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# Social Protection and Economic Growth: An Empirical Analysis for Emerging Economies

**Ahmed Raza ul Mustafa,** Assistant Professor, Department of Economics, Shaheed Benazir Bhutto University (SBBU), Shaheed Benazirabad, ahmedrazamustafa@sbbusba.edu.pk

**Asif Ali Abro,** Head of Special Studies & Performance Audit Cell, O/o Director General Audit, LCS, Karachi, Sindh, Pakistan. aliasifabro15@gmail.com

**Naveed Wahid Awan,** Director (Sanghar Campus), Shaheed Benazir Bhutto University, Nawabshah. director.campus.sanghar@sbbusba.edu.pk

**Abstract**- Purpose of the study: Social protection contains policies and programs to reduce poverty and enhance economic development. Through several ways, investments can be made in the health and education sector to produce a high potential labour force that leads to economic growth. The quantitative approaches that have been used on the augmented production function contain social protection indicators. The fully modified ordinary least square (FMOLS) and Kao residual-based cointegration models are used by considering the panel date set containing five emerging economies from 1982 to 2017. It found that government expenditure on health and subsidies are significant for economic growth. Meanwhile, gross fixed capital formation plays a significant role in boosting emerging economies. In policy prospects, this study is helpful for the governments to enhance the fiscal budget for social protection, especially for the health sector, to improve the labour force efficiency, performance, and productivity at existing capital investment and increase economic growth. Numerous studies have followed the determinants of economic growth. But in a competitive environment, a study is required to understand the economic growth of the emerging economies (Pakistan, China, India, Bangladesh, and Sri Lanka) by accommodating 1st, 2nd, and 3rd sustainable development Goals through social protection strategies. Therefore, this will have a significant to understand economic development via social protection strategies.

**Keywords: Economic Growth, Emerging Economies, FMOLS, Poverty, Social Protection, Poverty**
**JEL Classification: I3, O5, P3, R1**

## I. INTRODUCTION

Social protection is a phenomenon that contains different policies and programs to mitigate poverty and vulnerability. The primary objective of social protection is to fulfil minimum standards of living in concerning economies like minimum income security, health care, and safety provision from the external shocks. Such efforts contribute to having comprehensive economic development with efficiency gain. Poverty alleviation is the primary objective of social protection, but indirectly it moves toward economic growth. Several evidences show the impact of social protection on economic growth at the micro-level as the fund transfers address the income inequalities by redistribution of resources that lead to enhancing the individuals' strength (Alderman & Yemtsov, 2013). Social protection enhances human capital, which increases the productivity of individuals in the long run. Such scenarios increase the employment opportunities for individuals in the short run and enhance economic growth in the long run (Mathers & Slater, 2014). A stable income enhances economic growth in the long run and diminishes poverty (Klasen et al., 2016). Barrientos, Hulme, and Shepherd (2005) elaborated that social protection is significant to mitigate chronic poverty and promote economic growth. Williams (2020) reported that social protection expenditure has various economic effects 1) provides the short term fiscal incentive, 2) long-run increase the microeconomic (household) productivity, and 3) long run increases/decreases the macroeconomic growth. Moreover the coalition of non-government organizations with the government ministries is significant for the better outcome of such social protection expenditures. In capital formation, social protection supports and effectively reduces poverty and enhances economic growth, especially in East Asia and the Pacific region (Moroz, 2020). Moreover, it helps to promote human capital to take advantage to form the demographic and technological changes. In East Asia and the Pacific region's current socio-economic situation, social protection is active to disorder the potential impact of the COVID-19 outbreak on human capital in the said region.

