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Analyzing the Economic Factors Affecting Poverty in Selected Developing Countries

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Abstract

The main intention of this study was to analyze the economic factors influencing poverty in selected developing countries. Income poverty index and human poverty index were used as dependent variables, whereas economic factors (economic growth, inflation, government spending, foreign aid, income inequality, foreign direct investment, remittances, employment in agriculture, employment in industry, financial development, trade openness and economic globalization) were the explanatory variables. A panel data of 23 developing countries was taken for 20 years i-e 1997-2016. Principal Component Analysis was used to construct poverty indices and System Generalized Method of Moments (System GMM) (one step) technique was used to find a dynamic effect on poverty. The results suggested that the explanatory variables affect poverty negatively as well as positively. Income inequality, government expenditures, and foreign direct investment had a positive relationship with poverty, whereas economic growth, financial development, trade openness, and economic globalization had negative relationship with poverty. Moreover, inflation, foreign aid, remittances, employment in agriculture, employment in industry showed both positive as well as negative relationship with poverty.

Keywords: *Income Poverty Index, Human Poverty Index, Financial Development Index, Generalized Methods of Moments (GMM), Principal Component Analysis (PCA), Kao panel Co-integration.*

Introduction

Poverty has been one of the chief challenges since the establishment of society in its familiar form. It is a broaden world issue that distress mostly the developing countries (Shirazi and Khan, 2009). According to UNESCO (2015), poverty is the lack of money or resources that are essential to meet fundamental needs i-e shelter, food and clothing. According to UNDP (2016), half of the children all over the world estimated to be 1.1 billion are living in poverty (Abbas et al, 2018). Poverty has numerous features. Absolute poverty is the normal estimate of measuring poverty that measures it in terms of essential requirements by linking

other nations worldwide. Relative poverty calculates the state of poor in a particular society (Anwar et al, 2017). Poverty is a main constraint for economic development and lack of economic prospect is seen to enhance the poverty level of an individual or household. This lack of prospects further enhances inequality. Analysts have claimed as resolving the poverty problems and inequality requires suitable policies aiming at the gaps and making sure that the poor in a specified population may benefit from it (Ogbeide and Agu, 2015).

Rowntree (1901) suggested that poverty is a monetary condition that makes a person or family unit unable to sustain because of not possessing even the smallest amount satisfactorily sufficient for a lowest living standard. By this principle, poverty line is linked to consumption intensities necessary to subsist. By using a minimum caloric intake he calculates his poverty line and his poverty line is used even today. The idea of minimum wants has been chiefly stable while it was completed ahead of the caloric intake given by him. A list of minimum wants was mostly arrived at by shaping the absolute fundamental components comprising food, shelter, clothing and transport.

Not only the economists and sociologists but anthropologists also were alarmed with the issue of poverty. Therefore, Lewis (1959, 1968) argued in his research papers on culture of poverty saying thereby that poverty was also something extra than only economic deficiency. They claimed that the poor people have particularly separate behavioural patterns, attitudes, and characteristics. The cause of poverty continued by this specific standard of living that was distinctive to the poor. Hence, the poor remained poor as their culture holds them back in adjusting and moving away from poverty.

Poverty is a multidimensional issue that is the after-effect of a combination of economic, social, political, and ecological factors and it is made out of many features. In several nations, a few major reasons for poverty distinguished incorporate essential individual needs that incorporate protection, nourishment, medicinal services, training, etc.

Handling poverty is the most burning issue that developing nations are facing these days. The first target of Millennium development goals (MDGs) was to lighten serious starvation and poverty. The MDGs' point was to lessen half population of the people who were living with pay not exactly $ 1 (improving to 1.90 $ every day) for the period between1990-2015. Because of complexity toward 1990, close to 700,000,000 individuals were still living in severe poverty in 2010. In any case, around 1.2 billion individuals yet exist in severe poverty (Churchill and Smyth, 2017).

Literature reviews showed that economic factors play a vital role in the reduction of poverty in developing nations. Although different proxies of poverty were used by different researchers yet there was hardly any study found (a) properly making poverty indices by combining different proxy variables; and (b) categorizing the factors affecting poverty into economic, social, political, etc.

There are such a significant number of issues in the developing nations that are influencing prosperity of individuals. But, in such issues, poverty is a major reason that is influencing each part of general public seriously. It isn't just influencing the expectation for everyday comforts of the individuals but it likewise makes numerous significant issues in the life of a person. Thus, the main objective of this research paper is to make poverty indices and find out influence of economic factors on poverty in chosen developing regions.

Literature Review

A review was conducted of the literature depicting the factors (such as economic factors) influencing poverty in developing nations and how empirically the connection between economic factors and poverty are analyzed. In the literature, only a little work had been done on the effect of international migration and remittances on poverty in developing countries of the world. Thus, Adams and Page (2005) showed that

international migrations as well as remittances considerably decrease the intensity, deepness, and strictness of poverty in the developing countries. Tsai and Huang (2007) investigated that how economic growth, openness, and role of government participated to the reduction of poverty in Taiwan and found that persistent economic growth was investigated as main powerful strength for the alleviation of poverty in Taiwan, and openness to foreign trade supported the poor by a direct-distribution effect and indirect growth affect equally in the short and long run. Chani et al. (2011) examined the significance of economic growth and inflation in justifying the occurrence of poverty in Pakistani context and investigated the negative consequence of economic growth and investment on poverty whereas the positive impact of inflation on poverty.

