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IMPACT OF TRADE LIBERALIZATION ON ECONOMIC GROWTH AND POVERTY: The South Asian Region

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Abstract

This study assesses the impact of trade liberalization in the South Asian region on economic growth and poverty, in light of reinforcement of basic objectives of General Agreement on Tariffs and Trade (GATT). For this purpose seven South Asian countries, namely Pakistan, Bangladesh, India, Sri Lanka, Maldives, Nepal and Bhutan, were selected. The study period has been divided into pre- and post-liberalization (1960 to 1995 and 1996 to 2014). Economic growth and poverty equations were separately estimated with Fixed Effect Model on the panel data. The results show a significant positive impact of openness of South Asian countries which specifically signifies the role of Bangladesh in case of growth and India in case of poverty, in the region. Gini (income inequality) of individual countries worsens the average income growth and poverty situation of South Asian region but specifically highlights a prominent role of Bangladesh and Bhutan in reducing growth, while Bhutan and India in raising poverty of the region. Unemployment policies of all the South Asian countries; specially, of India and Bangladesh worsens the economic growth and, Pakistan and Bhutan worsens the poverty situation of the region. During both periods of the study, economic growth shows a positive impact over poverty of the region. Nepal and Pakistan have a leading role in this context. Results are mostly significant but weak share of factors emphasize the adoption of effective pro-poor growth policies along with openness policies according to specific requirements of the concerned economies.

Key Words: Trade Openness, Economic Growth, Poverty, South Asian Region, Unemployment.
JEL Classification: F10, F43, I15.

I. Introduction

Globalization is a new religion of the world and is considered the main solution for human problems such as poverty, illiteracy and inequality [Milanovic (2003)]. The basic objectives of General Agreement on Tariffs and Trade (GATT) were reinforced in Marrakech agreement (which established the GATT in 1995) with main aim

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to raise living standards, ensure full employment and, a large and steadily growing volume of real income through greater trade expansion [Naqvi and Zafar (1995)].

South Asia is also opening its boundaries through agreements like the South Asian Preferential Trade Agreement (SAPTA) and the South Asian Association for Regional Cooperation (SAARC). This region is a home for more than 5th of the world and 3rd of the world's poor population with varying culture, language, ethnic and social norms. It is far behind other regions of the world (except the Sub-Saharan Africa) in terms of average purchasing power parity (PPP) per capita income. Since 1981, there is a steady decline in poverty of the South Asian region; but in comparison to the other East Asian and Pacific regions, this decline is slow but the numbers of poor living here are increasing [Bhattarai (2010)]. Internal trade of South Asian countries is about 5 per cent of their total trade, but to follow the East Asian economies it needs to promote its minimum growth rate to 9 per cent. According to the economic situation of countries the expansion of trade and tariff reduction on reciprocal basis will help the region to grow at a faster rate [Naqvi and Zafar (1995)].

1. Objectives of the Study

The World Bank (2001), classifies the developing countries into more or less globalized - according to their increased per capita growth rate based on their technological advancement due to trade openness. Following the idea of World Trade Organization (WTO) the new agenda of greater trade liberalization (1995), affects the living standards and economic growth of economies. Objective of this study is to analyse as to how much the trade of South Asian countries (in their individual capacity) affect the economic growth and poverty of the whole region. For this purpose, seven South Asian countries are selected, while time period (1960 to 2014) is divided into pre-liberalization (1960 to 1995) and post-liberalization era (1996 to 2014). To analyse and compare the impact of globalization during both these periods, as well as the whole period, is also considered to get general picture of the situation. The results will be helpful to know about countries which play an effective leading role in affecting the region, economically. In Fixed Effect Model technique, all coefficients vary across individual cross sections which is utilised for estimation.

The paper is organized as follows: Section II reviews the literature and Section III define variables and data source. Section IV includes methodology and estimations; and, results and discussion are given in Section V. Finally, Section VI concludes the results and suggests recommendations.

II. Literature Review

In the last 40 years of the 20th century, the most developed countries like Hong Kong, Singapore, Japan, Korea, etc., achieved high income and growth levels through

increased exports and trade [McCulloch, et al. (2001)]. Dollar and Kraay (2001) states that poor and rich gain 'one for one' from openness. Most studies (also classical theory) shows that openness accelerates growth through efficient resource allocations which promote productivity which results in a higher real income. Endogenous growth theory states that long-run growth is result of advance technology with available input and reduced networking costs, due to openness [Berg and Krueger (2003)].

Haddad, et al. (2012), Bhattarai (2010), Rodríguez (2007), Fratzscher and Bussiere (2004), Khasnobis and Faisal (2003), Benjamin and Michael (2001), Naveed (2001), Butt (2001), Lal and Sarath (1987) concluded a positive impact of openness on growth; while some studies shows absence of this relationship in short-run for China, Gabon, Pakistan, Bangladesh, Greece, Turkey and Malaysia [Ianchovichina and Martin (2004), Zafar (2004), Muslehuddin, et al. (2003), Morrissey (1995), Siddiki (2002), Yousif and Al-Yousif (1999)]. It is also argued that growth is a result of required industrial, interventionist and protectionist policies, and technological advancement instead of openness [McCulloch, et al. (2001)].

Poverty has many aspects because economic growth is considered an important factor that positively affect poverty, e.g., increased consumption with high per capita income, infant mortality rate, and female to male literacy ratio. Dollar and Kraay (2002) concluded one to one increase in average income of bottom one-fifth of population with increase in overall growth of the economy. Some studies conclude that in the process of growth, only those get the benefit who participates in it [Lopez (2004) and Bhatti (2001)]. The World Development Report (2001) suggests that pro-poor growth would reduce the poverty level. However, Kakwani and Son (2003) criticize, even the World Bank definition of pro-poor growth and suggest a stronger definition.