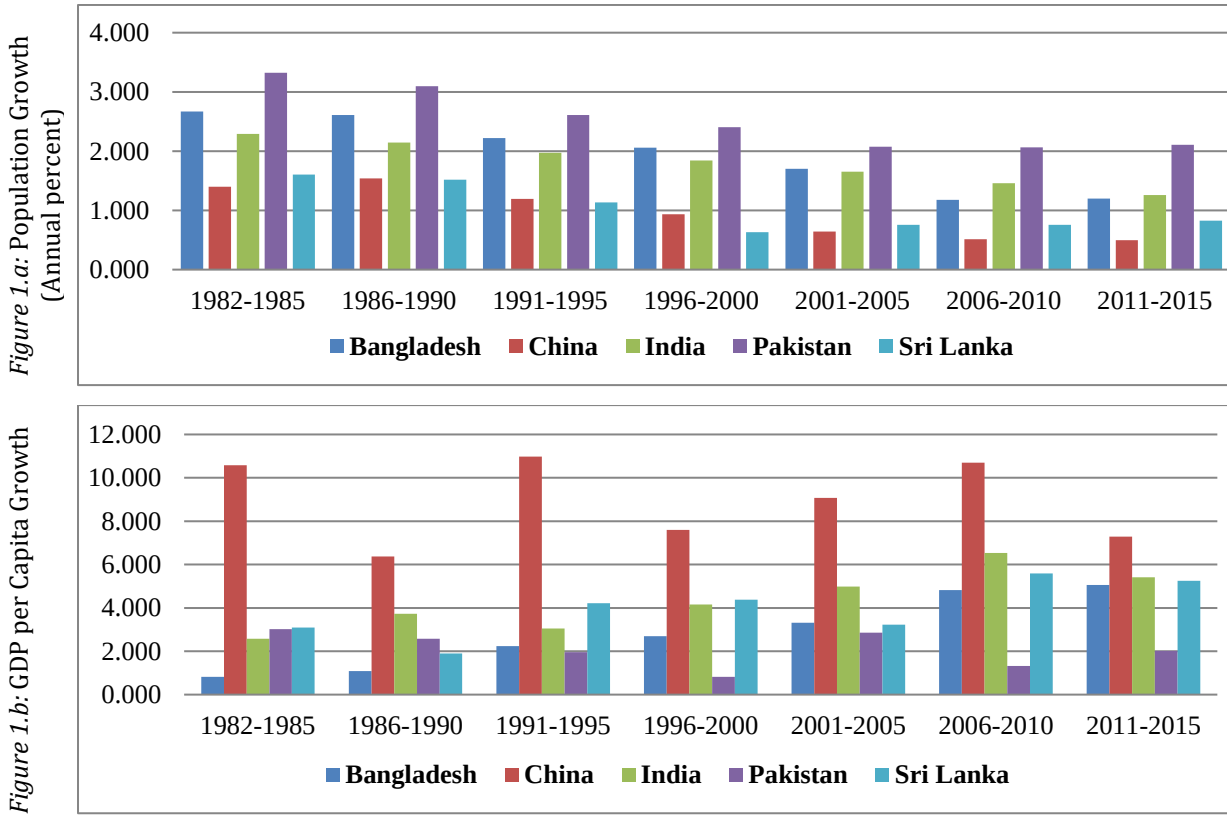
Pakistan has a good outreach of social protection mechanisms. It consists of social security programs from the government side through social assistance, guarantees to individuals and households. In 2007, a National Social Protection Strategy approved a social assistance system to push the poor out of the poverty line. The fundamental concept of Zakat provides social protection to the poor and works similarly

as modern programs execute for the deprived individuals in society. In 2008, the Benazir Income Support Program (BISP) was familiarized, with the first payments initiated in early 2009 (Pasha, Shah, & Rahpoto, 2018). This program campaigns to provide social assistance over the long term. Being the largest country in Asia, India has the most significant ongoing social protection programs in the South Asian region to mitigate poverty through social protection and pension funds in the 1960s and 1995, respectively. India achieved several milestones through these programs under the top-down movement process but failed to participate in civil society and could not introduce these schemes to the poor to benefit from these schemes. India's complete system of social protection shelters the poor with individual transfer and housing programs. Although at the level of individual states, India introduced child grants to pass the social protection fruits to downstream people under the 2005 National Rural Employment Guarantee Act. India also introduced assistance programs to scheduled castes through quotas to scheduled tribes, freed child labour, and specifically targeted socially excluded groups.

The Bangladesh government first introduced the pension program in 1970 besides other financial assistance programs like microcredit, a stipend to primary and secondary, and particularly girls' students. Bangladesh government made an effortful move to address structural issues like human capital generation and check income inequalities. Social security coverage in Sri Lanka is broad, including pension schemes to public sector employees, which are around 28 percent of the working-age population. There is the provision of income support and health care to the elderly, surviving widows, and the disabled by attaining and enhancing the benefits of social protection (formal/informal) programs. Sri Lanka has many large social assistance programs, containing some gaps but proving worthwhile to mitigate its poverty.

The trends of socio-economic indicators in emerging economies (Pakistan, China, India, Bangladesh, and Sri Lanka) show that Pakistan is the highest population growth country. The population growth is gradually diminishing in such countries but diminishing fast in China and slows in Pakistan's case. The GDP per capita growth is 7.28 percent in China, and Pakistan has only 2.01 percent growth (See Figures 1.a & 1.b). Such high population growth and low per capita GDP growth are dire conditions for poverty, especially in emerging economies like Bangladesh, India, Pakistan, and Sri Lanka. In a regional comparison, Figure 1.c highlights the poor condition in Bangladesh, India, and Pakistan because of the high child infant mortality rate (41.88, 52.26, and 85.4 per 1,000 live births, respectively), whereas; Sri Lanka and China have the least ratios (10.20, 12.46 per 1,000 live births).