To evaluate either foreign aid directly influences poverty once controlling for income, income distribution and other covariates that are related to the determination of poverty, Alvi and Senbeta (2012) concluded that aid had a major contribution in poverty alleviation. Nindi and Odhiambo (2012) found that economic growth and financial development influence poverty profoundly. Vijayakumar (2013) analyzed connection amongst poverty, economic growth, employment, and dependency proportion in developing nations and observed a negative association between the variables. By utilizing the time-series data, Nuruddeen and Ibrahim (2014) checked the hidden association amongst income inequality, poverty, and growth in Nigeria for the era of 2000-2012 and found that, the rise of real GDP influence negatively in Nigeria.

For empirical analysis between foreign direct investment and poverty, Fowowe and Shuaibu (2014) suggested that FDI had importantly resulted in poverty alleviation in African countries. Bergh & Nilsson (2014) found a significant negative relationship between globalization and poverty from empirical analysis. To investigate the interaction between economic growth and employment in poverty alleviation, Dursun and Ognuleye (2016) indicated a positive effect among economic growth and alleviation of poverty. Anwar et al. (2017) demonstrated that poverty exists in the general public for expanding the inconsistent appropriation of private enterprise (capitalism). Anderson et al. (2018) inspected relationships amongst government expenses, income, and poverty and observed that larger amount of government spending did not assume a huge job in the alleviation of poverty. Kheir (2018) inspected a long-run equilibrium connection amongst economic growth, poverty and financial development.

Based on the literature referred to over, investigations indicated that poverty is influenced by numerous variables positively and negatively. Additionally, in literature, researchers observed the effect of various factors on poverty, however, didn't sort out as economic, social, and political factors and so forth. In the present research paper, it was checked that how the economic factors affected the poverty. Thus, this was the foremost study that analyzed the economic factors impacting poverty in selected developing nations.

Theoretical Framework

Among two main schools of thought or theories which explained poverty causes, the first one is an individualistic theory which states that poverty is a state that is the consequence of the inadequacy of destitute persons as given by Spencer (1851). The second is the structural theory which explained heredity of destitute circumstances due to inefficiencies in social structures and systems. It was proposed by Brady (2009).

Besides this, Classical theorists are of the view that most individuals themselves are responsible for this fate, deciding in effect to be poor such as by establishing lone-parent families. Neo-classical theories further broaden the range and describe poverty as being outside the control of individuals. The neo-liberal school followed by Keynesians is also of the view that monetary units are the measures of poverty; the role by the state is for a much concentration on public goods and inequality. Marxian economists and many other activists' theorists focused on the point that the economic growth merely by itself might be inadequate to take community away from relative poverty.

Materials and Methods

This research paper has planned to investigate the effect of economic factors on the poverty of 23 chosen developing nations. Thus, for examining relationships among the sequences we included the GMM (one step) estimators given through Arellano and Bond (1991). There are so many reasons to choose GMM. Firstly, Roodman (2006) claimed as GMM better to use while no. of years (T) is fewer as compared to no. of countries (N), the same situation is in this study because no. of years, T (20), is lesser from no. of nations, N (23). Secondly, GMM solves the possible endogeneity problems in regressors through establishing instrumental variables (Omri and Chaibi, 2014). Thirdly, the GMM method does not eliminate cross country distinction. Fourthly, ordinary assessment methods i-e least square regressions might bear as of dynamic panel bias such as country-specific heterogeneities that may simply be eliminated through GMM.

Before this, various kinds of econometric techniques were applied. PCA was used to construct different indices (income poverty index, human poverty index and financial development index). First of all, cross-sectional dependence (CD) tests were applied which are preliminary for panel data (Pesaran, 2004). When cross-sectional dependency in the panel data existed, CIPS (second generation panel unit root test) as proposed through Pesaran (2007) was applied to confirm stationary of the variables. Besides, first generation panel unit root tests (LLC, IPS, PP- Fisher type and ADF-Fisher type) were also used. After the stationary of the variables at level and first difference, Kao (1999) panel co-integration test was applied for long-run association among the variables.

Finally, the specific empirical models were employed as depicted, in Equation 1& 2:

$$INCOMPOVIX_{it} = \alpha_0 + \alpha_1 INCOMPOVIX_{it-1} + \alpha_2 RGDP + \alpha_3 GOVEXP + \alpha_4 GINI + \alpha_5 INF + \alpha_6 FORAID + \alpha_7 REM + \alpha_8 FDI + \alpha_9 EAGR + \alpha_{10} EIND + \alpha_{11} TOPEN + \alpha_{12} FD + \alpha_{13} EGLOB + \varepsilon_{it} (1)$$

$$HUMPOVIX_{it} = \alpha_0 + \alpha_1 HUMCOMPOVIX_{it-1} + \alpha_2 RGDP + \alpha_3 GOVEXP + \alpha_4 GINI + \alpha_5 INF + \alpha_6 FORAID + \alpha_7 REM + \alpha_8 FDI + \alpha_9 EAGR + \alpha_{10} EIND + \alpha_{11} TOPEN + \alpha_{12} FD + \alpha_{13} EGLOB + \varepsilon_{it} (2)$$

Where, the subscript "i" indicates the selected, entity, nations (i = 1…23), the subscript "t" denotes the period (t = 1997 to 2016). Whereas α_o indicates continuous and an estimate of some poverty level. The panel models précised in Equation 1& 2 detain the entire country-specific unobserved heterogeneity through time fixed effects though is a time-varying error term.