Openness is linked with poverty, mainly through growth. A summary of several studies shows a negative short-run impact of trade through growth on poverty, and a long-run positive impact of trade on poverty with conditions of complementary pro-poor-growth policies; otherwise the impact of trade results in adverse income distribution in shape of wage inequalities [Bhattarai (2010), Berg and Krueger (2003), Ravallion (2003), Sala-i-Martin (2002)]. Some other studies favour this positive impact of openness over poverty reduction with conditions of pro-poor complementary policies [Khan and Sattar (2010), Bhattarai (2010), Bekaert, et al. (2009), Hertel, et al. (2004), Aisbett (2004), Inachovichina and Martin (2004), Porto (2003), Howard (2002), Hertel and Reimer (2003), Siddqui and Kemal (2002), Banister and Kamau (2001), Cockburn (2001), Siddiqui and Iqbal (2001), De Santis (2001), Qadir, et al. (2000), Lofgren (1999), Engelbrecht (1997) and Khanum (1993)].

III. Variables and Data Sources

Variables used in this study are poverty head count index ($2 per day), trade openness, economic growth, unemployment and income inequality. The original data is

with gaps, following suggestions of Povcal net and Sutcliffe (2004) interpolation is used and then linear trends are calculated from the known data points (in SPSS) to fill the gaps. The data is pooled to study the dynamics of changes [Gujarati (2003)]. Definition and data source of basic variables is given in the following sub-sections: i.e., (a) Economic Growth, (b) Poverty, and (c) Trade Openness.

a) Economic Growth

Economic growth is used as a dependent variable in growth Equation (3), while in this study, it is used as an explanatory variable in the equation showing poverty situation of the region. Economic Growth refers to the growth of potential output. Dollar and Kraay (2002) suggests that if an objective is to analyse trade and poverty relationships, then growth rate of real Gross Domestic Product (GDP) per capita (or average income growth) may be used for measurement of the overall growth of economies, as trade is linked with poverty through average income growth. Following Dollar and Kraay (2002) the present study uses growth rate of the real GDP per capita, PPP at constant (2005) international dollar from World Development Indicators [(WDI (2016)], for the period of 1960 to 2014. Finding of this study is that growth is expected to reduce poverty of the South Asian region, as indicated in the results.

b) Poverty

Poverty is used as dependent variable in the current study. The World Development Report (2001) defines poverty as an unacceptable physiological and social deprivation. The simplest aggregate poverty measure is the proportion of households living below the poverty line. Poverty line is a measure of absolute poverty. National poverty line is considered more appropriate for within nation's comparison. Different countries define and measure poverty in different ways. For this purpose, local expenditures levels are converted to international scales for comparing progress, across countries. On this basis, the United Nations (UN) and the World Bank (WB) adopted $1 per day concept to show the extreme poverty line and $2 per day per person as moderate poverty line valued at 1985 international prices. This is known as poverty headcount index and is the first Foster-Greer-Thorbecke (FGT) measure of poverty [WDI (2002)]. It was updated to $1.08 per day in 1993 and recently to $1.25 and $2.25 per day, for about $1 per day and $2 per day, respectively, at 2005 international prices. It has been calculated by the World Bank by using the PPP rates, instead of standard currency exchange rate [WDI (2011)]. In this study poverty is measured in terms of head count index, i.e., people living at less than $2.25 per day are considered at about $2 per day at international poverty line based on the PPP.

c) Trade Openness

Trade openness is used as explanatory variable in all equations. Trade is an exchange of goods and services among countries on basis of their relative advantage. The relative difference in factor endowment, technology and taste, has widened its base. There are various measures of openness, but trade dependency ratio is the ratio of exports and imports to real GDP, PPP at constant 2005, international Dollars from WDI (2016) - is used in this study for measurement of trade openness. It is clearly defined, well measured and has been suggested for openness to growth relationship by Alcala Scicone (2001) and Rodrik (2000).

On the basis of the theory, it is expected that in this study openness will raise income growth and lower poverty, while 'income inequality (Gini) and unemployment will lower growth and raise poverty. It is also expected that per capita income growth will lower poverty of the region. Further, in the pre-liberalization period results of trade openness are expected to show a weak, and during post-liberalization period, a strong impact over the growth and poverty of the whole South Asian region. Although, the used data has its own weaknesses, these results are expected to provide guidance for specific role of individual countries, as leading economic performer in the South Asian region. Future research is expected to get this guidance more confirmed and clear, by using good quality of data, as well as with the use of advance econometric techniques.

IV. Methodology and Estimations

1. Methodology

The fixed effect model of panel data is used in this study. The model and its priorities are specified as under.

a) Fixed Effect Model

The basic framework for panel dat a (if data for each cross sectional unit is available) is as follows:

$$Y_{it} = \alpha_{it} + \beta x_{it} + \varepsilon_{it} \tag{1}$$

There are k regressors, in x_{it}, i denotes different cross sections while 't' denotes time series. ε_{it} follows the classical assumption namely, $E(\varepsilon_{it}) \sim N(0.\sigma^2)$. The α parameter represents common constant in the model. Now, there is an unobserved effect model (UEM), also called the error components model which can be written for each time period:

$$Y_{it} = \alpha_{it} + \beta x_{it} + c_i + \varepsilon_{it}$$

where c_i is unobserved in all periods, but it is constant over time.