**Figure 1: Socio-Economic Dynamics and a Way Forward**



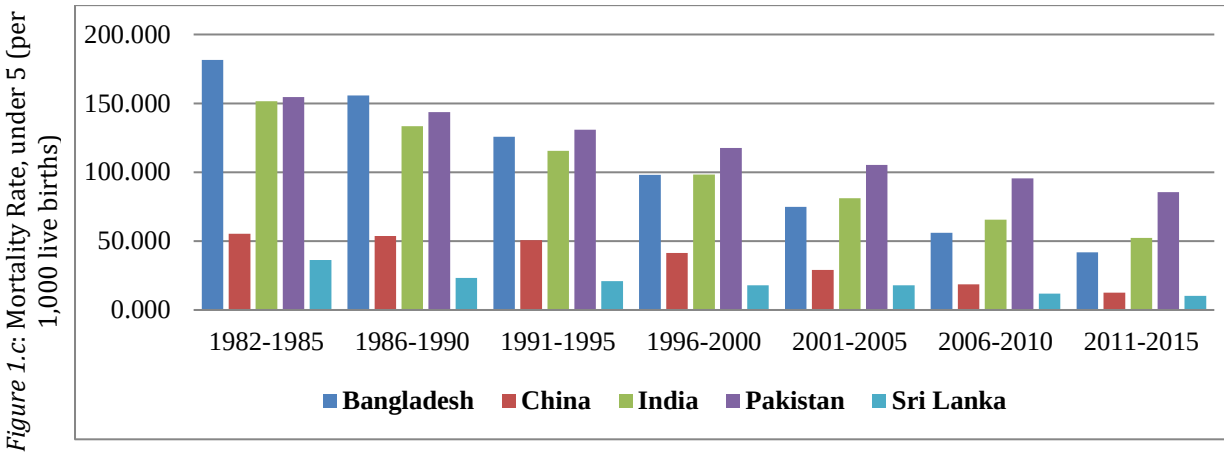



*Figure 1.c:*

Source: Author's Estimation

CPEC is a way through which economic activities can enhance by increasing the infrastructure, employment generation, and fiscal budgets, especially for social protection purposes that have the ultimate objective of reducing poverty and income inequality in respective regions. This study attempts to highlight social protection's role and efficiency to reduce poverty and enhance economic growth. This study has research questions like how social protection integrally effective for poverty reduction and its significance to enhance the economic growth in respective regions. Governments are responsible for generating the fiscal space for social protection purposes by; the increasing proportional value of social protection expenditures, increasing the tax revenue collection. By keeping in view the socio-economic structure, this study highlights the research objectives to draw attention to the social protection indicators that have a significant role in the economic development of emerging economies like Pakistan, China, India, Bangladesh, and Sri Lanka. Moreover, the objective is to check the long-run association of such social protection indicators with economic growth.

The rest part of this study organized as follows. Section 2 contains a literature review on social protection and economic growth. The economic model and econometric methodology with data sources are in Section 3. Empirical results are code in section 4. Finally, the conclusion and policy recommendations are in section 5.

## II. LITERATURE REVIEW

An enormous literature exists on social protection and economic growth, where theoretically and empirically tested the role of social protection to enhance economic growth via reducing poverty and economic stability.

Adam and Papatheodorou (2016) empirically investigated the negative impact of social protection expenditures on economic growth in Greece. In a concluding way, the Greek welfare system is inefficient and fiscal imbalances exist where social protection expenditures have a small GDP fraction. Also, increasing the fiscal budget for social protection and improve efficiency can positively contribute to economic growth. Antonopoulos (2013) reviewed the social protection channels to explore employment opportunities, women's empowerment, and gender equalities in developing countries. It found that employment provision and conditional cash transfer programs effective in reducing gender disparity and overall increase the economic activities that lead to economic growth.

Moreover, social protection in cash transfer is the key strategy adopted by underdeveloped and developing economics (Barrientos, 2013). Kim and Yoo (2015) explored how global social policy can be executed in the local framework for the conditional cash transfer program in the Philippines. It established that the managerial capability could be enhanced in the process of executing social protection programs. Samson and Miller (2012) provide a pathway for economic development via social protection provision in the Pacific context. It found that social protection in the form of; human capital investment, risk management, social inclusion, and pro-poor economic policies can improve households' welfare standards and leads toward economic development.