In above equations (1) and (2), INCOMPOVI is the income poverty index which was constructed by the combination of poverty headcount and poverty gap, INCOMPOVIXt-1 is the lag of income poverty index, HUMMPOVI is the human poverty index which was constructed by the combination of infant and child mortality rates, HUMPOVIXit-1 is the lag of human poverty index, RGDP depicts the real Gross Domestic Product (GDP) which is proxy for economic growth, GOVEXP shows Government expenditures which are taken as % age of GDP, GINI is Gini coefficient that is proxy for income inequality, INF is inflation measured by CPI (Consumer Price Index), FORAID is Foreign aid measured by ODA as % age of GDP, REM is Remittances as % age of GDP, FDI is Foreign Direct Investment as % age of GDP, EAGR and EIND are employment in agriculture and industry, TOPEN is Trade openness (imports plus exports as % age of GDP), FD is financial development measured by domestic credit to private sector as % age of GDP and broad money (M2) as % age of GDP, EGLOB denotes Economic globalization.

Panel data was taken for 20 years i-e from 1997-2016. The region of the study includes 23 developing countries selected from low-income, lower middle-income and upper-middle income countries as classified by World Bank Atlas Method. In this method, each year, the World Bank modifies the categorization of world's economies based on estimates of gross national income (GNI) per capita for the preceding year. Low income countries are those with a GNI per capita less or equal to $995. The lower middle-income

economies are those with a GNI per capita $996-3895. Furthermore, upper middle income countries are divided at a GNI per capita of $3896-12055 (WB, 2018). High income countries were neglected because poverty is not a main problem of these countries. The countries were selected on the availability of data of poverty proxy variables especially poverty headcount and poverty gap. The list of the countries is given in Appendix A. The source of the data of all variables was WDI of the World Bank (2018) except economic globalization that was taken from KOF index. The data was analyzed by using STATA 15.0 and E-views 10.

Results and Discussion

Construction of Poverty Indices

Different researchers used different proxies for measurement of poverty. There is not any accurate and exact measure of poverty across the countries. Commonly used proxies include poverty headcount ratio, poverty gap, squared poverty gap, population below natural poverty line, household final consumption expenditure per capita growth, poverty rate, infant mortality rate, child mortality rate, per capita consumption, per capita consumption below poverty line, agriculture value added per worker, life expectancy at birth, etc., have been used by researchers to determine poverty. The mostly used proxies of poverty are poverty headcount ratio and poverty gap (Anderson et al, 2018; Abbas et al, 2018; Asadullah and Savoia, 2018) and other includes infant and child mortality, per capita consumption, household final consumption expenditure per capita growth (Dursun and Ogunleye, 2016; Ajisafe, 2016; Abosedra et al, 2016; Kheir, 2018 etc.). These researchers have used these proxies of poverty separately in their research without making indices.

In this research study, on the basis of the availability of data of above mentioned proxies of poverty two different indices of poverty were constructed such as income poverty index (poverty headcount ratio and poverty gap) and human poverty index (infant mortality rate and child mortality rate). Therefore, PCA was used through the target to settle the likely multicollinearity problem, as it builds up a compound index of interrelated series whereas sharing the majority of the authentic information.

Income Poverty Index

Income poverty index was constructed by two proxy variables i-e poverty headcount ratio and poverty gap. The results of PCA investigation to build the inclusive index for selected developing countries are displayed in Table 1. There was kept just 1 component through following Kaiser (1974) and scree plot criterion, showed by Figure 1 that assign to grip just those factors whose eigenvalues are greater than one. It is evident from Table 1 as there is only single element whose eigenvalue, 1.898, is greater than one. On the whole, Kaiser–Meyer–Olkin (KMO) statistics is 0.500 as by Kaiser (1974), 0.5 or greater than 0.5 is acceptable depicts the sample to be sufficiently adequate to carry out the analysis.

