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EFFECTS OF FISCAL POLICY ON HUMAN DEVELOPMENT IN SRI LANKA: AN EMPIRICAL ANALYSIS

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Abstract: *Human development leads to growth cause by increased human capital, labour productivity and skilled labour through improving human capabilities. Sri Lanka, has a higher score in Human Development Index (HDI) and achieved highest standard among South Asian Countries. However, the efficacy of public spending on human development in Sri Lanka has become a widely debatable issue. Hence, the objective of this paper is to empirically examine the impact of fiscal policy on human development in Sri Lanka using annual data set for the period from 1977 to 2017. ARDL Bound test procedure is applied to test the long-run and the short-run relationship. This study concludes that favorable fiscal policies focusing on public spending and taxation have immediate effect on human development in Sri Lanka. Therefore, the Sri Lankan government need to develop a progressive fiscal policy framework to create a supportive environment to achieve higher standard of human development and sustainable economic growth in the future.*

JEL Classification: I15, I25, H51, H52, O15, O23

Keywords: Human development, Fiscal policy, ARDL Bound test.

1. INTRODUCTION

The ultimate goal of a country is the steady status in sustainable growth and development, irrespective of level of development. Hence, any government must give priority to promote human development which depends on enhancement of human capital and production efficiency. Fiscal policy formulation focusing on human development goals has a key role in this regard. Human development as ultimate objective of development has been raised its important by

philosopher Aristotle and economists such as William Petty, Gregory King, Franscois Quensnay, Antoine Lavoisier and Joseph Lagrange, Adam Smith, David Ricardo, Robert, Malthus, Karl Mark, and John Stuart Mill and it is defined as "enlarging people's choices and the level of their achieved wellbeing" and measured by factors, longevity, knowledge and decent living standard which proxy the life expectancy at birth, educational achievements and per capital income respectively (UNDP, 1990).

Sen (1992) emphasized that 'development as a way to expand human capability which is the ability and potentials to do and to be'. Human development is also considered as the engine of the economic growth as it improves the strength of the economy, increases the standard of living of the people and enhances the opportunity for choices and maximizes the welfare of the society (Ali et al. 2012). Therefore, human development is considered as an essential achievement for an economy to ensure sustainable growth by improving human capabilities which cause to increase labour productivity, labour demand, employment, output and welfare. On the other hand, human development not only improves human capital but also attracts physical capital and enhances natural capital.

Human development is the most widely acceptable measure of welfare and it contributes to sustainable growth by increasing individuals' abilities and productivity of works (Kizilkaya et al., 2015). Low level of human development is both an indicator as well as a step in the vicious circle of poverty (Sen, 1992). It is thus, human development is looked as a major factor that contributes eradicating poverty and inequality; and address issues related to overall economic development. In this regard, it must consider both human development strategies and policies which are directly attacking poverty with increased public goods delivery. According to Mittal (2016) public spending on human development is given important for at least two reasons; (i) the extent of derivation in education, health and income in developing countries is too large to be left to market forces alone to take care of sufficient spending required for human development and (ii) the larger proportion of the poor in developing countries utilizes government services for their livelihood and development needs. Providing elementary education, primary health care,

sanitation, fresh water, adequate shelter and clean environment are the primary aspects of governments' for delivering public goods (Kizilkaya et al, 2015).

The level of human development is assumed to be embodied in individuals and which is defined as a multi-dimensional achievement in human life that an aggregate of attainment levels of some basic human functioning. It represents relative importance of private and public provisioning of key social services to develop the human beings. Public spending on education as well as health are motivate human beings to improve their level of schooling and enhance their life expectancy, thus promote human capacities and capabilities, improve productivity and per capita income by provision of human development enhancing social services. Hence, fiscal policies on public spending and taxation are considered as very important policy making tools which have effects on human development effort of any governments.

Fiscal policies play vital role in attaining the objective of economic and human development in two ways. On the one hand, goods and services provided by the governments through public spending programmes are increase the social welfare and enhance human development. It also reduces inequality and other obstacles of development. On the other hand, public revenue structure especially tax policies on direct and indirect taxes have effects on individual's abilities to spend thus restrict human development related activities, but on the other hand, if it is compliance with redistribution function, then reduce inequality and poverty (Ali, et al., 2012); and increase opportunity for human development, thus improve human capital and economic growth.

Keynesian economics imposes an active role of the government in economic growth and development (Kizilkaya et al., 2015). Accordingly, Education and health improvements achieved by increased public spending cause to a positive externalities on an economy which demand better government policies especially fiscal policies focusing on public spending on social sector and taxation. In this direction, governments required to use effective tools in public spending on education and health, and taxation for higher government revenue. In this context, it is understood

that governments' fiscal policies, i.e public spending provide opportunities for citizens to enhance human capital and production.

Systems of taxation can contribute to societies in three main areas those of revenue, redistribution and (political) representation. Tax is a neglected element of development policy in many developing countries (Cobham, 2005) while it is a central in development focused public budgeting. The policy framework, structure and administration of taxation are frequently omitted from discussion and research agenda of fiscal policy. Questions of a primarily redistributive nature may be deemed political, and so unsuitable for neutral economic analysis. As a result, tax generates neither the sort of attention given by independent empirical academic research. This neglect has led to main development, i.e, the treatment of tax as a specialist area, with a resultant focus on 'efficiency' rather than theoretical analysis or practical research, has contributed to a lack of knowledge of potentially important peculiarities of individual countries.

In Sri Lanka, the government's policy on human development has a longer experiences. It has been provided free education and health services financing through public budget since 1945 and which had progressively contributed to improve human development indicators, i.e by Human Development Index (HDI), which is increased from 0.513 in 1980 to 0.766 in 2016 and achieved highest place among South Asian Countries (Nanayakara, 2017). According to the Human Development Report – 2016 of United Nations Development Programme (UNDP), Sri Lanka's Life expectancy at birth increased by 5.5 years, mean years of schooling increased by 2.5 years, expected years of schooling increased by 2.7 years and Gross National Income (GNI) per Capital also increased by about 196.5% between 1990 and 2015. Therefore, Sri Lanka has classified under the "High Human Development category" positioning it at 73 out of 188 countries and territories. Sri Lanka also ranked above a fast developing and powerful country like China and India, in terms of human development (UNDP, 2016).

In Sri Lanka, free education and health services, being provided to all citizens, which continued for more than five to six decades coupled with other various social welfare programmes to assist the poor by provide housing, electricity, water and sanitation, efficient communication facilities

etc., that have contributed to the achievement in human development of the country (Nanayakara, 2017). An important feature of human development expenditures in Sri Lanka is that they are incurred mainly by Central and Provincial Governments budgets financing through public tax revenues. According to the constitutional provisions, responsibilities of provision of basic education and primary health care are the primary responsibility of Provincial Governments and the higher education is with central government, however, in this regard, the Central Government provide fund, policy and direction to the Provincial Governments. These helped Sri Lankan citizens to achieve longer and healthy lives, impressing higher levels of educational achievements and improvement in their per capita income up to middle income country level. In the past, Sri Lanka has experienced that public spending on education and health as a share of GDP tend to increase throughout last three decades starting from 2.2 % in 1984 and ending at 3.5% in 2016 (World Data Atlas, 2018). However, this percentage is very lower than other lower middle income countries.