Hassan (2014) checked social protection as a socio-economic-political stabilizer on economic growth in Sudan. It derives that social spending increases the per capita GDP growth that converges to a stable economy in the long-run. Social protection provides a constructive proposal for households to enhance income security, better health and education outcomes, diminishing poverty, and social-economic stability

that encourage the deprived for productive activities and contribute to economic growth. Dercon (2011) described that improvement in social protection structure, its parameters, and efficiency leads toward economic growth. A cash transfer is only useful for those people, existing below the poverty line and cannot face macroeconomic shocks. García and Gruat (2003) described that social protection shares the risk of individual and enables them to carry out their economic activities toward economic progress.

Furthermore, it is a development process that enhances human and physical capital to have sustainable development in the economy with increased economic productivity. Ravallion (2006) and Dercon (2005) said that overcoming market failure contributes to efficiency. It allows the household to utilize its resources in more efficient ways, essential for economic growth.

Based on benefits provisions for social welfare, many studies on different regions like Ravallion, Van de Walle, and Gautam (1995) and Riboud (1990) in Costa Rica checked the impact of redistribution with cash benefits to compensate the households. Deolalikar (1995) checked the impact of compensation on different income groups for child health in Indonesia; Selden and Wasylenko (1992) examined the educational expenditures in Peru; Hanmer (1998) examined the health expenditures in Zimbabwe and Prescott (1998) inspected the efficiency in the provision of health, education and social transfers in Vietnam. Alderman, Orazem, and Paterno (2001) made the low-income households analysis o choice the public/private schools subject to the cost and quality of the schooling in Pakistan. Afzal, Malik, Begum, Sarwar, and Fatima (2012) and Kakar, Khilji, and Khan (2011) made a different country analysis to check the relationship between education/health expenditure and economic growth. They found a direct relationship between these factors. Such enhancement in education is a driving force to alleviate poverty .

Conversely, Chandra (2010); Bosworth, Collins, and Virmani (2007); and Tamang (2011) found mixed results in the case of the Indian economy. Eggoh, Houeninvo, and Sossou (2015) overviewed the African countries to check the impact of government expenditures on education and health on economic growth but have contrary results. It is concluded that a joint investment can contribute to economic growth by efficiency gain. Silva (2016) checked the impact of health and education investment on the long-run macroeconomic performance of 92 countries and found a multiplier effect on economic growth. Cardoso, Teixeira, Gurgel, and Castro (2011) made a regional comparison for rural credit subsidy in Brazil. Forecasting showed that such efforts contribute to diminishing the regional disparities, enhance welfare and economic growth.

Awan, Iqbal, and Muhammad (2011); Njong (2010) Janjua and Kamal (2014); Shepherd, Kessy, Higgens, Scott, and Luvanda (2011); and Geda, de Jong, Kimenyi, and Mwabu (2005) empirically test the theory about the education expenditures and poverty in different regions. They found that government expenditures on education are sufficient to enhance human capital, productivity, economic growth, and poverty reduction in the respective regions. Pantaleo (2020) tested the households' vulnerability to poverty in different time slots of the Kagera Region. It concluded that the stabilization of household consumption through social protection is treasured for poverty reduction in the long run. Li (2012) checked the role of social protection and welfare in social stability and economic growth in the Chinese state. It was concluded that social welfare was actively useful for preserving social stability and increasing economic growth where the priorities set by the state for social protection provision varied in different periods.

Asghar, Azim, and ur Rehman (2011) investigated that the government subsidies' objectives are to promote economic growth. On the other hand, non-development subsidies are inadequate to generate revenue by the governments and do not lead to economic growth. Also, the primary objective of subsidies is to improve social welfare. Nurudeen and Usman (2010) observed the relationship between government expenditure and economic growth in Nigeria; it is found that government expenditures are useful to increase economic growth, but remarkably, the government expenditures negatively affect economic growth. They concluded that there are a misallocation and improper utilization of funds for educational purposes in that economy. Botlhale, Mogopodi, Mothusi, and Motshegwa (2015) found the socio-economic, political, and institutional effects (supportive/conflictive) on the social protection policymaking in the case of Botswana. It was found that the government ministries, political parties, and civil societies are part of policymaking for social protection at the national/community level. Moreover, such authorities support enhancing the social protection benefits and its coverage in the concerned societies of Botswana.

In reviewing the literature, it is found that social protection is adequate to enhance economic growth and reduce poverty in concerned economies. An empirical exercise will check the impact of social protection and welfare indicators on economic growth in emerging economies.