Table 1: PCA for Income Poverty Index

Component	Eigenvalue	Difference	Proportion	Cumulative
1	1.898	1.796	0.949	0.949
2	0.101	.	0.051	1.000
INCOMPOV indicators	Factor loadings	Unexplained	INCOMPOV indicators	KMO
PHCR	0.707	.0509	Overall	0.500
PGAP	0.707	.0509		

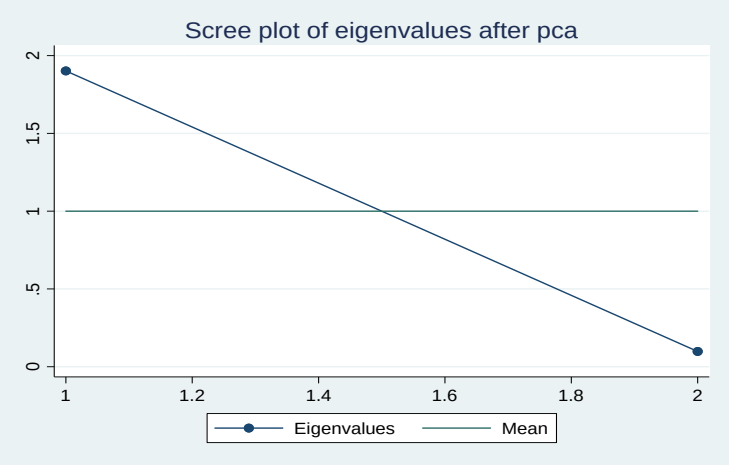

Figure 1 scree diagram of eigenvalues after PCA for income poverty index.

Human Poverty Index

Human poverty index was constructed by two proxy variables i-e child mortality rate and infant mortality rate. The results of PCA investigation to build the inclusive index for selected developing countries are displayed in Table 2. There was kept just 1 component through following Kaiser (1974) and scree plot criterion, showed by Figure 2 that assign to grip just those factors whose eigenvalues are greater than one. It is evident from Table 2 as there is only single element whose eigenvalue, 1.996, is greater than one. On the whole, KMO statistics is 0.500 as by Kaiser (1974), 0.5 or greater than 0.5 is acceptable depicts that sample is sufficiently adequate to carry out the analysis.

Table 2: PCA for Human Poverty Index

Component	Eigenvalue	Difference	Proportion	Cumulative
1	1.996	1.993	0.998	0.998
2	0.003	.	0.001	1.000
HUMPOV indicators	Factor loadings	Unexplained	HUMPOV indicators	KMO
IMORT	0.707	.001	Overall	0.500
CMORT	0.707	.001		

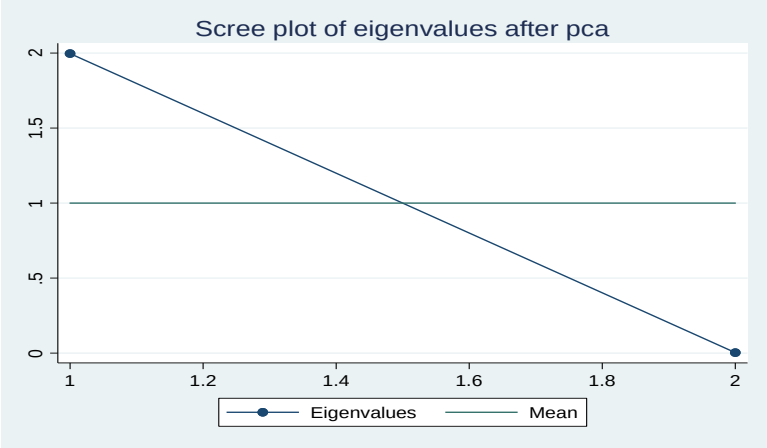

Figure 2 scree diagram of eigenvalues after PCA for human poverty index.

Economic Factors and Poverty

Financial Development Index

Adu et al. (2013) claimed as there is not an accurate and exact method of financial development (FD) because of different as well as complicated composition of FD across countries, therefore, abundant proxies i-e Domestic Credit to Private Sector (DCP) through financial businesses, DCP through bank businesses, M2 (broad money), liquid liabilities, bank possessions, stock market capitalization have been used through researchers to determine FD; however such proxies are not free of problems. No doubt, DCP is a commonly applied method of FD although it is not a direct determine of transaction costs and endowment of financial services information. King and Levine (1993) recommended M2 as a proxy for FD thus it improves signified monetization instead of FD because it is mostly composed of currency. Though, liquid liabilities are too applied as a proxy for FD, however, liquid liabilities are good measures of financial intensity instead of FD. In order to confine diverse characteristics of FD, PCA procedure to DCP and M2 was employed to create a complete index for FD.

The results of PCA investigation to build the inclusive index for selected developing countries are displayed in Table 3. There was kept just 1 component through following Kaiser (1974) and scree plot criterion, showed by Figure 3 that assign to grip just those factors whose eigenvalues are greater than one. It is evident from Table 3 as there is only single element whose eigenvalue, 1.948, is greater than one. On the whole, KMO statistics is 0.500 as by Kaiser (1974), 0.5 or greater than 0.5 is acceptable depicts that sample is sufficiently adequate to carry out the analysis.