The public demand to increase the public spending up to 6% of GDP has become one of the major political issues during this decade. On the other hand, promoting private investment on education and health has become one of the focal policy matters of the government of Sri Lanka. Hence, the efficacy of public spending on human development in Sri Lanka has become a widely debatable issue. However, this issue has not been fully addressed still by empirically investigating the effect of fiscal policy on human development in Sri Lanka. Therefore, further investigation in this area exploring the relationship between fiscal policy and human development is demanded. In this context, the main objective of this paper is to empirically examine the impact of fiscal policy on human development in Sri Lanka for the period of 1977 to 2017. In addition, the study analysis the existing human development related issues comparing with the empirical finding and suggest new policy implications

2. LITERATURE REVIEW

This section briefly reviews the increasing relevant literature from theoretical as well as empirical studies that goes on to discuss the findings of existing studies that pertain to the fiscal policy,

public spending, human development and economic growth nexus. Many studies have found a theoretical relationship and empirical evidences between fiscal policy, human development and economic growth nexus. Lucas, (1988), Mankiw et al. (1992) and Bergheim (2005) identified a positive relationship between human capital and economic growth. Barro (1990) found some empirical support by an extension in endogenous growth model by including government expenditures and taxation. Sala-i-Martin (1997), Tsoukis-miller (2003) and Suescun (2007) established theoretical and empirical relationship between public spending and human development.

Some other theoretical studies found relationship between public spending and human development. Lucas (1988) found that public expenditure contributes positively to income growth. Abbas (2001) identified a positive and significant relationship between secondary and higher education level with economic growth in Pakistan and Sri Lanka using data from 1970 to 1994. Ranis and Stewart (2005) proved two ways linkages between economic growth and human development. First linkage explain the economy growth effects on Human development by allocation of more resources for public spending caused by economic growth to sustain improvements in human development. Second linkage occurs when human development affects economic growth through improvement in labor quality, productivity and investment. Finally he argued that sustainable economic growth is required to make the human development sustain and vice versa.

The studies focus on human capital and development brought two different arguments, some of them revealed positive linkages while others found negative linkages. Romer (1990) found positive relationship between human capital and economic development and concludes that high human development would accelerate the technological advancement and thus leads to economic development by making the labour force more innovative and productive. Gupta et al. (1998) state that spending on primary education and health accelerates human capital, and this would cause an economy to grow and poverty to be reduced. According to Doryan (2001), if governments increase in public spending on education and health in order to provide better

education and health care for all of their citizen, human development will be improved and human capital will be accumulated and thus will effect economic growth positively and sustainable development will be ensured in the long-run. Arora (2001) and Majumder (2005) found empirical relationship between government expenditure on social sector and economic growth through enhancing human development and productivity by providing education and health, harmonizing private and social interests; and infrastructure.

Many studies mainly concerned in examining relationship between public spending and its impact on human development have found different results. Some researchers found positive impact of fiscal policy on public spending and human development, and few showed a negative impact. Gupta et al. (1998) conducted a study based on 118 developing and transition countries using data from 1980 and found that real capita public expenditures on health and education has increased for developing countries and decreased in transitional countries and in many countries spending on education and health accelerates human development. Suescun (2007) studied the impact of governments' public spending on human development in 15 Latin American countries and found a positive relationship between government expenditure, human development and economic growth. Davies (2009) examined the relationship between government consumption spending and human development using data belongs to 154 countries for the period of 1975-2002, and the study found that the government consumption expenditure had positive impact on human development index.

Qureshi (2009) found that public expenditure on human development improve the indicators of human development in Pakistan and thus enhance economic growth. He also found that the expenditure on human development not only had impact on macro level but also had a positive effect at micro and household levels. He concluded that low household expenditure on human development leads to low income of the future generation. Djafar (2009) analysis the relationship between variables which are Gross Domestics Product (GDP), life expectancy representing human development, public expenditure on health based on cross-sectional data derived of year 2006 for 31 Asian countries applying Catresian Diagrams. He concluded that effect of economic

growth and public expenditure on human development is not automatic quality of economic growth and effective use of public expenditure became very important factor in human development. Even though, low economic growth and lower level of public expenditure also may create high human development as long as they are accompanied by high quality of economic growth and effective use of public expenditure respectively.

Some other studies also have developed a theoretical and empirical relationship between economic growth, fiscal policy and human development. Barro (1990) conducted a study using endogenous growth model by including public expenditure and taxation; and he established a theoretical and empirical relationship between public expenditure and human development. Another interesting finding by the Borg (2006) is that there is a relationship between the level of development and taxation structures. It has been shown that small states that score high on the HDI tend to collect more of their tax revenue from taxes on income, profit and capital gain, while small States having a low HDI tend to raise most of their tax revenue from taxes on international trade. Nwakanma and Nnamdi (2013) are observed positive relationship between consumption tax and human development; and negative relationship between corporate tax and human development. Kizilkaya et al. (2015) tested the impacts of taxes, government expenditures, income and infrastructure on human development for the data from period of 1998 and 2007 for 14 OECD countries using Panel Unit Root, Panel Co-integration, Panel EMOLS, Panel DOLS and Panel Vector Error Correction based causality methods. They concluded that taxes have a negative impact on human development while government expenditures and income have a positive impact on it.

Ofoegbu et al. (2016) examine the effect of tax revenue on the economic development of Nigeria in order to ascertain whether there is any difference in using HDI and GDP in establishing the relationship using annual time series data for the period 2005 and 2014. This study adopted a linear ordinary least square (OLS) regression model for the variables, tax revenue and HDI; and findings showed a positive and significant relationship between tax revenue and HDI which is the proxy for economic development. The researcher, therefore, conclude that tax revenue can be an

instrument of economic development in Nigeria. Hence, development of any tax policy to generate tax revenue for economic development should better be based on human development index rather than GDP. Sari et al. (2017) used a simultaneous hypothesis test to examine the effect of fiscal independence level and local revenue on the HDI in Sumatara. The study found that regional revenue partially influences the HDI and fiscal independence has no effect on the HDI.

Kasthuri and Abbayaratna (2007) analyzed the effects of public spending on health and education on economic growth in Sri Lanka using Multiple Liner Regression Model (MLRM) and found a positive relationship between human capital variables and economic growth in Sri Lanka for the period of 1980 and 2006. Duma (2007) analyzed the relationship between human capital and economic growth in Sri Lanka and identified around only 10% contribution made by the human capital to economic growth while physical capital contributed around 17% on economic growth. Vijesandiran and Vinayagathasan (2015) analyzed the relationship between human capital variables such are education index and health index, and economic growth using per capita GDP growth rate in Sri Lanka covering the period from 1970 to 2013 and Human Capital Model of Endogenous Growth model. They concluded that economic growth has long run positive relationship with health and negative relationship with education in Sri Lanka.