Economic Model and Econometric Methodology

For the theoretical linkages between social protection and economic growth, a simple practice is usually used to check economic growth causes by augmenting some social protection indicators (Hassan, 2014). Solow (1994) and Swan (1956) proposed an empirical model that contains two factors of production (labour and capital). Mankiw, Romer, and Weil (1992) incorporate a third input factor, like human capital. Further, Romer (2001) highlighted the same production function in their study.

$$Y = f(K, H, L) \tag{1}$$

According to Mankiw et al. (1992)

$$Y(t) = K(t)^{\alpha} H(t)^{\beta} \left(A(t)L(t)\right)^{1-\alpha-\beta} \tag{2}$$

Y represents output, K capital, L labour, A the level of technology, and H stock of human capital. Bergheim (2008) constructed a growth model as GDP per capita is a function of (1) physical capital investment where an increase in per capita investment moves toward the economic growth, (2) population growth rate where the higher growth rate of the population reduces per capita income/physical capital, (3) human capital standard where the enhancement in human capital increase the efficiency in utilizing physical capital. The current study incorporates health and education investments as the source of human capital generation and significant for economic growth. Such investments will be the types of social protection for the concerned economies. Further, the model contains some other social protection indicators (subsidies & transfers and grants from the local governments/rest of the economies) that might affect economic growth.

From the above discussion, the augmented regression function to express the role of social protection in economic growth is given below

$$GDPPCG_{it} = \alpha_0 + \alpha_1 LGDPPC_{it-1} + \alpha_2 LGFCF_{it} + \alpha_3 POPG_{it} + \alpha_4 E.Exp_{it} + \alpha_5 H.Exp_{it} + \alpha_6 GRANT_{it} + \alpha_7 SUB_{it} + u_{it} \tag{3}$$

where, $GDPPCG_{it}$ stands for growth in GDP per capita; $LGDPPC_{it}$ shows the logarithmic form of lagged GDP per capita and has an expected negative sign of its coefficient. The population is going faster than the total income and capital accumulation in the existing countries. The $LGFCF_{it}$ denotes logarithmic form of gross fixed capital formation that captures the physical capital investment and has an expected positive coefficient sign. The $POPG_{it}$ represents the annual population growth where the coefficient has an expected negative sign. The social protection proxies ($E.Exp_{it}$, $H.Exp_{it}$, $GRANT_{it}$ and $SUB_{it}$) are referred to government expenditures for education, health, grants, and subsidies respectively as a percentage of GDP that can sign to enhance the human capital/health capital and stabilize the individual's income. Such social protection can increase labour production efficiency and aggregate output in the concerned economies. Such social protection indicators are expected to have positive signs in the regression analysis. The term $u_{it}$ is called the white noise error term. The entire variables are in pool data shape, determining the values for the country i at time t.

This study used the panel data set containing five cross-sections for the period 1982 to 2017. Such cross-sections contain five emerging economies like Pakistan, China, India, Bangladesh, and Sri Lanka. The World Development Indicators database (Hollweg et al., 2019; World Bank, 2018) and the Fiscal Transparency Handbook (Pattanayak, 2018) are the data sources used to get the data set for empirical analysis where the description of variables given in Table 1.

**Table 1: Description of Variables and Sources of Data Set**

| Description | Variable | Data Source |
|---|---|---|
| GDP per capita growth (annual percent) of country *i* at time *t* | $GDPPCG_{it}$ | WDI |
| Log of GDP per Capita of country *i* at time *t-1* | $LGDPPC_{it-1}$ | WDI |
| Log of gross fixed capital formation (percent of GDP) of country *i* at time *t* | $LGFCF_{it}$ | WDI |
| Population growth (annual percent) of country *i* at time *t* | $POPG_{it}$ | WDI |
| Govt. Education Expenditure (percent of GDP) of country *i* at time *t* | $E.Exp_{it}$ | WDI |
| Govt. Health expenditure (Percent of GDP) of country *i* at time *t* | $H.Exp_{it}$ | WDI |
| Grants expense percent of GDP of country *i* at time *t* | $GRANT_{it}$ | GFS |
| Subsidies percent of GDP of country *i* at time *t* | $SUB_{it}$ | GFS |

Source: Author's Estimation

A cointegration test is applied to check the long-run association among the variables. A property for the cointegration is that the variable should be integrated in the same order. So the panel unit root tests are performed. The panel unit root test provides the more précised picture as compared to the unit root tests in time series as 1) It permits to know the degree of heterogeneity between the cross-sections; 2) Not surety about the validity of rejecting the hypothesis about the unit root; 3) increase in the panel series enhance the power of the panel unit root. Levin, Lin, and Chu (2002); Im, Pesaran, and Shin (2003); ADF - Fisher Chi-square and PP - Fisher Chi-square (Maddala & Wu, 1999) are used to test the unit root in the data set. A Kao (1999) residual-based panel cointegration test is used to confirm the causality between social protection indicators and economic growth.