Table 3: PCA for Financial Development Index

Component	Eigenvalue	Difference	Proportion	Cumulative
1	1.948	1.897	0.974	0.974
2	0.051	.	0.025	1.000
FD indicators	Factor loadings	Unexplained	FD indicators	KMO
DCP	0.707	0.025	Overall	0.500
BM	0.707	0.025		

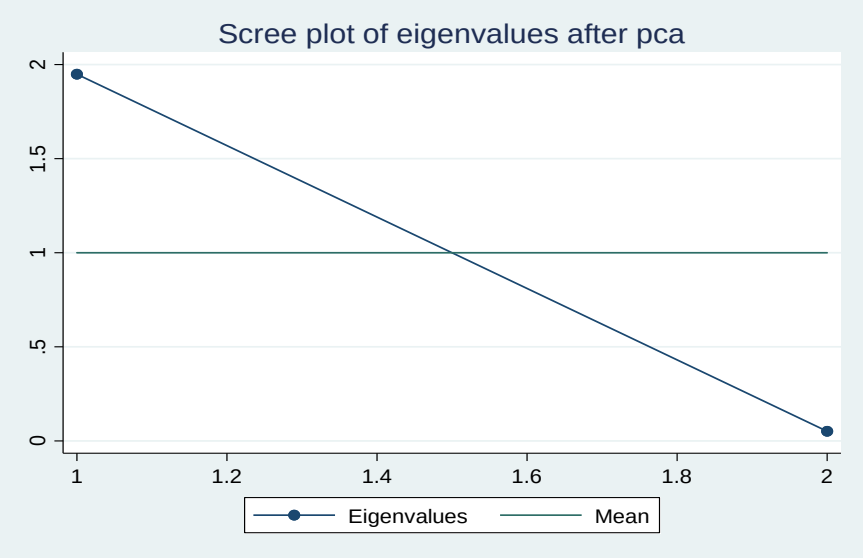

Figure 3 scree diagram of eigenvalues after PCA for FD index.

Empirical Results and Discussion in Income Poverty Model

In panel data, first of all we check cross-sectional dependence (CD). Therefore, different CD tests such as Pesaran and Friedman are applied. The table 4 below shows that in both CD tests p- values are 1.693 and 0.629 which are greater than 0.05 which means there is no cross-dependence in this panel.

Table 4: Cross-Sectional Dependence (CD) Tests

CD Tests	Test Stat.	P-value
Pesaran CD	-1.022	1.693
Friedman CD	19.263	0.629

Having observed no cross-dependency in above panel data, first generation unit root tests are applied. The essential stage of panel co-integration investigation is to examine the stationary properties and to find out the integration order of the variables. Hence, four different panel unit root tests LLC through Levin and Lin (2002), IPS through Im et al. (2003) and Fisher type-ADF and PP tests were applied as recommended by Maddala and Wu (1999).

The results for the panel unit root tests are shown in Table 5 below. This table sums up the unit roots tests for the panel series and illustrate that in all four unit root tests, some variables are stationary at level while all variables are stationary at 1st difference (i-e less than and greater than the 0.05 level of significance).

Table 5: Panel Unit Root Tests

	At level				At 1st Difference			
Variables	**LLC**	**IPS**	**ADF**	**PP**	**LLC**	**IPS**	**ADF**	**PP**
INCOMPOVI	-1.9**	-1.1	54.4	66.3**	-12.4***	-13.2***	238.3***	283.3***
GINI	-0.1	-0.7	59.2*	56.2	-14.9***	-13.9***	250.3***	354.0***
INF	-4.4***	-4.6***	107.9***	79.9***	-12.1***	-11.3***	211.4***	305.8***
FORAID	-5.9***	-5.7***	117.0***	123.9**	-20.2***	-19.7***	360.3***	593.4***
EAGR	-2.1***	-1.8**	67.6**	39.5	-13.0***	-12.4***	227.6***	242.1***
EIND	-4.1***	-3.1***	79.9***	51.2	-11.0***	-12.4***	225.2***	297.0***
EGLOB	-2.3***	-3.9***	91.5***	70.9***	-13.5***	-13.8***	249.4***	301.5***
RGDP	-1.4*	-1.8**	79.4***	61.9*	-7.7***	-7.0***	138.1***	146.1***
REM	-1.9**	-1.3*	59.0*	36.3	-10.9***	-10.4***	189.3***	226.5***
FDI	-5.5***	-4.2***	100.7***	106.7**	-21.2***	-19.7***	370.2***	820.7***
GOVEXP	-3.1***	-1.9**	66.2**	84.8***	-14.1***	-12.9***	233.6***	281.3***
TOPEN	-1.4*	1.3	36.1	29.3	-10.5***	-13.1***	241.9***	268.8***
FD	-3.8***	0.1	58.6*	56.3	-11.8***	-10.3***	192.1***	212.6***

Note: ***, **, * show 1%, 5% and 10% level of significance

Kao's panel co-integration test was applied to analyze the presence of long run associations among the variables described above. Kao's residual panel co-integration test is built on the hypothesis of identical slope coefficients subsisting across countries (Kao, 1999). Kao's tests do better than Pedroni's tests in case the time length of the panel is small (Gutierrez, 2003).

The table 6 below describes results for the Kao's panel co-integration test. The calculated value of t-statistic is larger than the critical value which specifies the rejection of null hypothesis of no co-integration as the variables are co-integrated. Besides, p-value also confirms co-integration as it is less than 0.05. Consequently, it may be confirmed that long run relationships are present among the variables. The same results were found by Dursun and Ogunleye (2016) and Yasin et, al. (2019).

Table 6: Kao Residual Co integration test

	ADF t statistics	P-value
Kao test	-2.881***	0.002

Note: *** shows 1% level of significance.