According to the test results of previous studies, government expenditure on education and health have a positive relationship and significant impact on economic growth for many cases and on human development in few studies in Sri Lanka. These results also indicate a long-run causality relation between the public spending and human development in many countries. These studies found that fiscal policy have positive impact on human development which support to the accumulation of human capital and thus promote economic growth, but the studies examining this relationship focusing on Sri Lanka is lacking. Previous literature reviews real that emerging knowledge based growth model of economies demand effective fiscal policies to accelerate human centered development in the developing countries. Therefore, in many studies it is recommended that governments should give priorities when fiscal policies are formulating, to

increase the investment in education and health to enhance human capital and better income opportunity to improve the quality of life of individuals and social groups in the country.

3. METHODOLOGICAL FRAMEWORK

Concepts and Measurements on Human Development Index

Human development is a multidimensional phenomenon. It comprises economic, social psychological and biological elements. Therefore, deriving a concrete definition and making a quantitative measurements seems to be difficult to human development, however, it is basically made based on United Nations Development Report (Djafar, 2009). The UNDP (1990) in the Human Development Report of 1990 was defined 'Human Development' as "enlarging people's choices and the level of their achieved well-beings". According to the Sen (1999), development is freedom and capability to function that have core three values which are substance –the ability to keep individual alive, self-esteem and freedom from servitude and poverty. Hence, human development measured by three factors longevity in life, achievements of knowledge and having a decent living standard (UNDP 1990). Based on the above development, Organization for Economic Cooperation and Development (OECD) developed a measurement identified as 'Human Development Index' (HDI) which was introduced by the World Bank and the UNDP first used in preparing the Human Development Report in 1990 (Vijesandiran and Vinayagathasan, 2015).

HDI is widely used as an internationally, regionally and locally comparable indicator for measuring human development as well as human capital. In 2010, the structure of HDI index was changed from original version constituted in 1990. The present HDI constitutes three dimensions; i.e health, education and income which are measured by sub-variables such are Life Expectancy at Birth (LEB); Expected Year of Schooling (EYS) and Mean Year of Schooling (MYS); and GDP Per Capita (PC) respectively. Since 1990, the calculation was made with arithmetic mean, but it is changed in 2010 and the present calculation made with geometrical mean of three index, such are Health Index (HI), Education Index (HI) and Income Index (II) used to measure the HDI for a country.

The equation suggested by Kizilkaya et al. (2015) is used to calculate the HDI for this study. Accordingly, HDI comprises three sub-indices i.e HI, EI and II, and the maximum and minimum values of these sub-indices are derived using the data collected from the period from 1977 to 2017 which are represent the above three different dimensions of human development. Initially, these values are employed separately to calculate the each indices using the following formulas. Finally, all three indices are composed using formula (4) to calculate the Human development Indices for the reference period. The calculated indices represent the values between 0 and 1.

$$HI = \frac{\text{Current Value of LEB} - \text{Minimum Value of LEB}}{\text{Maximum Value of LEB} - \text{Minimum Value of LEB}} \ldots\ldots (1)$$

$$EI = \sqrt[2]{\frac{\text{Current Value of EYS} - \text{Minimum Value of EYS}}{\text{Maximum Value of EYS} - \text{Minimum Value of EYS}} \text{ X } \frac{\text{Current Value of MYS} - \text{Minimum Value of MYS}}{\text{Maximum Value of MYS} - \text{Minimum Value of MYS}}} \ldots (2)$$

$$II = \frac{\text{Current Value of GDP Per Capita} - \log \text{Minimum Value of GDP Per Capita}}{\log \text{Mamimum Value of GDP Per Capita} - \log \text{Minimum Value of GDP Per Capita}} \ldots\ldots (3)$$

The HDI is derived by calculating the geometric mean for of the above three sub-indices using the following formula (4).

$$HDI = \sqrt[3]{Health\ Index\ (HI)\ X\ Education\ Index (EI)\ X\ Income\ Index\ (II)} \ldots\ldots (4)$$

The HDI values calculated using formula (4) are employed in the econometric model to represent human development in Sri Lanka.

Data and Sources

The study attempts to examine the impact of fiscal policy on human development employing time series data of different macroeconomic variables of Sri Lanka during the period from 1977to 2017 which are mainly collected from different secondary sources including Central Bank of Sri

Lanka (Annual Reports) and World Bank (World Development Indicators). The main reasons for the short period of time considered for this study is the accessibility of relevant data set.

Model Specification

Dauda (2010) suggest the endogenous growth model to examine the impacts of government policies, political stability and market distortions on human capital that is a proxy to human development. This model is widely used to study fiscal policy-human capital-growth nexus (Dauda, 2010; Ali, 2012; Kizilkaya, et al. 2015; Vijesandiran and Vinayagathsan, 2015). As these studies follow Endogenous Growth Theory to formulate the model that could be adopted appropriately to test the fiscal policy and human development relationship in Sri Lanka.

In this study, Human Development Index (HDI) is used as a dependent variable to represent Human Development, and Public Spending on Education (PSE) as a percentage of GDP, Public Spending on Health (PSH) as a percentage of GDP, Government Tax Revenue (GTR) as a percentage of GDP, Economic Growth Rate (EGR) is as a proxy for real GDP growth rate and Infrastructure (INF) as a proxy for fixed telephone subscriptions per 100 people are employed as independent variables to construct the general form of the model that is expressed as follows:

$$HDI = f(PSE, PSH, GTR, EGR, INF) \quad \ldots\ldots(5)$$

The equation (5) transformed to the following linear regression model which is used as a functional form to estimate the impact of fiscal policy on human development in Sri Lanka,

$$HDI_t = \delta_0 + \delta_1 PSE_t + \delta_2 PSH_t + \delta_3 GTR_t + \delta_4 EGR_t + \delta_5 INF_t + \varepsilon_t \quad \ldots\ldots(6)$$

In this model, δ_0 is the constant term andfrom δ_1 to δ_5 are represents as coefficients of the impact variables. ε_t is the white noise error term and t stands the time period.

Model Estimation and Testing

Stationary is a vital issue in time series data and Augmented Dickey-Fuller (ADF) and Philipps-Perron (PP) unit root tests approaches are applied to test the order of integration among the

variables and optimum lag length of the model is tested based on the AIC, SC, LR, FPE and HQIC criterions to.

The long-run relationship between the variables can be found by using many different econometric techniques. Engel-Granger co-integration test first is used by Engel and Granger (1987), and Maximum Likelihood Procedure (MLP) by Johansen (1991 and 1992) and Johansen and Juselius (1990); and the Autoregressive Distributed Lags (ARDL) model developed by Pesaran and Shin (1995); and Peasaran et al. (2001) are used in empirical studies to find the long-run relationship between variables. The first two approaches are very useful for larger samples since the order of integration is matter for it, but in the ARDL, order of integration is not a matter for small samples and also very effective even different variable has been in different lags. Due to these reasons, the ARDL approach is used to test the co-integration among the variables employed in this study.