Fixed effects model can be estimated by using three approaches: within group estimator, least square dummy estimator, and the first difference estimator techniques. If c_i is correlated with covariates, fixed effect method transform the model to remove c_i. Then, taking average of each unit and subtracting it within a unit; the average form of each observation and the fixed effects method transform the Equation. Applying the pooled OLS, this transformed equation is called within the group estimators. If previous, within group estimators, are subtracted from each observation, it is called the first difference transformation as,

$$Y_{it} - Y_{it-1} = \alpha_{it} - \alpha_{it-1} + \beta x_{it} - x_{it-1} + c_i - c_i + \varepsilon_{it} - \varepsilon_{it-1}$$

Suppose there is a treatment that affects some units, but not all, in the population, the 'difference-in-differences' estimator is the difference between the change over time in the treatment group. The change over time in the control is as:

$$DID = Y_{i1} - Y_{i2}$$

$$Y_{it} = \beta_0 + \beta PD_{it} + \beta treatment_{it} + \varepsilon_{it}$$

where, *PD* is a period dummy, DID = Difference in Differences.

Comparing the two period models the fixed effect model and difference model gives identical results along with weakness of difference model that reduces the long-run effects. In case of more than two period models, difference in differencing model proves to be more efficient, if serial correlation exists. This study uses the least square dummy variable technique for the purpose of coming to that model. If c_i is treated as a fixed parameter for each unit, the dummy variables regression can be used to estimate c_i which allows to fit a term for every individual. There are multiple observations per individual and doing this will not saturate the model. Essentially, the study try to explain variation within individuals, and though there are several possibilities but one option that 'all coefficients vary across individual's cross sections' - to see the impact of different factors of separate countries over situation of the whole South Asian region. Adding dummy terms to linear regression model, it helps to capture the situation as:

$$Y_{it} = \underline{D}_{\underline{i}}\underline{\alpha}_{\underline{i}} + \beta_i x_{it} + \varepsilon_{it} \quad (2)$$

where, Di = (d_1, d_2 … d_n), t = 1.,.,., T, time period and i denotes different cross sectional units.

Now, how do actually the (fixed effect) intercept can vary between the individual cross sectional units? It can perform that by using the dummy variables technique, as differential intercepts dummies. First, a set of dummy terms, D_i is defined. It will be one, if the observation comes from individual *'i'* and zero otherwise. The dummies works only, if '*t*' the number of time observations per individual, is much larger than the number of individuals in the panel.

b) Some Properties of Fixed Effect Model

i) The panel of countries fixed effects would take full account of things, such as geographical factors, natural endowments and any other form of many basic factors that vary between countries.

ii) To avoid computational problems in the large survey panels, the model is tranformed by differencing all variables by some researchers. However, diffrencing the model is undesired as it may distort parameter values and can certainly remove the long run effects.

iii) Despite the limitations, fixed effect is an indispensable tool in the panel analyst tool-box [Green (2003)].

Time series data has many problems, e.g., the value of error term from one time period depends in some systematic way on the value of error term in another time periods. The commonly assumed type is the first order serial correlation. In case, the error term there is a function of more than one previous observations of error term called the second order serial correlation. Its effects are not easily observable from examination of just the results themselves. Mostly, Durbin Watson d statistics is used to determine the degree of auto-correlation. The criteria is:

if d = 0, in this case $\varepsilon_t = \varepsilon_{it-1}$, so $(et\text{-}et\text{-}1) = 0$ …. Positive Serial Correlation,
if d = 4, then $\varepsilon_t = -\varepsilon_{it-1}$, and $(\varepsilon_t - \varepsilon_{it-1}) = (2\varepsilon_t)$ …. Negative Serial Correlation,
if d = 2, then there is no serial correlation.

In the large samples data from 1.6, 2.0 is also considered for absence of serial correlation; and in case of its existence the main remedy is the use of Generalised Least Square estimation that suggest the Chochran-Orcuttt for superior estimation AR(1), (Auto Regressive) method; but the large sample size resolve most of the issues.

2. Estimations

This study uses the time series cross sectional data from 1960 to 2014 for seven South Asian countries, namely Pakistan, Bangladesh, India, Sri Lanka, Nepal, Bhutan and Maldives; to see their impact of openness on growth and poverty of the entire South Asian region. Before 1971, Bangladesh was a part of Pakistan (known as the East Pakistan), thus the data of that part/period (pre 1960) is subtracted from the data of Pakistan and considered for Bangladesh. The available data is with gaps. Linear trend and Interpolation methods were used in SPSS to fill the gaps, following Sutcliffe (2004). Then the remaining data is used in Eviews 9, for estimation.

a) Division of Time Period

Trade openness raises the living standards and ensures full employment through growing volume of real income. This study compares the impact of openness of the South Asian countries in individual capacity for growth of income and living standards (poverty situation) of the whole region, before and after imposition of new agenda of the WTO in 1995. For this purpose the time period of 1960 to 2014 was divided into pre-liberalization (1960 to 1995) and post-liberalization (1996 to 2014). This analysis is expected to be helpful in understanding the role of that specific country which has relatively more potential in affecting, as well as lead-ing the region economically.

b) Division of the Topic

To analyze the relationship, following Dollar and Kraay (2004), the topic of trade, growth and poverty was divided into two subsections, i.e., trade and growth, - to see the impact of trade on South Asian countries on individual basis, for economic growth of the region and the trade, growth and poverty - to see the impact of trade openness and economic growth over poverty of the region. Now, coming to the estimations, using Fixed Effect Model, its option is that 'all co-efficient vary across individual cross sectional units.'