Table 7: Income Poverty Model (One Step System GMM)

Variables	**Coefficient**	**Std.Error**	**p-value**
Const.	36.198*(1.99)	18.176	0.046
Lagged poverty	0.680***(27.03)	0.025	0.000
GINI	0.024***(10.00)	0.002	0.000
INF	0.123(1.60)	0.077	0.111
FORAID	-0.043***(-5.36)	0.008	0.000
EAGR	-0.686***(-7.62)	0.090	0.000
EIND	-3.034***(-10.26)	0.295	0.000
RGDP	-1.192(-1.72)	0.693	0.086
REM	-0.004(-0.08)	0.051	0.934
FDI	0.049**(2.31)	0.021	0.021
GOVEXP	0.426***(6.30)	0.067	0.000
FD	-0.059(-0.65)	0.090	0.514
TOPEN	-0.514(-0.39)	1.318	0.697
EGLOB	-0.009***(-3.57)	0.002	0.000
AR(2) Test	0.497		
Sargan Test	0.659		

Note: ***, **, * indicate 1%, 5% and 10% level of significance correspondingly. Total values of‘t’ statistics are in brackets.

The table 7 shows that poverty variable has its expected sign. The coefficient of the lagged poverty of selected developing countries was positive and highly significant at 1% level, which means that, poverty level in the past year, had a direct effect on recent year’s levels of poverty. Income inequality also had positive and significant relationship with poverty at 1% level of significance (as Ogbeide and Agu, 2015).

There is a positive but insignificant relation among inflation and poverty. The results are consistent with Anderson et al. (2018) that poverty increases by rise in inflation. Foreign aid shows negative and highly significant i-e (1 %) relationship with income poverty which means that aid provided by multilateral institutions is utilized in a better way in these selected developing countries. The results are same as found by Mahembe and Odihambo (2019).

Although, both employment in agriculture and employment in industry are negatively associated with poverty which means in developing countries with the increase in employment (i-e agricultural and industrial) poverty alleviates. But, it can be compared from the values of coefficients and t-values that industrial employment is more suitable for poverty reduction than agricultural employment so poor can benefit more from industries than agricultural sector. The results are same as Ucal (2014). In these selected developing countries, the poverty had decreased by the consequence of economic growth. But, the result is insignificant. The result is reliable by the conclusions of Ravallion and Chen (2007).

The remittances has negative relationship with poverty but statistically insignificant. The negative relationship shows that remittances contribute to poverty alleviation. These findings are same as concluded by Satti et al (2015). The FDI is also significant at 5 percent level. The positive sign represents as by increasing FDI poverty increases in the case of these selected developing countries. The same findings were investigated by Quiñonez et al. (2018).

The coefficient of government expenditures is significant at 1 % significance level. The positive sign illustrates as with rise in government expenditures instead of poverty reduction poverty increases. The reason may be that total government expenditures are sum of current expenditures and development expenditures. As the government expenditures are allocated more towards current expenditures so development expenditures remain low that's why they do not contribute towards poverty alleviation. According to Anderson et al (2018), fiscal policy plays a much more inadequate redistributive part in developing countries, in contrast to developed countries. Thus, this reason can be in these selected developing countries. So, the results are linked with the findings of Nyarkoh and Bright (2016).

The negative sign with the coefficient shows that with improvement in financial sector development poverty decreases. The same findings were given by Kheir (2018). The negative sign with the coefficient shows that trade openness reduces poverty but not significantly means these selected countries have not such type of trade agreements which tend to reduce poverty effectively. These results are similar as suggested by Pradhan and Mahesh (2014). The coefficient of economic globalization is highly (1%) significant. It means that economic globalization in these selected developing countries is reducing poverty significantly. These findings are also suggested by Umair and Awan (2019).

AR (2), Arellano and Bond test used for 2nd order autocorrelation and Sargan test for over- identifying limitation are the efficiency and validity tests for the GMM estimators. In table 7, value of AR (2) is 0.497 which is greater than 0.05 and insignificant. This means that instruments used are valid. The value of Sargan test is 0.659 which is greater than 0.10 and insignificant. This means that instruments used are valid.

Empirical Results and Discussion in Human Poverty Model

The table 8 below shows that in both CD tests p- values are 0.000 and 0.000 which are less than 0.05 which means there is presence of cross-dependence in this panel. The same results were found by Yasin et al (2019) and Khan et al (2019).

Table 8: Cross-Sectional Dependence (CD) Tests

CD Tests	Test Stat	P-Values
Pesaran CD	8.216***	0.000
Friedman CD	63.194***	0.000

Note: *** shows 1% level of significance

After the existence of CD in panel data, second-generation CIPS panel unit root test is used which was given by Pesaran (2007). The table 9 below depicts the unit root analysis by using two cases (i) at the level (ii) at the first difference. The results of CIPS test shows that only few variables are stationary at level while all variables are stationary at first difference.

Table 9: CIPS Panel Unit Root Test

Variables	At Level (with intercept and trend)	At 1st Difference (only intercept)
HUMPOVIX	-2.565	-2.319**
GINI	-2.550	-4.011*
INF	-2.305	-3.879*
FORAID	-3.443*	-4.917*
EAGR	-1.810	-3.724*
EIND	-2.073	-3.721*
EGLOB	-2.521	-4.046*
RGDP	-1.617	-3.119*
REM	-2.489	-3.767*
FDI	-3.420*	-5.013*

GOVEXP	-2.704**	-3.791*
TOPEN	-2.357	-3.578*
FD	-1.848	-3.221*
Critical Values 1%	-2.83	-2.32
5%	-2.67	-2.15
10%	-2.58	-2.07

Note: *, **, *** show 1%, 5% and 10% level of significance.