Hence, ARDL procedure is applied to test the long-run and the short-run relationship between the variables and long-run adjustment of the model. For this purpose, variables constituted in the functional form as expressed by equation (6) are employed and ARDL representation of this equation proceeds the following format:

$$\Delta HDI_t = \alpha_1 + \alpha_2 HDI_{t-1} + \alpha_3 PSE_{t-1} + \alpha_4 PSH_{t-1} + \alpha_5 GTR_{t-1} + \alpha_6 EGR_{t-1} + \alpha_7 INF_{t-1} + \sum_{i=1}^{p_1} \gamma_i \Delta HDI_{t-i} + \sum_{i=0}^{p_2} \beta_i \Delta PSE_{t-i} + \sum_{i=0}^{p_3} \mu_i \Delta PSH_{t-i} + \sum_{i=0}^{p_4} \rho_i \Delta GTR_{t-i} + \sum_{i=0}^{p_5} \delta_i \Delta EGR_{t-i} + \sum_{i=0}^{p_6} \theta_i \Delta INF_{t-i} + u_t \quad (7)$$

Where, the series is defined as earlier, α_1 is constant, α_2 to α_7 refer to the long-run coefficients; γ, β, μ, ρ, δ and θ refer to the short-run dynamic coefficients and u_t is white noise error term. The null hypothesis of no co-integrating relationship between the variables denotes as $H_0: \alpha_2 = \cdots = \alpha_7 = 0$ and the alternative hypothesis denotes as $H_1: \alpha_2 \neq \cdots \neq \alpha_7 \neq 0$, which implies existence of co-integrating relationship among the variables.

The co-integrating relationship among the variables will be confirmed by the bound test procedure. Once we confirm the co-integrating relationship between the variables, we used error correction version of ARDL model to estimate the short-run dynamic relationship as well as long-run adjustment of the HDI which is specified as below:

$$\Delta HDI_t = \delta_0 + \sum_{i=1}^{q_1} \delta_{1i} HDI_{t-i} + \sum_{i=0}^{q_2} \delta_{2i} \Delta PSE_{t-i} + \sum_{i=0}^{q_3} \delta_{3i} \Delta PSH_{t-i} + \sum_{i=0}^{q_4} \delta_{4i} \Delta GTR_{t-i} + \sum_{i=0}^{q_5} \delta_{5i} \Delta EGR_{t-i} + \sum_{i=0}^{q_6} \delta_{6i} \Delta INF_{t-i} + \phi ECT_{t-1} + \nu_t \quad \text{.....(8)}$$

Where, δ_0 is constant and δ_{1i} to δ_{6i} are short-run dynamic coefficients, ϕ is the speed of adjustment coefficient, ν_t is the white noise error process.

4. EMPIRICAL RESULTS AND DISCUSSION

This study is adopted ARDL model to confirm the order of integration lower than I(2) Hence, the results of this test are given in the Table 1.According to the ADF and PP tests results shown in the Table 1, ADF confirms that Economic Growth Rate (EGR) is stationary at their level at 1% level of significance while the variables HDI, PSE, PSH, GTR and EGR are stationary at their first difference at 1% significance and the INF is non-stationary. PP test result indicates that all the variables other than EGR are stationary at their first difference while only EGR is stationary at its both, level and first difference at 1% level of significance. This indicates that none of the variables are I(2) and which means that all variables are stationary at their level I(0) and first difference I(1). Hence, these results suggested to adopt ARDL bound test approach to estimate the parameters.

Table 1: Results of Unit Root Analysis

Variable	Augmented Dickey-Fuller Test		Phillips-Perron Test	
	p-value		p-value	
	Level	1st Difference	Level	1st Difference
HDI	0.1057	0.0000*	0.2368	0.0009*
PSE	0.7900	0.0000*	0.8435	0.0000*
PSH	0.8582	0.0000*	0.89.9	0.0000*
GTR	0.7545	0.0001*	0.7897	0.0001*
EGR	0.0005*	0.0000*	0.0005*	0.0001*
INF	1.0000	0.6477	0.8077	0.0008*

Note * significant at 1% level

The appropriate ARDL model is selected based on the Akaike Information Criteria (AIC) and the estimated results of optimal lag length of each variable are given by the Figure 1 in Appendix. Since the lowest value of AIC is better, the results of AIC test suggest the ARDL 2, 1, 2, 2, 1, 1 model is an appropriate one among the top 20 models to analyses the relationship between fiscal policy and human development in Sri Lanka. Further, the bound test approach is adopted to find-out the existence of co-integrating relationship between the variables based on the equation (7). Further, the Cumulative Sum of Recursive Residuals (CUSUM) test and Cumulative Sum of Squares of Recursive Residuals (CUSUM-SQ) test are adopted to check the stability of the model. Both graphs display by the Figure 2 and Figure 3 in Appendix 1 confirm that the model is in stable condition since the residual line lies between the 95% confidence bands.

Table 2: Results of Bound Test Statistics for Co-integrating Relationship

		Bound Critical Vales (Restricted Constant and No Trend)		
Test Statistic	Value	Significance level	I(0)	I(1)
F-statistic	4.190297	10%	2.306	3.353
k	5	5%	2.734	3.92
Actual Sample Size	39	1%	3.657	5.256

Source: Authors' calculation

Table 3: Results of Long Run Relationship of ARDL Model

	Dependent Variable: HDI			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
PSE	5.78E-06	2.52E-06	2.290941	0.0310*
PSH	1.09E-06	3.46E-06	0.315294	0.7553
GTR	-0.005721	0.002119	-2.699935	0.0125**
EGR	0.027036	0.009332	2.897132	0.0066*
INF	-0.003857	0.002282	-1.690435	0.1039
C	0.608074	0.059256	10.26190	0.0000
Diagnostic Test				
Serial Correlation (LM Test)	0.2793			
Normality (Jarque-Bera Test)	0.678931			
Heteroscedasticity (BPG Test)	0.3185			
Omitted Variable (Ramsey's RESET)	0.6305			
R-squared	0.999795			
F-statistic	8368.095 (0.000000)			

Note: * and ** indicates the 1% and 5% level of significance respectively

Source: Authors' calculation

The results of ARDL Bound test statistics for co-integrating relationship depicted in Table 2 suggest that all the variables have long-run relationships, since we reject the null hypothesis of there is no co-integrating relationship between variables based on the value of F-statistics (4.190297) exceeds than Pesaran critical value of upper bound limit (3.92) at 5% significance level, the test indicates existence of co-integrating relationship between variables. After the confirmation of the co-integrating relationship, the long-run impact of fiscal policy on human development is estimated based on the equation (7) using the ARDL model. The results of this test are reported in Table 3.

According to the ARDL bound testing, the model is well fitted in high R^2 (0.999795) while the overall model is significant at 1% level. Further, ARDL bound testing shows that the model passes the all the diagnostic testing as shown in the Table 3 and it indicates that there is no serial correlation, omitted variables and heteroscedasticity issues; and errors are normally distributed in the model which reveals that the variance of the residuals are constant and it fluctuates within a given range.

The results of co-integration test reveal that both public spending on education and economic growth has a positive and statistically significant impact on human development while government tax revenue has a negative and statistically significant impact on human development in the long-run. The coefficient of impact variables; PSE, EGR and GTR that have significant effect on human development reveals that one unit of increase in public spending on education and economic growth will increase the human development by 0.00000578 units and 0.027 units repetitively; and an unit increase in government tax revenue reduce the human development by 0.0057 units.