A Fully Modified Ordinary Least Square (FMOLS) model is used after implementing the panel unit root and panel cointegration test. That is an advanced panel estimation technique, tests the hypothesis and estimates a dynamic panel cointegrating vector. The various advantages for the use of fully modified OLS: (1) it shows consistent result about the degree of cross-sectional heterogeneity, (2) it provides long-run dynamic as well as short-run information of the variables, (3) it provides asymptotic unbiased estimators and nuisance parameter-free standard normal distribution (Pedroni, 2001). There is going to construct the multi regression models, having explanatory variables, free from multicollinearity. Additionally, the FMOLS test allows in estimating the cointegration vectors efficient and consistent.

## III. EMPIRICAL RESULTS

The results have been generated by using econometric techniques, as shown below. The regression analysis confirmed the significance of social protection indication for the determination of economic growth in emerging economies. Table 2 provides a correlation between the variables. It describes that there is not any strong correlation among the variables except a few social protection indicators. It predicts that it is not well to incorporate all social protection indicators in a single equation model (See Table 2).

**Table 2: Correlation Matrix**

| | $GDPPCG_{it}$ | $LGDPPC_{it-1}$ | $LGFCF_{it}$ | $POPG_{it}$ | $E.Exp_{it}$ | $H.Exp_{it}$ | $GRANT_{it}$ | $SUB_{it}$ |
|---|---|---|---|---|---|---|---|---|
| $GDPPCG_{it}$ | 1 | 0.362 | 0.745 | -0.592 | -0.105 | 0.570 | 0.337 | -0.088 |
| $LGDPPC_{it-1}$ | | 1 | 0.503 | -0.684 | 0.013 | 0.541 | 0.044 | 0.084 |
| $LGFCF_{it}$ | | | 1 | -0.488 | 0.018 | 0.737 | 0.240 | 0.027 |
| $POPG_{it}$ | | | | 1 | -0.005 | -0.601 | 0.171 | 0.061 |
| $E.Exp_{it}$ | | | | | 1 | -0.145 | 0.098 | 0.704 |
| $H.Exp_{it}$ | | | | | | 1 | -0.009 | -0.620 |
| $GRANT_{it}$ | | | | | | | 1 | 0.123 |
| $SUB_{it}$ | | | | | | | | 1 |

Source: Author's Estimation

The descriptive statistics show that the data set is normally distributed, and there is no heteroscedasticity in the data set (See Table 3: Descriptive Analysis). Table 4 summarizes the results of the panel unit root test for the data series. Levin et al. (2002) test show that the majority of variables are nonstationary at I(0) but stationary at the I(1). It concludes that there is no common unit root in the model. Moreover, the Im, Pesaran and Shin W-stat, ADF - Fisher Chi-square, and PP - Fisher Chi-square tests demonstrate an individual unit root at I(0), but there is no individual unit root at I(1). Overall, all variables are stationary and integrated at I(1).

**Table 3: Descriptive Analysis**

| | $GDPPCG_{it}$ | $LGDPPC_{it-1}$ | $LGFCF_{it}$ | $POPG_{it}$ | $E.Exp_{it}$ | $H.Exp_{it}$ | $GRANT_{it}$ | $SUB_{it}$ |
|---|---|---|---|---|---|---|---|---|
| Mean | 4.408 | 2.811 | 1.373 | 1.646 | 2.426 | 1.274 | 3.372 | 1.173 |
| Median | 3.737 | 2.695 | 1.377 | 1.597 | 2.202 | 1.107 | 3.044 | 0.856 |
| Maximum | 13.705 | 3.880 | 1.660 | 3.344 | 4.578 | 3.095 | 8.622 | 4.907 |
| Minimum | -2.289 | 2.300 | 1.098 | 0.479 | 0.930 | 0.325 | 0.106 | 0.010 |
| Std. Dev. | 3.193 | 0.345 | 0.131 | 0.733 | 0.724 | 0.541 | 2.472 | 1.122 |
| Observations | 167 | 167 | 167 | 167 | 167 | 167 | 167 | 167 |

