. Moreover, a combination of stationary series can be identified from a non-stationary series through co-integration techniques. Tests which are related to co-integration mainly involve with two steps namely identifying the presence of non-stationary (unit root) and long-run relationship between variables.

In order to identify the existence of non-stationary or unit root, some standard unit root tests can be followed such as Augmented Dickey- Fuller (ADF) test, Phillips-Perron (PP) test and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test. This study uses ADF and PP unit root tests. The general ADF test is shown in equation (3).

$$\Delta X = \alpha + \delta X_t - 1 + \sum_{j=2}^q \delta \Delta X_{t-j} + \varepsilon_t \tag{3}$$

$$y_t = A_1 + y_{t-1} + \dots + A_p y_{t-p} + Bx_t + \varepsilon_t \tag{4}$$

A co-integration test should be employed to ensure that a group of non-stationary series is co-integrated and the presence of long run relationship. This study employed a VAR (Vector Auto Regressive) based co-integration tests

using the methodology developed by Johansen (1991, 1995). A VAR of order p can be written as follows.

where y_t is a k -vector of non-stationary I(1) variables, x_t is a d -vector of deterministic variables, and ε_t is a vector of innovations.

For the purpose of find out the short run relationship between variables and long run equilibrium of the variables, Error correction model was employed.

$$\Delta \log Y_t = \alpha_t + \prod_{i=1}^{p-1} \log Y_{t-1} + \sum_{i=1}^{p-1} \Phi_i^* \Delta \log Y_{t-1} + \varepsilon_t \tag{5}$$

Where, $\Pi = \alpha\beta'$; where α is coefficient of error correction term, β' ; (1×5) Vector of coinegrating coeffecints, $Y_t = [GINI_t, DCP_t, SEP_t, FDI_t, TO_t]'$ vector of endogenous variables, Y_{t-1} is the lagged value of variables and ε_t is the white noise error term.

5.2 Data and Sources

This study used annual data covering the period from 1980-2015 and data were extracted from annual report of Central Bank of Sri Lanka and the World Bank.

VI. RESULTS AND DISCUSSION

ADF and PP unit root tests were carried out to identify the order of relevant variables as a prerequisite for co-integration test. Results of ADF test and PP test at first difference are shown in following Table 1.

Table I: Results of Unit root test (1st Difference)

Variable	ADF test		PP test	
	Intercept	Trend and Intercept	Intercept	Trend and Intercept
GINI	0.0000*	0.0000*	0.0000*	0.0001*
DCP	0.0001*	0.0000*	0.0089*	0.0000*
SEP	0.0000*	0.0000*	0.0002*	0.0002*
FDI	0.0000*	0.0000*	0.0003*	0.0000*
TO	0.0000*	0.0000*	0.0075*	0.0000*

Note: *, **, *** show significant at 1%, 5% and 10% level respectively

Source: Author's calculations

According to the results of ADF and PP unit root tests, all variables in the model are not stationary at level but stationary at their first difference ensuring that variables are integrated in order [I(1)]. After identifying the integrated order of variables, it is allowed to employ the Johansen co-integration test for the purpose of estimating the long run relationship between the dependent variable and independent variables. Before estimating the long run relationship, it is need to identify the optimal lag length of the model. Results of optimal lag length selection are given in following Table 2.

Table II: Results of Optimal Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-445.5	NA	222252.5	26.5	26.7	26.5
1	-378.4	110.4*	19077.1*	24.0*	25.3*	24.4*
2	-359.0	26.2	29404.4	24.3	26.8	25.1

* indicates lag order selected by the criterion
Source: Author's calculations

According to the above results, LR, FPE, AIC, SC and HQ criteria suggest that optimal lag length as one lag length. Therefore, this study uses one lag as the optimal lag length mainly following SC criterion.

The result of Johansen Co-integration test is given in following Table 3.

Table III: Result of Johansen Co-integration Test (Trace)

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.59	85.5	69.8	0.0017
At most 1 *	0.53	54.5	47.8	0.0103
At most 2	0.36	28.6	29.7	0.0672
At most 3	0.28	13.2	15.4	0.1045
At most 4	0.05	1.7	3.8	0.1855

**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's calculations

Above result shows that, Trace test statistic and Eigen value identified two co-integrating relations in the system of equation at 5% level of significance indicating the existence of long run relationship between variables.