The table 10 below describes results for the Kao's panel co-integration test. The calculated value of t-statistic is larger than the critical value which specifies the rejection of null hypothesis of no co-integration as the variables are co-integrated. Besides, p-value also confirms co-integration as it is less than 0.05. Consequently, it may be confirmed as if long run relationships are present among the variables. The same results were found by Dursun and Ogunleye (2016) and Yasin et, al. (2019).

Table 10: Kao Residual Co- integration Test

	ADF t statistics	P-value
Kao test	-2.245***	0.012

Note: *** shows 1% level of significance.

Table 11: Human Poverty Model (One Step System GMM)

Variables	**Coefficient**	**Std.Error**	**p-value**
Const.	2.894 (0.16)	17.762	0.871
Lagged poverty	0.822***(36.40)	0.022	0.000
GINI	0.006**(2.86)	0.002	0.004
INF	-0.338***(-4.38)	0.077	0.000
FORAID	0.030***(3.53)	0.008	0.000
EAGR	0.488***(5.08)	0.096	0.000
EIND	1.478***(4.79)	0.308	0.000
RGDP	-0.405(-0.60)	0.677	0.550
REM	0.113**(2.25)	0.050	0.025
FDI	0.014(0.69)	0.020	0.489
GOVEXP	0.332***(4.99)	0.066	0.000
FD	-0.026 (-0.30)	0.088	0.765
TOPEN	-3.403**(-2.69)	1.266	0.007
EGLOB	-0.013***(-4.81)	0.002	0.000
AR(2) Test	1.48		
Sargan Test	0.956		

Note: ***, **, * indicate 1%, 5% and 10% level of significance correspondingly. Total values of't' statistics are in brackets.

The table 11 shows that poverty variable has its expected sign. The coefficient of the lagged poverty of selected developing countries was positive and highly significant at 1% level, which means that, poverty level in the past year, had a direct effect on recent year's levels of poverty. Income inequality also had positive and significant relationship with poverty at 5% level of significance as similar to Ogbeide and Agu (2015).

There is a negative and significant relation among inflation and poverty level. This may happen as by the UN Report (2010), Rethinking Poverty, as inflation diminishes real wages, therefore employment must increase, producing other income-earning opportunities for employees. Hence, the employment consequence of inflation (producing additional jobs due to lesser labor costs) may offset the real wage

consequence (lesser income) on poverty. It is expected to be the situation, when the inflation (real wage) elasticity of poverty was established to be considerably lesser than the output (employment) elasticity of poverty. In addition, the vast majority of the poor are net indebted individuals and inflation lessens the actual value of their debt. So along these lines inflation may have a negative association with poverty.

The foreign aid which was mostly provided by multilateral institutions has increased poverty level with 1% significant level. The reason might be due to misappropriation of aid in these selected developing countries. The results were same as suggested by Alimi and Shina (2018).The positive sign shows that poverty increased with increase in employment in both sectors. The reason may be that total employment includes both male and female employment and in these developing countries only a small proportion of female participate in employment so it can increase infant and child mortality rates (poverty). The same findings were concluded by Dursun and Ogunleye (2016). In these selected developing countries, the poverty had decreased by the consequence of economic growth. But, the result is insignificant. The result is reliable by the conclusions of Ravallion and Chen (2007).

The remittances has positive relationship with poverty and also significant at 5% level of significance. It means that with increase in remittances poverty increased. These findings are similar as found by Azam et al. (2016). The positive sign represents that increasing FDI increases poverty in the case of these selected developing countries. The reason may be due to the inadequate time period of data, nature and design of FDI flows, and keen income differences across the selected developing countries. Besides, the reason can also be short of effect as child and infant mortality might be determined by factors that aren't enclosed through this analysis because of data restrictions as same happened in the study of Mwabeza (2018). Boone (1996) also found that countries having inadequate economic management, link among FDI and change in infant and child mortality do not exist.

The positive sign shows as with rise in government expenditures instead of poverty reduction poverty is increasing. The reason may be that total government expenditures are sum of current expenditures and development expenditures. As the government expenditures are allocated more towards current expenditures so development expenditures remain low that's why they do not contribute towards poverty alleviation. According to Anderson et al. (2018), fiscal policy plays a much more inadequate redistributive part in developing countries, in contrast to developed countries. Thus, this reason can be in these selected developing countries. So, the results are linked with the findings of Nyarkoh and Bright (2016).

The negative sign of the coefficient shows that with improvement in financial sector development poverty is decreasing. The same findings were given by Kheir (2018).The trade openness has reduced poverty significantly means these selected countries have adopted such type of trade agreements which have reduced infant and child mortality rates (human poverty). These results are similar as suggested by Pradhan and Mahesh (2014). The coefficient of economic globalization is highly (1%) significant. It means that economic globalization in these selected developing countries is reducing poverty significantly. These findings are also suggested by Bergh and Nilsson (2014).