Source: Author's Estimation

**Table 4: Panel Unit Root Analysis**

| | $GDPPCG_{it}$ | | $LGDPPC_{it-1}$ | | $LGFCF_{it}$ | | $POPG_{it}$ | | $E.Exp_{it}$ | | $H.Exp_{it}$ | | $GRANT_{it}$ | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | I(0) | I(1) | I(0) | I(1) | I(0) | I(1) | I(0) | I(1) | I(0) | I(1) | I(0) | I(1) | I(0) | I(1) |
| **Test** | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) | Stat. (Prob.) |
| | **Null Hypothesis ($H_o$): There is a Common Unit Root** | | | | | | | | | | | | | |
| **Test 1** | -3.555 (0.001)* | -10.295 (0.000)* | 3.401 (0.999) | -2.778 (0.003)* | 0.456 (0.676) | -0.904 (0.183) | -2.639 (0.004)* | -6.163 (0.000)* | 2.038 (0.979) | -3.089 (0.001)* | -0.795 (0.213) | -9.884 (0.000)* | -2.491 (0.006)* | -10.154 (0.000)* |
| | **Null Hypothesis ($H_o$): There is an Individual Unit Root** | | | | | | | | | | | | | |
| **Test 2** | -3.362 (0.001)* | -10.785 (0.000)* | 6.109 (1.000) | -4.234 (0.000)* | -0.695 (0.244) | -1.959 (0.025)* | -2.352 (0.009) | -6.140 (0.000)* | 0.968 (0.833) | -6.221 (0.000)* | -1.082 (0.139) | -10.486 (0.000)* | -0.965 (0.167) | -9.603 (0.000)* |
| **Test 3** | 31.119 (0.001)* | 104.968 (0.000)* | 0.060 (1.000) | 36.697 (0.001)* | 15.208 (0.125) | 32.014 (0.001)* | 27.617 (0.002) | 55.453 (0.000)* | 10.281 (0.416) | 57.529 (0.000)* | 21.055 (0.021) | 100.319 (0.000)* | 13.842 (0.180) | 92.179 (0.000)* |
| **Test 4** | 41.834 (0.000)* | 134.520 (0.000)* | 0.034 (1.000) | 75.337 (0.000)* | 9.312 (0.503) | 39.551 (0.000)* | 15.651 (0.110) | 91.993 (0.000)* | 17.548 (0.063) | 79.391 (0.000)* | 28.169 (0.002) | 109.661 (0.000)* | 17.627 (0.062) | 126.797 (0.000)* |

Source: Author's Estimation, Note: Test 1: Levin, Lin & Chu t, Test 2: Im, Pesaran and Shin W-stat, Test 3: ADF - Fisher Chi-square and Test 4: PP - Fisher Chi-square. * Mean statistics are significant at a 5 percent level of significance.

The Kao residual-based panel cointegration test is used to confirm the explanatory variables' causality, including the social protection indicator on economic growth. Table 5 indicates that the null hypothesis (there is no cointegration) is rejected at a 5 percent level of significance. It predicts that LGDPPCit-1, LGFCFit, POPGit, E.Expit, H.Expit, GRANTit, and SUBit have significant causes on GDPPCGit for the long run.

**Table 5: Kao Residual Panel Co-integration Test**

**Series: $GDPPCG_{it}$, $LGDPPC_{it-1}$, $LGFCF_{it}$, $POPG_{it}$, $E.Exp_{it}$, $H.Exp_{it}$, $GRANT_{it}$ and $SUB_{it}$**

| Null Hypothesis | **ADF** | t-Stat. | (Prob.) |
|---|---|---|---|
| *No Cointegration* | | -5.364 | (0.000)* |

Source: Author's Estimation, Note: * mean results are significant at 5 percent level of significance

Table 6 presents the results of various regression models where all social protection indicators are incorporated in Model-1. After the random selection of the social protection indicators, Model-2 to Model-6 are constructed.

The coefficients of $LGDPPC_{it-1}$ are negative and significant in all models, predicting that in these emerging economies, the population grows faster than the income growth and the rate of capital accumulation. The gross fixed capital formation ($GFCF_{it}$) positively contribute to $GDPPCG_{it}$ and statistically significant in all models. It predicts that an enhancement in gross fixed capital formation contributes to economic growth. Population growth ($POPG_{it}$) has a negative and significant role in the determination of economic growth in the concerned economies. It reveals that the high population growth reduces the per capita income and slows down the economic growth in such emerging economies.