Although there are two co-integrating relations only the first co-integrating relation which consists of Gini index as the dependent variable, is considered to identify the long-run relationship. [see Equation 5]. DCP is the dependent variables of the other co-integrating equation, but it is not presented here.

Equation 5: Long-run Relationship

$$GINI = 3.4 - 0.03SEP_t^{1*} - 0.08FDI_t^{**} + 0.24TO_t^{**}$$

[-5.9] [-1.97] [2.1]

Note: *, **, *** show significant at 1%, 5% and 10% level respectively.

t- statistics are given in parenthesis

Above results show that SEP variable is significant at 1% significant level, FDI and TO variables are significant at 5 % significant level indicating that all independent variables in the model affect the Gini index in log run. There is a significant impact of globalization which is represented by FDI and TO on income inequality in Sri Lanka. FDI(net inflows) affects negatively and TO affects the positively the income inequality in long run. Under Sri Lankan context, FDI inflows are greater than the FDI outflows and FDI inflows assist to have more benefits for the citizens result in decreasing the income inequality. In contrast, Sri Lanka's export earnings are less than the import expenditure and income which is arisen within the country flow outside the country as expenditure on imports. This ambience may lead to intensify the income inequality issues in the county with the unstable trade deficit. Moreover, School enrollment ratio(primary) has a negative impact on the income inequality. This negative impact can be arisen due to increasing the employment level through the school education leading to access a high quality of life through higher level of income and finally result in less degree of income inequality.

Next, Vector Error Correction Model (VECM) was employed in order to find out the long-run equilibrium (Speed of Adjustment) and the short-run relationship are shown as follows

Table IV: Speed of Adjustment

Error Correction: CointEq1	D(GINI)
	-0.075351
	(0.31294)
	[-0.24078]

Source: Author's calculations

Coefficients of speed of adjustment explain how above model is adjusted towards long-run equilibrium after external shocks. According to the results, it denotes that the error correction term is negative but, not significant at any significant level implying any external shocks do not have impact on the long run equilibrium significantly. Meanwhile, the results show that there are no any short-run relationships between variables implying no instant responses of the Gini index to the variation of any kind of variables in the model.

VII. CONCLUSIONS

This study aims to examine the impact of globalization on income inequality using FDI and trade openness, and Gini coefficient as proxy variables for the globalization and income inequality respectively. Time series annual data cover the period from 1980-2015. Unit root test confirmed that all variables are stationary at their first difference indicating variables are integrated in order one. Based on the lag length criterion (SC), the study uses one lag as optimal lag length. Johansen co-integration test verified the existence of long-run relationship between variables. Results showed that the globalization significantly affects the income inequality in Sri Lanka in long run but, not in short run. As globalization is

represented by foreign direct investment (net inflows) and trade openness in this study, through these variables the impact can be identified. FDI(net inflows) helps to mitigate the income inequality through the benefits from FDI especially, increasing income level of the urban sector as well as the rural and estate sector and improving the infrastructure. In contrast, the results of this study show that trade openness affects positively the income inequality implying that this result doesn't support to the conventional wisdom that opening up the country to foreign market has the favorable impact of distribution of income equally. Likewise, school education can be used as an influential tool to mitigate the income inequality in long run suggesting that more incentives for the education should be given.

Some policy recommendations can be drawn based on these empirical results of this study. The government can pay attention to give some incentives on the factors that can mitigate the income inequality especially, foreign direct investment inflows should be encouraged through giving incentives such as tax concessions, development of infrastructure, creating investment friendly market and the benefits from this should be distributed equally as much as possible. Poverty alleviation steps can be taken under consideration in line with equal income distribution. Likewise, negative impact of trade openness can be mitigated through imposing some restrictions on imports except essential import items and commodities, encouraging the import substitution and encouraging exports. In order to distribute the benefits from foreign trade among all income groups, government can get the contribution from all income groups including rural and estate sector people. Further, giving incentives for the participations of the labor force through increasing the education level especially, in remote areas and then mitigating inequality are important.

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