3. Growth Equation

Using Equation (2) for growth, follows equation is emerged:

$$YPG = \alpha + d_{(PK)} + d_{(IND)} + d_{(BD)} + d_{(SRL)} + d_{(MLD)} + d_{(NP)} + d_{(BTN)} + \beta_i(Openness)_{it} + \beta_i(Gini)_{it} + \beta_i(Unemployment)_{it} + \varepsilon_{it} \quad (3)$$

where, $i = 1.... 7$, and $t = 1.,.., 55$; and $b_i X_{is}$ shows different countries' variables and coefficients. For example:

β_1 *(OP) of Pak,* β_2 *(OP) of BD,* β_3 *(OP) of India,* β_4 *(OP) of Srl,*

β_5 *(OP) of Nepal,* β_6 *(OP) of Bhutan and* β_7 *(OP) of Maldives etc.*

where, d_i = specific effect, PK = Pakistan, BD = Bangladesh, Ind = India, Srl = Sri Lanka, Np = Nepal, Btn = Bhutan, Mld = Maldives. Op = Trade openness. YPG = Growth of real per capita income. Gini = Gini index (income inequality). UN = un-employed persons as percentage of total labor force. ε = Error term - captures the ef-fect of omitted variables.

4. Poverty Equation

The poverty equation is obtained as:

$$POV = \alpha + d_{(PK)} + d_{(IND)} + d_{(BD)} + d_{(SRL)} + d_{(MLD)} + d_{(NP)} + d_{(BTN)} + \beta_i(Openness)_{it} + \beta_i(Gini)_{it} + \beta_i(YPG)_{it} + \beta_i(Unemployment)_{it} + \varepsilon_{it} \quad (3)$$

where 'POV' is poverty head count index, as absolute poverty, i.e., $2 per day.

V. Results and Discussion

All SAARC countries are considered first, but due to non-availability of statistics on most of the data, Afghanistan was dropped. In case of developing countries most of the available data is very weak and descriptive statistics of common variables is given. The value of standard deviation shows the variation/dispersion from mean. Low standard of deviation indicates that data point tends to be very close to mean and high standard deviation which indicates that data points are spread over a large range of values; while standard deviation re-sults show that the data do not have the problem of high dispersion.

Growth as well as poverty equations are estimated for pre- and post-liberalization (1995); and for the whole period (1960 to 2014) as well. Results of Table 1 shows that openness of the four countries (Pakistan, Sri Lanka, Bhutan and India) in pre-liberalization and five countries (Pakistan, Bangladesh, India, Maldives and Nepal), during the post-liberalization period raises growth of the entire South Asian region. This relationship is significant in case of only Bhutan in pre-liberalization and for Pakistan, Bangladesh and India in the post-liberalization period. It supports the views of Dowrick and Jane (2004), Musleh-ud-Din et al, (2003), Hertel et al. (2004), Kemal, et al, (2001), Pasha and Palanivel (2003), Hertel et al, (2004), Dutta and Nasiruddin (2003) and Musleh-ud-Din et al, (2003) - examined a significant relationship of openness and growth in four South Asian countries.

Descriptive Statistics of the used Variables

Variables	Mean	Std. Dev	Maximum	Minimum
GDPPC	2.51	2.28	8.36	-2.24
GINI	38.50	3.54	29.00	47.30
OP	40.94	30.21	27.32	174.00
POV	0.71	0.22	0.99	0.11
UNE	4.43	1.42	2.26	7.80

Source: World Bank World Development Indicator (2016).

During the pre-liberalization era, this impact of openness of all countries on growth of the region was very weak but it was improved in the post-1995. In the pre-liberalization period, Bhutan, and in post-liberal era, Bangladesh played a significant role through their trade policies in affecting growth of the region positively. Negative impact of openness of Sri Lanka and Bhutan, over economic growth of the region reflects the absence of pro-poor complementary policies along with their open trade policies in the post liberal era. The entire period results of the positive impact of openness, generally reflects importance of Pakistan, India, Bangladesh and Nepal in the region; specifically the role of Bangladesh share in affecting the growth of region is greater, as compared to other countries. Increased positive impact of openness and its significance during the post-liberal era, not only reflects the importance of openness but also emphasis the adoption of pro-growth complementary policies along with openness policies to capture full benefits of the trade openness. On the other hand it highlights the role of Bangladesh in the region for its openness that raises growth.

In the pre-liberalization period openness of all countries (except Sri Lanka), and in the post-liberal era openness of Bangladesh, Bhutan, India and Maldives, significantly lowered poverty of the region. The situation of Pakistan, Sri Lanka and Nepal, specifically showed lack of pro-poor policies along with openness to support their poor class in the scenario of open market boundaries, during the post liberalization. The positive impact of openness is generally said to be increased during the same period. The whole period also results and clarify the same picture, except the fact that situation of trade in Nepal was supposed to improve more as a whole, if it would adopts and implement openness policies efficiently. It means that mostly openness affects growth and poverty, mostly in the long-run [Lopez (2004), Hertel, et al. (2004), Winters, et al. (2004), Aisbett (2004), Dollar (2004), (2001), Kemal, et al. (2003), Ravallian (2003), Porto (2003), Hertel and Reimer (2004), Agenor (2002), Howard (2002), Siddqui and Zafar (2001, Kemal, et al. (2001), De Santis (2001), Bannister and Kamau (2001), Qadir, et al. (2000), Kakwani and Pernia (2000), Engelbrechat (1997), Khanum (1993). However, openness benefits would be relatively small and would also differ across various household groups in the presence of other constraints, if they are not supported by pro-poor and pro-growth policies [Mujeri and Bazlul (2002), Cockburn (2001), Lofgren (1999), Kemal, et al. (2003), Pasha and Palanivel (2003), Lopez (2004) and Chishti and Malik (2001)].