**Table 6: Fully Modified Ordinary Least Square (FMOLS) Model**

| | **Dependent Variable: $GDPPCG_{it}$** | | | | | |
|---|---|---|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** | **Model 4** | **Model 5** | **Model 6** |
| **Variable** | **Coefficient (t-Stat.)** | **Coefficient (t-Stat.)** | **Coefficient (t-Stat.)** | **Coefficient (t-Stat.)** | **Coefficient (t-Stat.)** | **Coefficient (t-Stat.)** |

| | | | | | | |
|---|---|---|---|---|---|---|
| $LGDPPC_{it-1}$ | -1.962 | -2.020 | -2.071 | -1.991 | -1.923 | -1.966 |
| | (-3.887)* | (-3.906)* | (-3.950)* | (-4.035)* | (-3.825)* | (-3.727)* |
| $LGFCF_{it}$ | 8.756 | 8.676 | 7.528 | 9.555 | 8.637 | 7.803 |
| | (6.756)* | (7.850)* | (5.808)* | (8.676)* | (6.688)* | (5.966)* |
| $POPG_{it}$ | -1.688 | -1.913 | -1.655 | -1.869 | -1.737 | -1.720 |
| | (-6.119)* | (-9.922)* | (-5.875)* | (-9.848)* | (-6.481)* | (-6.020)* |
| $E.Exp_{it}$ | -0.690 | | | -0.714 | -0.516 | |
| | (-2.315)* | --- | --- | (-2.410)* | (-2.311)* | --- |
| $H.Exp_{it}$ | 0.491 | | 0.825 | | 0.405 | 0.524 |
| | (2.935) * | --- | (1.596)** | --- | (2.793) * | (1.954) ** |
| $GRANT_{it}$ | 0.442 | 0.454 | 0.448 | 0.440 | 0.450 | 0.461 |
| | (6.611)* | (6.552)* | (6.444)* | (6.643)* | (6.797)* | (6.597)* |
| $SUB_{it}$ | 0.174 | -0.225 | | 0.136 | | -0.176 |
| | (0.890) | (-1.571)** | --- | (0.724) | --- | (-1.148) |
| $R^2$ | 0.615 | 0.605 | 0.590 | 0.622 | 0.615 | 0.598 |
| Adjusted $R^2$ | 0.599 | 0.595 | 0.580 | 0.610 | 0.603 | 0.585 |

Source: Author's Estimation, Note: * and ** mean results are significant at 5 and 10 percent level of significance, respectively

Besides, the estimation for social protection indicators shows that an increase in government expenditure on education ($E.Exp_{it}$) significantly cause economic growth to decline. It is not astonishing because, in the majority, it can be an indication of misallocation of funds for the development of the education sector (Nurudeen & Usman, 2010)[1] Moreover, the results signify that an increase in government expenditure on health ($H.Exp_{it}$) significantly leads to an increase in economic growth. Therefore, health status and labour productivity can improve by increasing government expenditure on health, promoting economic growth.

Government grants ($GRANT_{it}$) for social development play a significant role in boosting economic activities. So the economic agents (beneficiaries) provisions at the micro and the macro-level contribute to enhance the standard of living of the current economies. The subsidies ($SUB_{it}$) provided by the governments is insignificant and has a negative relationship with economic growth. It predicts some unfair utilization of funds for subsidies or beneficiaries who do not deserve one so that poverty does not go to reduce and decline economic growth. Moreover, the negative association between government subsidies and economic growth is might be due to subsidies for non-development purposes (*Asghar et al. (2011)*).

## IV. CONCLUSION

Extensive literature exists on social protection and economic growth where empirical exercise is done in five emerging economies using augmented production function. A panel data set, having five cross-sections (Bangladesh, China, India, Pakistan, and Sri Lanka) over the period 1982 to 2017, is used for regression analysis. The results from a fully modified ordinary least square (FMOLS) model show that the government health expenditures and grants are significant to enhance economic growth in concerned economies. Moreover, an increase in government expenditures for health makes healthy and productive physical labour for further production. Gross fixed capital formation is a significant factor in enhancing economic growth. Government expenditure for education and subsidies shows a contrary relationship with economic growth. It predicts that there is some worst use of funds for the education sector and subsidies provision. A distribution problem is there, as deserving one is not benefitting from such subsidies. Social protection indicators are associating with economic growth, not only in the short-run but also in the long-run.

In a policy prospect, appropriate utilization of financial resources for education, health, and subsidies purposes; increasing the distribution qualities and its coverage can increase the labour force's productivity and efficiency. From such social protection benefits, the working-age population will be more productive and enhance economic growth from existing gross fixed capital formation. Governments need to increase the fiscal budget for social protection, especially in the health sector, to better macroeconomic indicators.

[1] Nurudeen and Usman (2010) found the contrary results about the relationship between government expenditure for education and economic growth in Nigeria. The reason is the misallocation of funds for education purpose.

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