This indicates that the public spending on education, economic growth (as proxy for GDP Per capita income) and government tax revenue are important determinant for human development in Sri Lanka while other variables, especially public spending on health has a positive relationship

with human development, but the long-run impact is insignificant; and infrastructure has a negative relationship but insignificant long-run-impact on human development under Sri Lankan context. This finding resembles the existing literatures (e.g., Kizilkaya et al., 2015; Ali et al., 2012). These results highlight that the increased public spending on education and higher level of per capita income by enhancing GDP growth accelerate human development in Sri Lanka; and this result contrast with government tax revenue, which implies that any action towards increment in direct and indirect taxation rate will necessarily effect negatively on human development in Sri Lanka.

Table 4: Results of Error Correction Representation of ARDL Model

	Dependent Variable is D(HDI)			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001578	0.001226	1.287732	0.2112
D(HDI(-1))	1.086269	0.398613	2.725121	0.0124**
D(HDI(-2))	-0.449408	0.260027	-1.728312	0.0979***
D(PSE)	1.10E-07	1.08E-07	1.018515	0.3195
D(PSE(-1))	2.35E-07	1.07E-07	2.199422	0.0387**
D(PSH)	6.45E-08	1.48E-07	0.436158	0.6670
D(PSH(-1))	3.43E-07	1.48E-07	2.321792	0.0299**
D(PSH(-2))	4.82E-07	2.05E-07	2.352748	0.0280**
D(GTR)	-0.000133	0.000244	-0.547043	0.5899
D(GTR(-1))	-0.000274	0.000270	-1.013446	0.3219
D(GTR(-2))	-0.000211	0.000162	-1.302385	0.2063
D(EGR)	0.000525	0.000133	3.951368	0.0007*
D(EGR(-1))	-0.000213	0.000201	-1.056998	0.3020
D(INF)	-0.000611	0.000201	-3.038804	0.0060*
D(INF(-1))	0.000241	0.000230	1.049424	0.3054
ECT(-1)	-0.822307	0.420539	-1.955364	0.0634

Note: *, ** and *** indicates the 1%, 5% and 10% level of significance respectively

The error correction representation of ARDL model is estimated in order to identify the short-run relationship between the variables and long-run adjustment in the human development due to the changes in exogenous variable constituted in the equation (8) and the result of this test is shown in Table 4. Accordingly, in the short-run, past values of HDI has significant impact on current values of HDI. one year lagged value of public spending on education has a positive and significant impact on human development and past years lagged values of public spending on health also have positive and significant impacts on human development as well as present value of economic growth rate too have a positive and statistically significant impact on human development in the short-run. However, Current value of infrastructure has a negative and significant impact on human development in the short-run, while the government tax revenue has a positive relations does not have any immediate impact under Sri Lankan phenomenon in the short-run. Therefore, the test revels that fiscal policy has a favorable immediate impact on education and health in the short-run. Hence, increased government spending on education and health enhance the human development in the short-run. As expected, the coefficient of Error Correction Term (ECT) is significant and negative sign implies that the HDI can get back to long-run steady state line (or equilibrium) at the speed of 82.23% in each year one period after the exogenous shocks.

The above findings reveal many fiscal policy implications on human development in Sri Lanka. During the past three decades, as Sri Lanka's achievement of a highest level of human development status among the developing countries (Angell, 2011) and far with most of the developed countries were made through favorable fiscal policies enacted towards education and health as well as other social welfare programmes implemented by the succeeding governments. This was played an important role in maintaining education and health systems are as important institution in the society and making fiscal policies are on this basis. It was made possible by making institutional and policy developments with public investment on education system from primary to higher levels for all the children and on health system from birth to death in every aspects of health care for entire population.

The above changes contributed greatly on development of younger generations who are expected as the future assets to the country enhanced their human abilities, knowledge and skills; increased life expectancy, and produced healthy human beings which improved human capital, increased labour productivity and enhanced social equality in Sri Lanka. Sri Lanka's welfare state policy well contributed in human development process until 1977. But, it has been transforming slowly into modern welfare state strengthening with the cooperation of the private sector investors in the areas of human development.

Since 1977, Sri Lankan governments have been implementing liberalized free market economic system by inviting private investment in the education and health sectors without undermining the public funded education and health system as well as other welfare and redistribution programmes. This was necessarily supported to improve human development by enhancing the HDI from 0.619 in 1975 to 0.766 in 2016 and to maintain economic growth at above 3.5 per annum during this period. On the other hand, the Governments of Sri Lanka have played an active role in human development by redistribution of tax income by making significant investment in education health and other welfare programmes. This has proved that fiscal policies could be used as important tools in education and health sector by creating enabling environment, developing infrastructure, providing human resources, extending transfer payments through scholarships, paying medical treatment cost etc.

It appears that Sri Lankan Government's key role in human development is continuing through formulating proper fiscal policy frameworks time to time. However, there are many policy issues remaining which are need to be addressed. The gender disparity in human development is a notable issue in Sri Lanka. The female HDI value for Sri Lanka is 0.734, which is lower that than males' HDI value of 0.785. The Gender Inequality Index (GII) (which represents three dimensions; reproductive health, empowerment and economic activity between the females and males) is at very lower level compared to many other countries. In this aspect, Sri Lanka was in 87 out of 159 countries in GII having a value of 0.385 in 2015 which indicates a loss in human development due to inequality between female and male achievements in the above three

elements. At the same time, females labour force participation and economic empowerment is far below in Sri Lanka compared to the countries which are very closer to Sri Lankan's HDI (UNDP, 2016).

Sri Lanka is at critical juncture in its fiscal policy making in the aspects of taxation. The country experienced a less taxes and more debt based financed public spending programme on welfare and development during last two decades which became unsustainable and challenging issues now. Sri Lanka's borrowings from both domestics and international sources increased rapidly and by 2015 it became a highly indebted country. Sri Lanka finds itself in an unenviable position of having a high public debt ratio – at over 75% of GDP and low government revenue ratio of – at 13% of GDP (Weerakoon and Hewage, 2017) which is unfavorable situation compare with low middle income country thresholds.

The past experience with ambitious expenditure reduction programmes with cuts in welfare measures has been less effective. Given Sri Lanka's competitive populist politics, significant reduction on welfare expenditure become increasingly difficult in fiscal management (Kelegama, 2017). Thus, revenue based fiscal consolidation through domestic resource mobilization is the key factor for overcome from debt trap and sustainability of the welfare programme including education and health sector. Hence, tax revenue enhancement becomes more crucial issue, because it has continuously declined during last three decades. Sri Lanka's tax revenue as a GDP percentage amounted to only 11.4% in 2014 in fact, it was 20% of the GDP in the early 1990s (Kelegama, 2017), but international empirical evidence on tax ratio reveals that it is necessary to achieve 25% of the GDP for middle income countries (Gallagher, 2005) in which category Sri Lanka is represent now.