Results of Table 1 shows that income inequality (Gini) of Pakistan, Bangladesh, Bhutan, Nepal and Maldives in the pre-liberalization period; had a stronger impact to lower growth of the region. In the post liberalization period significantly, inequality in Bangladesh, Bhutan and Nepal lowered growth of the region. But, the healthy symptom was that this impact of inequality to lower growth regions was weaker in the post-liberal era. In India and Sri Lanka, inequality supports the eco-

TABLE 1

Fixed Effect Model, all Coefficients Vary Case

Variables	Countries	Growth Equations			Poverty Equations		
		Pre-Liberalization Period (1960-1995)	Post-Liberalization Period (1996-2014)	Entire Period Results (1960-2014)	Pre-Liberalization Period (1960-1995)	Post-Liberalization Period (1996-2014)	Entire Period Results (1960-2014)
		I	I	II	I		
Trade Openness	Pakistan	0.02	0.1	0.04	-0.1	0.7	0.2
		(1.3)	(1.8)***	(1.8)***	(1.2)	(1.2)	(3.6)
	Bangladesh	-0.06	0.2	0.2	-0.03	-0.1	-0.04
		(1.7)***	(3.0)*	(5.0)*	(0.6)	(1.3)	(0.7)
	Sri Lanka	0.004	-0.1	-0.01	0.04	0.3	0.1
		(1.1)	(2.0)*	(0.6)	(2)**	(11.7)*	(3.0)*
	Bhutan	0.02	-0.05	-0.1	-0.6	-0.2	-0.1
		(2.7)*	(0.8)	(0.3)	(26.3)*	(11.8)*	(2.0)**
	India	0.02	0.1	0.02	-0.1	-0.7	-0.3
		(1.2)	(1.8)***	(1.7)***	(1.0)	(9.6)*	(7.0)*
	Maldives	-0.001	0.02	-0.002	0	-0.002	0.004
		(0.6)	(0.9)	(0.3)	0	(0.9)	(1.0)
	Nepal	-0.004	0.04	0.04	-0.05	1	-0.2
		(0.3)	(0.9)	(3.0)*	(1.4)	(4.4)*	(2.0)**
Gini	Pakistan	-0.7	0.1	-0.02	0.8	-0.9	-2.7
		(3.2)*	(0.4)	(0.2)	(7.1)*	(0.6)	(7.0)*
	Bangladesh	-0.7	-0.3	-0.04	0.1	1.6	-0.4
		(7.2)*	(2.7)*	(0.2)	(0.4)*	(2.0)**	(3.0)*
	Sri Lanka	0.03	0.3	0.3	-0.8	0.8	0.6
		(1.5)	(1.7)***	(2.0)**	(2.0)**	(2.2)**	(3.0)*
	Bhutan	-0.1	-0.1	-0.1	1.2	2.9	1.2
		(8.9)*	(1.0)	(1.1)	(19.0)*	(14.2)*	(12.0)*
	India	0.3	1.3	1.4	-2.7	-3.5	2.0
		(2.4)*	(3.0)*	(6.0)*	(10.4)*	(3.1)*	(6.0)*
	Maldives	-0.05	0.1	0.2	1.2	0.9	0.9
		(27.3)*	(0.7)	(2.0)**	(8.8)*	(8.5)*	(16.0)*
	Nepal	-0.2	-0.2	-0.05	-0.6	1.2	0.9
		(3.8)*	(2.5)*	(1.1)	(5.0)*	(2.7)*	(4.0)*
Unemployment	Pakistan	0.8	1.5	1.2	1.2	4.4	2.0
		(2.0)*	(6.0)*	(6.0)*	(2.0)**	(2.6)*	(1.2)
	Bangladesh	-10.1	-0.7	-0.8	6.0	-1.1	0.2
		(11.6)*	(3.0)*	(1.4)	(3.0)*	(1.8.0)***	(0.3)
	Sri Lanka	-0.3	-0.1	-0.1	2.0	3.4	3.0
		(5.6)*	(0.6)	(0.7)	(6.0)*	(10.1)*	(16.0)*
	Bhutan	4.0	1.4	1.6	0.0	1.8	4.0
		(21.2)*	(1.3)	(3.0)*	(0.0)	(1.5)	(6.0)*
	India	-5.7	-2.6	-0.1	3.0	13.7	2.0
		(23.9)*	(2.2)*	(0.8)	(2.0)*	(4.5)*	(6.0)*
	Maldives	0.05	2.4	2.1	0.0	-4.1	-5.0
		(3.0)*	(1.1)	(3.0)*	(0.0)	(6.4)*	(11.0)
	Nepal	-0.2	-0.2	-0.03	1.8	2.5	2.0
		(0.8)	(0.5)	(0.1)	(1.8)***	(1.2)	(1.0)

Continue .....