AR (2), Arellano and Bond test used for 2^{nd} order autocorrelation and Sargan test for over- identifying limitation are the efficiency and validity tests for the GMM estimators. In table 11, value of AR (2) is 1.48 which is greater than 0.05 and insignificant. This means that instruments used are valid. The value of Sargan test is 0.956 which is greater than 0.10 and insignificant. This means that instruments used are valid.

Conclusion

In this study, income poverty index and human poverty index were used as dependent variables whereas economic factors were as explanatory variables. The results showed both positive as well as negative influence of different economic factors on poverty. The results also suggested that poverty level in the past year, had a directly effect on recent year's level of poverty in both models (income as well as human

poverty). In income poverty model, inflation showed positive relationship with poverty. This can be said that there is an alarming relationship between increase in inflation and increase in poverty. The key word that needs to be addressed is the word "Increase". Increase in demand compared to supply; increase in cost of basic inputs like labour wages, commodities like oil and raw materials etc. needed for production of goods; increase in cost of imported goods; and increase in domestic demand for imported goods.

All these increases result in increasing cost of outputs i.e. manufactured goods; putting an increased demand on consumers' income. In an economy of developing countries all those, need to work together, who matter in controlling and appropriately balancing this "Increase". Careful selection of economic team members is required to be made who debate issues to seek solutions but also have the capacity and ability to converge.

Remittances showed negative but insignificant relationship with income poverty whereas positive and significant relationship with human poverty. Therefore, there is a need to formulate a suitable policy to decrease dependency on foreign aid and alleviate poverty mostly through encouraging additional foreign remittances inflows. Foreign aid plays a vital role in alleviating poverty only if it may be utilized in a well-planned manner. The empirical results of human poverty model showed that aid had enhanced poverty in developing countries. This might be due to misappropriation of aid in these selected developing countries. So, governments must concentrate on policies which will focus on avoiding aid misuse.

The results showed that government expenditures had positive relationship with both income and human poverty. This might be because governments over the years had not commenced developmental schemes and programs by objective of increasing the living standards of their people. Thus, programmes need to start bringing youth in agriculture and rope in more professional training programmes that help poor in getting employment. Similarly, FDI showed positive and significant relationship with income poverty and positive and insignificant relationship with human poverty. Developing countries should encourage FDI because they do not always have enough resources of their own to invest in all sectors of economy.

Employment in agriculture and industry also showed positive and significant relationship with human poverty. In most of the developing countries under study people earn their livelihood through farming i.e. they are employed in Agriculture. Improved and modern ways of farming need to be introduced so that farmer gets higher yields and others employed in this sector can earn higher wages. Similarly, instead of importing goods, industries should be set up, or if the industries already exist, their number should be increased and cost effective methods should be used to reduce production cost of goods. Simultaneously, objectives should be increasing employment opportunities, especially of women in industries and agriculture. Income inequality also showed positive and significant relationship with income and human poverty. This implies that demand management policies which will aspire at lessening the gap among rich and poor must be forcefully implemented in order to reduce the rate of inequality in the country.

Future Recommendations and Limitations of the Study

Although numerous research works have been done in the field of poverty but there is still a need to work in this field because poverty is a very important issue of the developing countries. There are so many other economic factors affecting poverty such as infrastructure, irrigation, military expenditures, natural disasters and so on discussed in the literature but these were not included due to data unavailability from some countries.

In this study panel data is used. It is suggested that in future researchers can use these factors in their studies by using primary data such as infrastructure and irrigation etc. Besides, environment is also an essential matter being taken into account by the world now-a-days. The researchers in future can also examine the impact of environment on poverty.

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Appendix

Appendix A: Selected Countries

S.No	Country Name	S.No	Country Name	S.No	Country Name	S.No	Country Name
1	Armenia	7	Ecuador	13	Mexico	19	Thailand
2	Bolivia	8	El Salvador	14	Moldova	20	Turkey
3	Brazil	9	Georgia	15	Mongolia	21	Ukraine
4	Colombia	10	Honduras	16	Pakistan	22	Venezuela, RB
5	Costa Rica	11	Kazakhstan	17	Paraguay	23	Vietnam
6	Dominican Republic	12	Kyrgyz Republic	18	Peru		

Appendix B: Descriptive statistics of the variables

Variables	Mean	Std, Dev	Minimum	Maximum
INCOMPOV	-0.053	1.373	-1.400	4.537
HUMPOV	-0.135	1.555	-2.558	6.466
GINI	24.141	14.589	7.071	61.599
INF	61.326	30.831	15.473	205.612
FORAID	2.576	3.871	-0.644	24.097
EAGR	29.938	12.931	7.259	65.28
EIND	19.764	3.949	8.22	27.857
RGDP	26.171	0.196	25.889	26.438
REM	5.944	1.611	2.913	7.676
FDI	4.227	0.988	2.134	6.175
GOVEXP	13.643	0.449	12.858	14.466
TOPEN	0.499	0.039	0.422	0.563
EGLOB	54.113	10.093	27.55	80.35
FD	1.19e-08	1.396	-1.781	2.360

Source: Author's own calculation