It is emphasized that about 93% of Government revenue comes from tax revenue in Sri Lanka. Out of this, the direct taxes comprise on average less than 20% of tax revenue or 2% of GDP while indirect taxes comprise about 80% of tax revenue over the years (Kelegama, 2017). It is be noted that the larger proportion of indirect taxes are collected from relatively few commodities

and imposing many indirect taxes (Turnover tax; Nation building tax; Port an d Airport levy; Special Commodity; and Port and Airport Development levy etc. levies) on same commodities such are essential food basket items, construction materials, petroleum etc., (Indraratna, 2016). It is well clear that indirect tax system in Sri Lanka, reduce tax burden to the higher income earners by making reduction in taxes as a percentage of their income successively while the larger number of lowest income group bears the highest tax burden (Kelegama, 2017). Hence tax system in Sri Lanka imposes a relatively high burden on lower income groups. It means that higher the Government tax revenue from indirect taxes reduce the private spending on education, health and other welfare measures that have negative impact on human development in Sri Lanka. However, heavy relay on indirect taxation to government revenue and current proportion of 20:80 for direct and indirect taxes are unrealistic, If Sri Lanka is to achieve a developed country status in human development, as the target set by the Presidential Tax Commission (PTC, 2010) and the Economic Policy Statement of the Prime Minister (EPS, 2016) the direct taxes and indirect taxes ratio has to be changed in to 40:60. In this regard, Government relay on tax revenue to mobilize government revenue has to be transformed from indirect tax to direct tax base. Since the public sector is the source of most investment in education, health, technology, research and related infrastructure in Sri Lanka, lack of investment in this sector will have long-term repercussion on the human development of the country. In this situation, country unable to reduce debt service payments, unless, the country takes necessary measure to expend its tax base targeting the direct taxes, otherwise dependency on debt for public spending on human development cannot be avoided.

5. CONCLUSIONS AND POLICY IMPLICATIONS

The goal of a government is to ensure sustainable development by achieving human development and growth. Human development is the most widely acceptable measures of welfare and sustainable growth and thus human development is measured by using HDI. In the past, Sri Lanka had achieved highest level of human development through public spending which was ensured by formulation of various fiscal policies towards public spending on education and health and collected higher amount of tax revenue to finance the public spending programmes. While Sri

Lankan governments have been continuing successfully their public spending programme since 1940s, the efficacy of public spending on human development in Sri Lanka has become a widely debatable issue. Hence, this paper empirically examines the impact of fiscal policy on human development in Sri Lanka using an annual data set for the period of 1977 to 2017. The study utilized unit root test to test and ARDL procedure to test stationary of variables, and short-run and long-run relationships among the variables. All the variables considered for this study are stationary and results of ARDL Bound test confirm the long-run relationship between variables constituted into the functional model.

The co-integration analysis results conclude that in the long-run, public spending on education and economic growth has had positive relations and statistically significant impact on human development while government tax revenue has a negative and statistically significant impact on human development. On the other hand, public spending on health has a positive relationship and insignificant impact on human development while government tax revenue and infrastructure have negative relation but only the government tax revenue has significant impact on human development the long-run.

In the short-run, all the public spending on education and health and economic growth have a statistically significant and a positive impact on human development; and infrastructure has a negative relationship and significant impact while the government tax revenue does not have any impact on human development in the short-run under Sri Lankan phenomenon. Hence, this study concludes that favorable fiscal policies focusing on public spending have immediate effect on education and health and taxation determine the individual's capacity of spending on family welfare which influence negatively on human development in Sri Lanka. As identified in many studies, economic growth also contributes favorably to the human development progress in Sri Lanka.

It is noted that if human well-being is the end target of development goal, all citizens of the country should be accessed to healthy and educated life. This will be guaranteed only when the

fiscal policy making of the country is given priority for human development programmes. Therefore, the Sri Lankan government has to play an effective role in making fiscal policies targeting towards human development programmes for the future generations. Hence, the study suggest that an effective policy towards fiscal management and a progressive taxation will be the new avenues for human development in Sri Lanka which has to be given important place in government's future fiscal policy frameworks. Hence, it urges stable fiscal policy towards financing on human development as well as growth enhancement programmes of the country. To achieve this task without increasing budgetary deficit and foreign debt will be a challenge for Sri Lanka in the future. Therefore it is necessary to achieve per capita income of the citizens through growth performances.

However, the effectiveness of public spending is heavily dependent on the level of enhancement in productive capital especially the human capital that require increased public spending on education and health. It is demand, progressive policy changes in taxation including widening the base of the direct taxes and making tax collection procedures more efficient and reforming the existing tax structure.

On the other hand, Sri Lanka faces many challenges in strengthening law and order which was highly disturbed and had negatively affected the human development process in many regions of the country during the civil war period and naturally these regions have a higher demand for human development and welfare progarmmes. Improving and making stability in macroeconomic policies by changing fiscal policy frameworks to create a supportive environment to achieve higher standard of human development and sustainable economic growth through public spending schemes is the other vital issue need to be addressed. These all efforts highly depend on the commitment and willingness among the political leaders, enhancing citizens' participation and cooperation of private sector in the formulation and management of fiscal policies and accountability and transparency among tax payers especially business entities in Sri Lanka.

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Appendix 1:

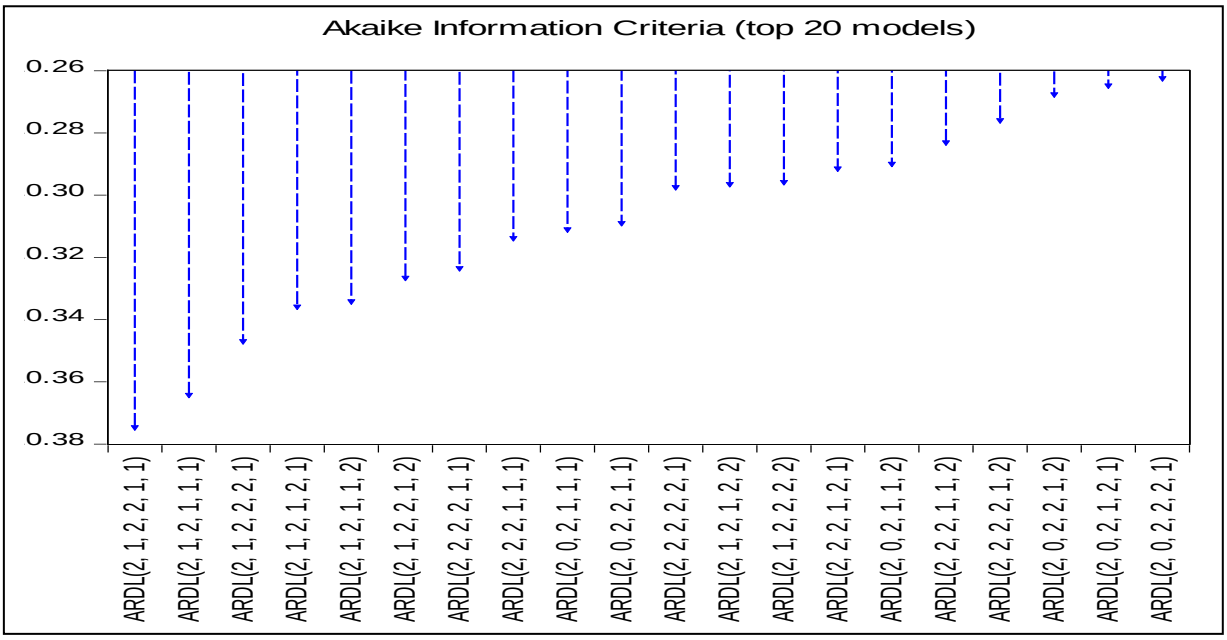

Figure 1: Results of Optimum Lag Length of Each Variable -Akaike Information Criteria (AIC)