TABLE 1 *(Contd...)*

Fixed Effect Model, all Coefficients Vary Case

Variables	Countries	Growth Equations			Poverty Equations		
		Pre-Liberalization Period (1960-1995)	Post-Liberalization Period (1996-2014)	Entire Period Results (1960-2014)	Pre-Liberalization Period (1960-1995)	Post-Liberalization Period (1996-2014)	Entire Period Results (1960-2014)
		I	I	II	I		
Economic Growth	Pakistan				-0.2	-0.5	-2.0
					(1.0)	(0.6)	(2)**
	Bangladesh				-0.5	-0.5	-1.0
					(3.0)*	(1.1)	(6.0)*
	Sri Lanka				-0.3	-0.8	-1.0
					(2.0)**	(3.8)*	(4.0)*
	Bhutan				-24	0.5	1.0
					(2.0)**	(2.0)**	(4.0)*
	India				-0.3	-0.1	0.4
					(2.0)**	(0.3)	(0.2)
	Maldives				-23.7	0.1	0.1
					(40.9)*	(0.7)	(2.0)**
	Nepal				-0.1	-1.9	-2.0
					(0.9)	(2.5)*	(3.0)*
Const.	C	0.2	5.2	10.0	79.0	14.0	44.0
		(0.8)	(4.0)*	(4.0)*	(6.0)*	(0.3)	(9.0)*
Specific Intercepts	Pakistan	0.2	3.7	4.2	-22.0	34.0	-1.013
	Bangladesh	-1.1	-6.7	7.4	-14.0	31.0	58.0
	Sri Lanka	-2.0	7.9	5.0	74.0	0.24	-57.0
	Bhutan	2.4	-3.1	16.0	53.0	-55.0	-42.0
	India	-2.7	-2.1	-26.6	-34.0	-28.0	80.0
	Maldives	2.5	3.4	-18.0	86.0	35.0	10.0
	Nepal	0.7	-3.1	12.0	30.0	-18.0	83.0
	Adj. R^2	0.9	0.7	0.7	0.9	0.9	0.9
	Observ(bal)	252.0	133.0	385.0	252.0	133.0	385.0
	D.W.Stats	1.5	1.9	1.9	1.7	1.7	2.0
	SER	0.9	1.1	1.0	0.8	1.0	0.9

*, **, ***, mean significant at 1%, 5%, and 10% respectively. Values in parentheses are "t" values.
Source: Authors' regression.

nomic growth but this cannot be supported for future, as increased income inequality in itself is a big problem; which is difficult to be controlled at further stages, as it absorbs all efforts for development. Therefore, pro-poor-growth policies are to be adopted. Inequality of Bangladesh has a strong negative impact in affecting growth of the region as compared to other countries of South Asia. During the entire period, impact of income inequality of Bhutan was stronger in reducing growth of the region, than the other countries.

Income inequality of Pakistan, Bangladesh, Bhutan and Maldives in the pre-liberalization period; and of Bangladesh, Sri Lanka, Bhutan, Maldives and Nepal during

the post-liberalization period raised poverty of the South Asian region, significantly. During the post 1995 the effect of inequality became stronger than the pre-liberal era, in raising poverty; while in case of growth, its impact was reduced in the post-liberal period. Results of this period, shows stronger impact of income inequality of India to raise poverty of the region. It reflects the situation that adoption of just pro-growth policies, are not sufficient for welfare of the people. Pro-poor policies have their own role specially, at the time of opening borders of economies to the world markets to support the lower income group.

During both these periods unemployment of Bangladesh, Sri Lanka, India and Nepal, significantly reduced growth of the region. Results of the entire period also show an adverse effect of unemployment of Bangladesh, Sri Lanka, Nepal and India over growth of the South Asian region. Increase in unemployment raised growth of the region and showed lack of R&D in the respective countries (as a result of this study, in case of Pakistan, Bhutan and Maldives). With inflow of advance technology there was a growth in economics but labour force did not get the required training and skills to cope with this development. The result was that although the concerned countries started moving towards higher economic growth but only a specific class was part of the process. All this was achieved at the expense of high unemployment of poor and unskilled class which is increasing speedily with the passage of time. During the pre-liberal era, all selected South Asian countries in the post 1895-period, significantly raised poverty of the region/countries like Pakistan, Sri Lanka, Bhu-tan, India and Nepal. The role of unemployment in worsening poverty situation of the region increased in the post liberal era in countries of Pakistan, Sri Lanka, India, Maldives, Bhutan and Nepal, while it improved in Bangladesh. The total period results also show the same situation. Thus, Bangladesh in the pre-liberal era, India in the post-liberal era, and according to the whole period results Bhutan has worsened the situation of growth and poverty of the region. If there is a widespread unemployment in an economy which is unable to be handled effectively, migration of the unemployed people will overburden the resources of migrant country towards the surrounding countries which will affect the whole region. It is also important to recognize that poverty and growth generally measures income (which is a flow variable - normally measured on annual basis in studies). Unemployment is a stock variable that records labor force status at a point in time. It is possible that a person may be unemployed at one time – but according to the definition of unemployment, the same person may re-ceives income from another source, as well, and becomes employed at another period of the year. So, if these aspects of unemployment are linked to poverty and income growth, it will not show a good relationship [Anwar (2003)].

Economic growth of given South Asian countries reduces poverty of the region during both periods except, Bhutan and Maldives in the post-1995 period. In the post-liberalisation period the growth of Pakistan, Sri Lanka and Nepal was improved which reduced poverty of the region. Growth policies of Bangladesh did

not support the poor sufficiently, as shown in the same coefficient and reduced significantly. Fall of the impact of growth policies emphasizes the adoption of more supportive pro-poor-growth policies in India. Results of Bhutan and Maldives highlight their lack of well planned growth policies which are raising poor in the region.[1] All this signify the adoption and effective implementation of pro-poor growth policies along with openness policies in economies for raising growth and lowering poverty in the region.

Precise intercepts of countries shows their specific economic situation at the start of time; and the adjusted R^2 shows good relationship of the variables. As specified by the theory; although, auto-correlation exists in most of the time series data the panel data estimation solve some of the problems. The results of D.W. statistics show absence of autocorrelation from the range of 1.6 to 2 which is acceptable. For Growth Equation 1, before 80's period. D.W. stats show some ambiguity (1.5) but its remedy of AR(1) is also not recommended at this stage, as it creates more problems in the results. Common constants are all positive and significant and show as to how strongly each independent variable is associated with dependent variable. Standard Errors (of regression) are small, showing most of the observed values, very close to the regression line.

VI. Conclusion and Policy Implications

1. Trade Openness

Generally, openness of all South Asian countries shows a significantly positive impact over income growth and poverty situation of the whole region. Specifically, it signifies the role of Bangladesh in case of growth, and India in case of poverty in the region. It suggests that according to relevant requirement of economic circumstances, adoption of complementary macroeconomic (pro-poor and pro-growth openness) policies the countries will boost the economic role of countries in the region.

2. Gini (Inequality)

On the whole, Gini concludes a worsening impact of individual countries over economic growth and poverty situation of the region. Income inequality of Bangladesh and Bhutan reduced growth while Bhutan and India raised poverty of the region prominently (and significantly). It is important for policy makers, interested in poverty reduction, to link the rate of growth and proportion of any increment to growth captured by the poor towards the surrounding countries, along with openness policies.

[1] It is a base for further research and to analyze the reasons behind the role of different countries in affecting growth and poverty of the region effectively.

3. Unemployment

Results of the study show that unemployment of South Asian countries lowers growth and raises poverty of the region; but this relationship is not good in most cases. Specifically, weak unemployment policies of India and Bangladesh worsen the economic growth, as well as, Pakistan and Bhutan worsened poverty situation of the region. Openness is favoured mostly for its increase in employment opportunities to raise income, the standard of living, and welfare of the people. But, unemployed persons are mostly affected by lack of effective planning for Research and Development (R&D) Policies.

4. Economic Growth

Income growth of economies shows a good impact over poverty of the South Asian region. Nepal and Pakistan have specifically a greater impact over poverty of the region regarding growth. It still emphasizes the adoption of pro-poor growth policies along with effective open trade policies, to address the situation of poverty in the region. Conclusion of the results of this study can be referred to the World Bank (1993) that openness is an important component of successful development in combination with sound macroeconomic management policies. Comparative graphs of the selected South Asian countries are shown in the Appemdix (Figures 1 to 5).

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APPENDIX

Comparative Graphs of the Selected South Asian Countries

The result of the study shows the impact of different factors of individual countries, over growth and poverty of the region; while the given graphs (Figure 1 to 5), shows one factor's situation only in that specific country. Figure 1 shows the comparative openness in which Maldives have a leading position when comparing with other South Asian countries. Considering the effects of trade openness of the specific countries over the growth of whole region, Bangladesh raises growth and India lowers poverty of the region (see, results of this study). Figure 2 shows comparative growth situation of the economies. In the start economic growth, Bhutan is higher but in the end, India leads the region, In reducing poverty in the region, Nepal and Pakistan have prominent role (as the results reflect). Poverty picture of Figure 3 shows that in the start India is highly affected by poverty but in the end Maldives achieves its targets, better than the other countries, in reducing poverty. Figure 4 shows that Maldives, although started its economic journey with very high income inequality but later reduced it. In the end situation of income inequality, Pakistan is comparatively better than the other countries of the region. But, as far as its impact over the region is concerned, inequality of Bhutan and Bangladesh reduced the growth while India and Bhutan raised poverty more than that of other countries. Figure 5 shows that Sri Lanka, although had much higher unemployment but later reduced it very much. In the end unemployment of Bhutan is comparatively lower in the region. But, the worsening impact of unemployment of India and Bangladesh in case of growth, as well as of Pakistan and Bhutan in case of poverty is more significant than the other countries to affect the region.

Country-wise comparative graphs of the South Asian countries presented in Figures 1 to 5, where, Op=Openness, Pov=Poverty, GN=Gini - as income inequality, YPG=per capita income growth, Un=Unemploymen, Pk=Pakistan, IND=India, NPL=Nepal, SLK=Sri Lanka, BTN=Bhutan, MLD=Maldives, BD=Bangladesh.

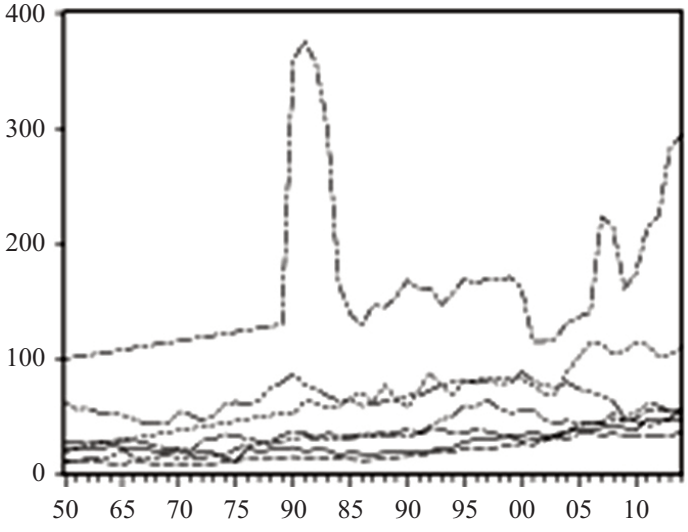

FIGURE 1

Comparative Openness of South Asian Countries

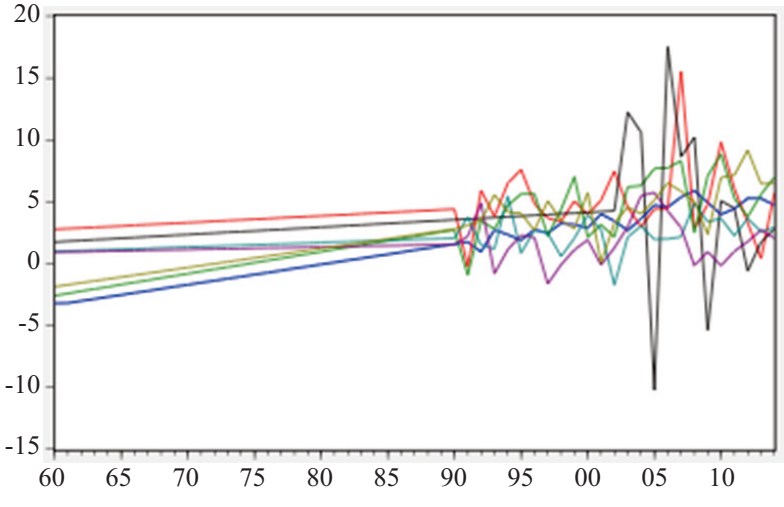

FIGURE 2

Comparative Economic Growth of South Asian Countries

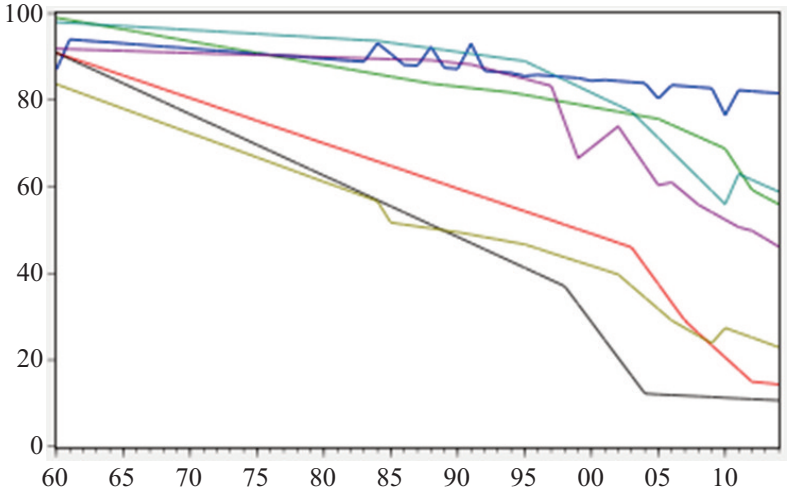

FIGURE 3

Comparative Poverty of South Asian Countries

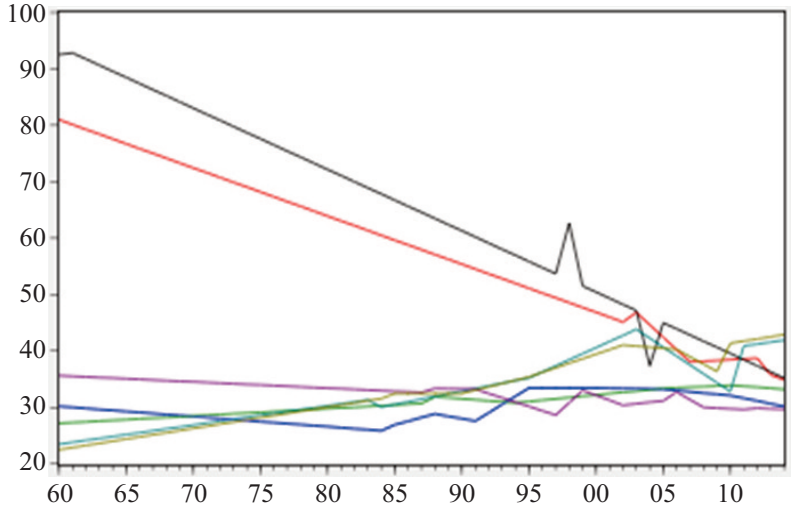

FIGURE 4

Comparative Income Inequality of South Asian Countries

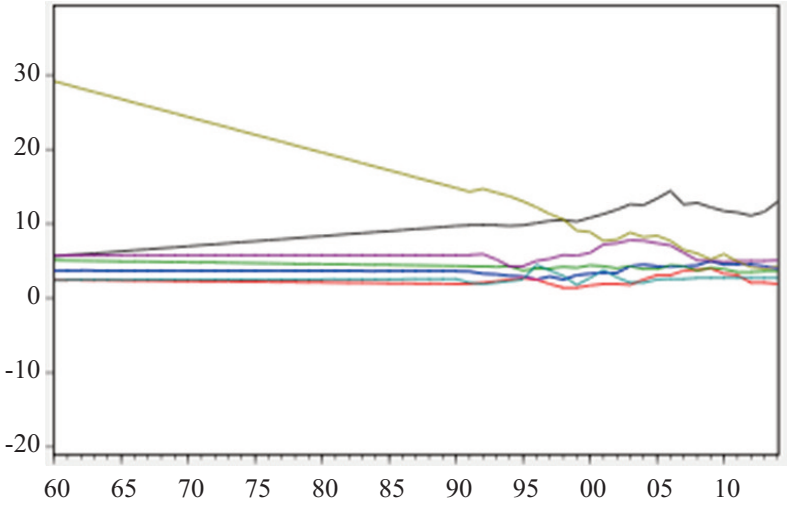

FIGURE 5

Comparative Unemployment of South Asian Countries