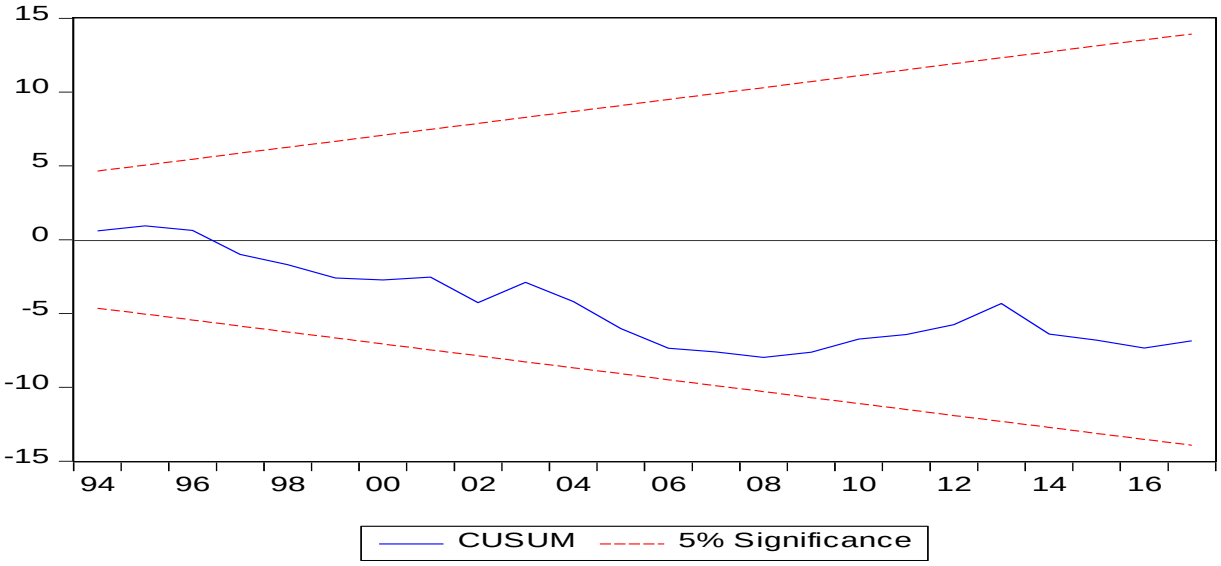

Figure 2: Results of Stability Diagnostic: CUSUM Test

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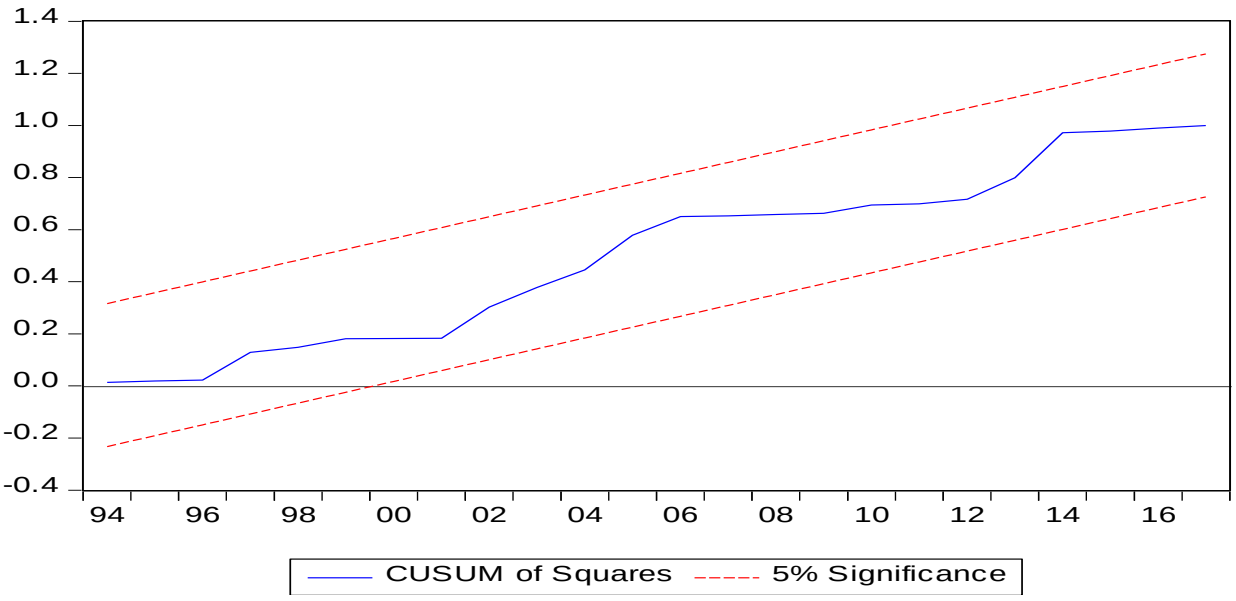

Figure 3: Results of Stability Diagnostic: CUSUM SQ Test

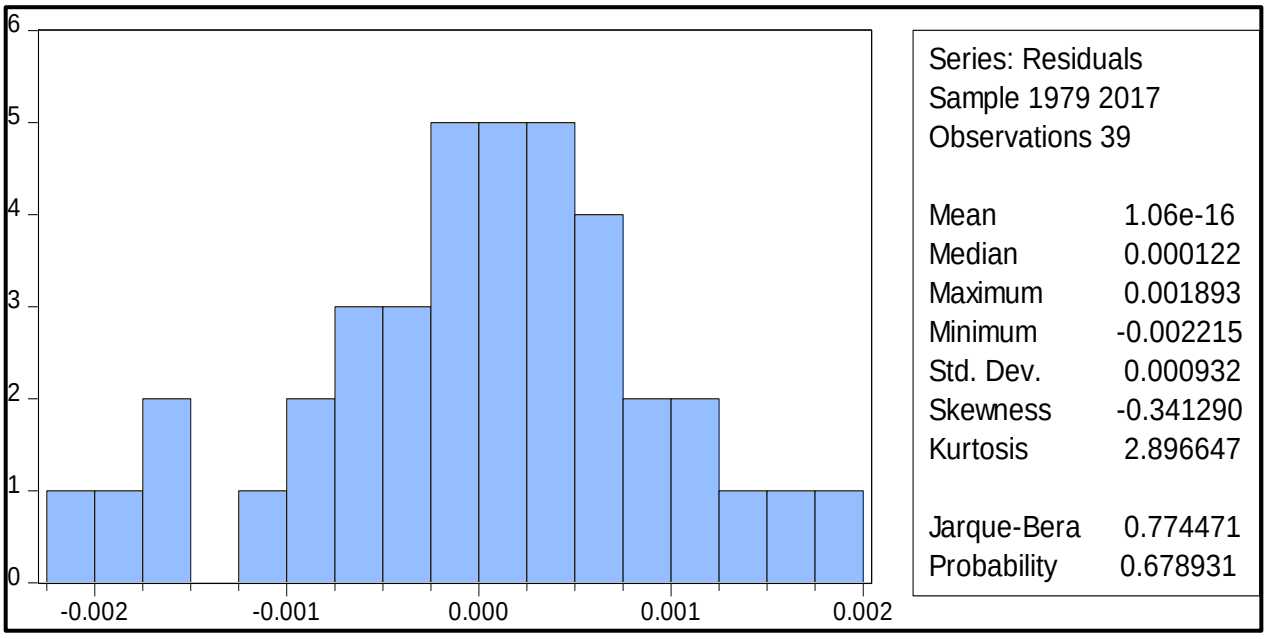

Figure 4: Results of Normality Test

Table 1: Results of Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.769911	Prob. F(2,22)	0.4751
Obs*R-squared	2.551125	Prob. Chi-Square(2)	0.2793

Test Equation:

Dependent Variable: RESID

Method: ARDL

Date: 09/02/18 Time: 11:56

Sample: 1979 2017

Included observations: 39

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
HDI(-1)	0.134954	0.173768	0.776632	0.4456
HDI(-2)	-0.147584	0.182962	-0.806638	0.4285
PSE	6.23E-08	1.57E-07	0.395889	0.6960
PSE(-1)	-1.13E-08	1.36E-07	-0.082910	0.9347
PSH	-1.22E-09	1.81E-07	-0.006762	0.9947
PSH(-1)	4.01E-08	1.99E-07	0.200959	0.8426
PSH(-2)	-2.43E-08	1.85E-07	-0.131263	0.8968
GTR	-4.72E-05	0.000209	-0.225839	0.8234
GTR(-1)	-0.000144	0.000303	-0.475642	0.6390
GTR(-2)	0.000121	0.000224	0.541855	0.5934
EGR	-3.95E-05	0.000136	-0.291045	0.7737
EGR(-1)	-0.000138	0.000197	-0.700533	0.4909
INF	7.10E-06	0.000224	0.031729	0.9750

INF(-1)	1.72E-05	0.000182	0.094099	0.9259
C	0.007256	0.019466	0.372779	0.7129
RESID(-1)	-0.240872	0.305282	-0.789015	0.4385
RESID(-2)	-0.327677	0.275232	-1.190546	0.2465

R-squared	0.065413	Mean dependent var	1.06E-16
Adjusted R-squared	-0.614286	S.D. dependent var	0.000932
S.E. of regression	0.001184	Akaike info criterion	-10.33983
Sum squared resid	3.09E-05	Schwarz criterion	-9.614687
Log likelihood	218.6267	Hannan-Quinn criteria.	-10.07965
F-statistic	0.096239	Durbin-Watson stat	1.938835
Prob(F-statistic)	0.999992		

Table 2: Results of Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.182032	Prob. F(14,24)	0.3478
Obs*R-squared	15.91650	Prob. Chi-Square(14)	0.3185
Scaled explained SS	5.716070	Prob. Chi-Square(14)	0.9731

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 09/02/18 Time: 11:56

Sample: 1979 2017

Included observations: 39

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.39E-05	1.75E-05	1.936435	0.0647
HDI(-1)	-7.03E-05	0.000123	-0.571688	0.5728
HDI(-2)	1.96E-05	0.000124	0.158393	0.8755
PSE	-1.67E-10	1.43E-10	-1.166536	0.2549
PSE(-1)	1.84E-10	1.31E-10	1.403278	0.1733
PSH	3.46E-10	1.72E-10	2.014101	0.0553
PSH(-1)	1.46E-11	1.87E-10	0.078117	0.9384
PSH(-2)	-1.26E-10	1.77E-10	-0.711057	0.4839
GTR	-7.42E-08	1.88E-07	-0.394158	0.6969
GTR(-1)	-3.67E-07	2.69E-07	-1.363570	0.1854
GTR(-2)	1.34E-07	1.95E-07	0.689256	0.4973
EGR	-1.22E-08	1.24E-07	-0.098025	0.9227
EGR(-1)	-1.68E-07	1.54E-07	-1.090506	0.2863

INF	-3.74E-07	2.13E-07	-1.749739	0.0929
INF(-1)	3.50E-07	1.74E-07	2.016361	0.0551

R-squared	0.408115	Mean dependent var	8.47E-07
Adjusted R-squared	0.062849	S.D. dependent var	1.18E-06
S.E. of regression	1.14E-06	Akaike info criterion	-24.24095
Sum squared resid	3.14E-11	Schwarz criterion	-23.60112
Log likelihood	487.6985	Hannan-Quinn criter.	-24.01138
F-statistic	1.182032	Durbin-Watson stat	2.275939
Prob(F-statistic)	0.347791		

Table 3: Results of Ramsey RESET Test for Omitted Variables

Ramsey RESET Test

Equation: UNTITLED

Specification: HDI HDI(-1) HDI(-2) PSE PSE(-1) PSH PSH(-1) PSH(-2)
GTR GTR(-1) GTR(-2) EGR EGR(-1) INF INF(-1) C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.487480	23	0.6305
F-statistic	0.237636	(1, 23)	0.6305

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	3.38E-07	1	3.38E-07
Restricted SSR	3.30E-05	24	1.38E-06
Unrestricted SSR	3.27E-05	23	1.42E-06

Unrestricted Test Equation:

Dependent Variable: HDI

Method: ARDL

Date: 09/02/18 Time: 12:00

Sample: 1979 2017

Included observations: 39

Maximum dependent lags: 2 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (2 lags, automatic):

Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
HDI(-1)	1.646078	0.283848	5.799158	0.0000
HDI(-2)	-0.652992	0.188734	-3.459860	0.0021
PSE	1.28E-07	1.50E-07	0.851385	0.4033
PSE(-1)	2.28E-07	1.37E-07	1.672650	0.1079
PSH	1.26E-08	1.84E-07	0.068229	0.9462
PSH(-1)	-4.08E-07	1.95E-07	-2.091540	0.0477
PSH(-2)	5.37E-07	2.16E-07	2.486995	0.0206
GTR	0.000317	0.000234	1.355539	0.1884
GTR(-1)	-0.000441	0.000315	-1.397466	0.1756
GTR(-2)	-0.000239	0.000204	-1.175222	0.2519
EGR	0.000670	0.000165	4.048784	0.0005
EGR(-1)	-0.000457	0.000183	-2.501537	0.0199
INF	-0.000778	0.000282	-2.757239	0.0112
INF(-1)	0.000527	0.000242	2.181144	0.0397
C	0.022600	0.037392	0.604416	0.5515
FITTED^2	-0.051474	0.105593	-0.487480	0.6305

R-squared	0.999797	Mean dependent var	0.606122
Adjusted R-squared	0.999665	S.D. dependent var	0.065138
S.E. of regression	0.001192	Akaike info criterion	-10.33374
Sum squared resid	3.27E-05	Schwarz criterion	-9.651252
Log likelihood	217.5079	Hannan-Quinn criter.	-10.08887
F-statistic	7562.145	Durbin-Watson stat	2.128081
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection