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Linkages between Trade Openness and Economic Growth: Evidence from SAARC Member Countries

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Sami Ullah[1], Dr. Muhmmad Tahir[2]

Abstract:

Purpose: *The current paper revisiting empirical linkanges between trade openness and economic growth in the context of SAARC member countries while, utilized three measure of trade openness.*
Design/Methodology/Approach: *Emperical analysis conducted by panel econometric approach.*
Findings: *The main objective of the study is to revisit empirical linkages between trade openness and economic growth. It is found that trade openness and investment statistically significant and positively contribute to economic growth. Economic growth is multdimentional phenomanon, besides trade openness other determinants such as education and inflation negatively contridbute to economic growth .*
Practical Implications: *The resarch is required for SAARC member countries to remove all those barriers of trade which retard economic growth and also to accelerate process of trade liberationation policy and pay attention to other determinants of growth in order to achieve desirable economic growth in the context of SAARC member countries.*
Originality/Value: *Current study takes into account both conventional measure of trade openness and new measure of trade openness in the context of SAARC member countries.*

Keywords: *SAARC, economic growth, trade openness, barriers.*

JEL codes: *F1, F10.*

Paper Type: *Research study.*

[1]*Lecturer Department of Economics Bacha Khan University Charsadda, KPK, Pakistan, e-mail: samischolar451@gmail.com; and samiullah@bkuc.edu.pk;*
[2]*Assistant Professor Department of Management Science Comsats University Abbottabad, KPK, Pakistan, e-mail: tahirm@cuiatd.edu.pk;*

1. Introduction

The permanent part of structural adjustment program which endorsed by international financial institutions is trade openness. Therefore, developing countries constantly encouraging by World Bank and International Monetary Fund to adopt liberation approaches to attain wellbeing and desirable economic growth. Economic growth is multi dimension phenomena and conclusive objective of all economic activities therefore, growth matters, it enhances living standard of individuals which is desirable. Therefore, globally all economies are constantly trying to achieve higher desirable economic growth by diminishing all barriers to accomplish trade liberalization policies. Well known classical economists Solow (1956), Hicks (1980) and Wheeler (1980) documented that economic growth accelerated through physical factors of production that is labor force, capital and a given technology. Denison (1962) specified a particular portion that is 33% of developed country such as aggregate development of the American economy can be communicated physical component of production that is labor and capital. He further clarified that there were additional elements which was responsible for unexplained development of economies like USA, Japan and Singapore and so forth.

However, from 1980 to 1990 the new growth theory was produced. Eminent articles of different researchers for instance (Grossman and Helpman,1990; Romer, 1986; Lucas, 1988) incorporated human capital and other economic policies for boosting economic growth of the recently industrialized nations of the world. Different channels assessed by Andersen and Babula (2008) by which economic growth influence through trade openness specially through accumulation of capital (physical and human) and productivity growth which, speed up through faster innovative advancement. One school of thought provided evidence in favor of positively contributed trade openness to economic development reported by Dollar (1992), Tahir (2013) Edward (1998), Frankel and Romer (1999) for developed and developing countries. Other school of thought exhibited that external shock, abrupt technological changes worldwide and exposure to competition create uncertain environment especially for poor investments as a result of trade openness which retard economic growth as documented by Rigobon and Rodrik (2005), and Calderon *et al.* (2005).

Commonly researchers concluded trade openness resulted fruitful results which lead to wellbeing and prosperity of country as were verified in the studies of Anderson and Babula (2008), Edward (1998), Tahir and Norulazidah (2014), Tahir (2013), and Tahir and Azid (2015). The world economies adopted outward oriented policies rather than import substitution strategy during 1990 and it has been a decade of trade policy reforms (Rodriguez, 2007). During this decade world switchover from import substitution strategy to outward oriented approaches. South Asia has been reluctant to accept liberalization at beginning but recently moving in that direction. South Asia has achieved a long sustained robust economic growth and has been holding position among world class leading economies. The economic growth slowly and gradually increases from 6.9% in 2014 to 7.1% in 2015 which further accelerate to 7.4 and so

on till 2018 as a result of strong consumption, increasing investment, impressive human development and low oil prices as documented by World Bank (2015).

However, economic growth greatly hit by emerging COVID-19 and growth contracted by 7.7 percent in 2020 documented by World Bank (2020). Different research questions regarding impact of open economic policies on economic growth verified through empirically analysis by utilizing time series and panel analysis. However, the study regarding SAARC member countries in panel data analysis is too rare. Taking into account contradictions thoughts current paper combine both conventional and new measure of trade openness to examine its impact on economic growth in context of SAARC member countries.

1.2 A Brief Overview of Trade Policy Regime of SAARC Member Countries

The implementation of protectionist policies was maintained up to 1970 for SAARC member countries. However, liberalization in SAARC member countries started with a series of reforms taken by Sri Lanka during 1977 and 1978. The substantial reduction in tariffs and quantity restriction along with liberalization in exchange regime appreciated during 1980 and 1990 for SAARC member counties. The trade policy reforms were taken by many SAARC counties in order to make substantial progress in opening their economies to the outside world (Tahir *et al.*, 2016). These policies reforms were documented in a number of studies with passage of time. After 1977 Pakistan was confronted a high economic crucial situation and macroeconomic instability as a result of high inefficiency and great losses in public sector during 1980s. To maintain economic stability and improve efficiency in the public sectors, the government of Pakistan announced various structural and institutional reforms since in 1990s (Khan and Qaymm, 2007). Tariff policy restrictions removed and tariff rate were decline on import commodities from 225 percent in 1986 to 1987 to 25 percent in 2005 reported in studies of Husain (2005), Kemal (2001), and Anwar (2002).

India opened its economy during 1991 as documented in the study of Krishna and Mitra (1997) in order to improve economic growth. Reforms regarding trade policy started as the system of exchange rate were liberalized during 1992. Export-Import policy was announced for five years in (1992-1997). According to this policy export was required to yield 40 percent of foreign exchange at official market exchange rate. By utilizing this figure Indian government import essential products mostly petroleum, fertilizers and other health related drugs. Remaining specific 60 percent foreign exchange earnings would be utilized to import raw material. Details regarding trade liberalization documented by Hye and Lau (2015). The trade liberation process was accelerated in Bangladesh during the mid-1980s. Much more preference was given to export diversification and import liberalization during the initial years as mentioned by Iftikhar (2012). Bangladesh has large export oriented industry established in 1980s. However, the manufacturing industries are too restricted and process of liberalization slowed down in Bangladesh during 1995. The restrictions

were decline but reduction in these restrictions was offset by the use of other divers import taxes. During 2000 to 2001 Bangladesh protects local industries to maintain a number of quantities restrictions as reported by World Bank (2004).

The Sri Lankan government announced trade liberalization policies during the late 1977. In spite trade policy liberalization and tariff liberalization economic growth not accelerated as expected up to 2010 reported by Silva *et al.* (2013). However, all textile tariffs were diminished during 1997 under the free trade situation. On other hand, some manufacturing industries were protected along with some other agriculture products that are rice, potatoes, onions and chilies (World Bank, 2004). Nepal adopted trade liberalization policy during the mid-1980s to sustain economic growth (Adhikary, 2015). However, Nepal is considered poor economy in term of economic performance in South Asia. Nepalese rupee fixed with Indian rupee and mostly inflation rate does not differentiate from Indian inflation rate. Nepal exchange rate (devaluation) during mid 1980 to1992 much less announced compare to Indian real exchange system. The real devaluation of exchange rate of other trading partners of Nepal such as India made substantial reduction in tariffs and other trade liberalization was too effective.

Bhutan was not under the influential rules of British until 1947 compare to other South Asian economies. Bhutan was reluctant to liberalization approach and adopted isolation policy from the rest of the world as a result of fear of loss to tradition and culture values and threat of foreign invasion on its monarchy and sovereignty as was mention in the study of Nyaupane and Timothy (2010). However, Bhutanese trade policy can be easily estimate from its two extreme positions. First its openness can be expressed in terms of its overall low tariff rate. Bhutan freely trade with India being a major trading partner representing 80 percent of Bhutan's total import. On the other side Bhutan surrounded by India and China and due to its close relationship with India its mostly depended on single country making Bhutan to pay extra expense to Indian exporter. The most import challenge is how to expand the country trade partners by diminishing import tariffs and non-tariff barriers documented by the Asian Development Bank South Asia, (2015).

The paper composed by the following sections. Section 2 evaluated related work over trade openness and economic growth while section 3 comprises model and data sources. Section 4 conclude the results of the study. Last section is the conclusion, future research direction and policy recommendations.

2. Literature Review

Controversy regarding relationship between trade openness and economic growth is too debatable and remarkably reported in economic literature during recent years. Keeping in to consideration these controversial issue researchers continually develop subjective and objective oriented measures of trade openness to capture and define relationships between trade openness and economic growth. Consecutive studies

have been conducted by researchers as Edward (1998), Dollar (1992), Frankel and Romer (1999), Shahs and Warner (1995), Tahir (2013), Tahir and Azid (2015), and Rizavi *et al.* (2010) in the context of developed and developing economies and advocates trade liberalization approaches which enhance desirable economic growth.

The literature got momentum in specific direction from 1990 to 2000 and researchers have shown common consensus and reached to general conclusion that trade liberalization policies positively causing agent to economic growth. However, literature got momentum in opposite direction with publication of critical paper of Rodrick and Rodriguez (2000) titled *"Trade Policy and Economic growth: A Skeptic's Guide to the Cross-National Evidence"* the research negates positive contribution regarding trade openness to economic growth and established negative relationship between trade openness and economic growth. Methodology applied by Edward (1992) and conventional indices of trade openness applied by Shah and Warner (1995) were criticized on the basis of evidence provided by Rodrick and Rodriguez (2000). The influential study conducted by Warner (2003) criticized negatively thought by Rodrik and Rodriguez (2000) regarding positive contribution of trade openness to economic growth. Study concluded showed negative association between trade restrictions and economic growth.

Wachziarg and Welch (2003) concluded in their research work and found growth rate were remarkable for liberalized countries. The growth rate reported 1.5 percentage points higher over the period 1950-1998. Panagariya (2004) examined the evidence from cross-country regression and pointed out that the desirable growth cannot achieved without rapid increase in trade which require diminishing trade barriers. Criticism made by Rodrik and Rodriguez (2000) were analyzed and finally demonstrated that outward oriented policies are too crucial factors and cannot be ignored. They further elaborated that contradictions resulted among the researchers because of poor abilities to measure protective effects of trade restriction. Parikh and Stirbu (2004) documented that trade liberalization and economic growth for forty-two countries from three major regions that is from Asia, Africa and Latin America.

The study empirically demonstrated that a unit change in liberalization index bring on average base 1.62 percentage point change in growth rates. The study summarized findings and concluded that trade liberalization approaches boost to economic growth. Consecutive research papers of Warner (2003) criticized by Rodriguez (2007) conducted cross country analysis between trade liberalization policies and economic development. Wachziarg and Welch (2003), Dollar and Kraay (2002) concluded liberalization regarding trade policies are not related with economic growth and further elaborated positive or negative relationship between trade liberalization and economic growth may be possible but unsuccessful because data not represent sufficient and strong information. On the other side researchers carried out studies as empirically verified by Cuadros *et al.* (2004) along with trade openness, increasing in international capital flows is also integral component of outward oriented approaches.

Study investigated impact of liberalization particularly foreign direct investment in Mexico, Brazil and Argentina by examining trade and FDI links. The study concluded financial liberalization and trade as indicator of openness to achieve all benefits of trade liberalization approaches to be concentrated on complementary policies. Lopez (2005) analyzed literature and reached to conclusion that plant level data show firms, which interlink the export markets are more productive compare to non-exporters. He further explained that liberalization is enhancing economic growth in developing countries. The author reevaluated the literature on trade policies and provides sound arguments that the exporting enhances productivity and economic growth. Roberto *et al.* (2009) explored a sample of unbalanced panel dataset that included eighty two countries. Sample incorporates developed, developing, Sub-Saharn Africa, Asia and Latin America countries for the period 1960-2000. Their empirical results indicated that trade openess can enhance positively economic growth. Their findings further support that gains can be achieved by developing countries as a result of further reforms. The different channels evaluated by Andersen and Babula (2008) through which trade openness impact economic growth that is through the accumulation of capital (physical and human) and productivity growth speed up through faster innovative advancement.

In the context of Asian economies Mahmood *et al.* (2014) empirically verified economic growth improve as a result of increase in trade liberalization or reduction in average tariffs, while similar results also concluded by Lee (2010) trade liberalization significatly increase the inequality at certain defining point after then inequality start declining in the Asian economies. Jun (2015) empirically analysed the annual pannel data from 1960-2013 for eight SAARC countries. The result of panel cointegration estimation for various macro-economic variables indicated that foreign direct investment, human capital government, consumption levels and trade openness shown significant contribution to economic growth while, shown weak impact on economic growth. Jayanti and Haldar (2015) take into account main driver of economic growth for four major economies and take data range from 1996-2010.

The study concluded results that two institutional measures such as voice accountability and government effectives are significant indicators of growth. Study further explored physical as well as human capital positively contribute to economic growth while trade liberalisation policies negatively correlated with economic growth. Literrature regarding trade openess and economic growth have not reached to decessive solution wheather trade openess is the causing agent of economic growth or it may hinder economic growth documented by Dava (2012). The similar point also evaluated by Ulasan (2012) providing concrete evidence that theory not sucessfully explain trade-growth relationship.

2.1 Flaws and Alternative Approach

Contradictions originate among the researchers over trade openness and economic growth relationship**.** The causing factors of contradictions among researchers due to

poor or flawed measures of trade openness**.** Similarly, available conventional measure of trade openness (ratio of export + import to GDP) is endogenous because it is greatly affected by population regardless trade policy documented in the studies of Frankel and Romer (1999), Tahir (2013), Tahir and Azid (2015).

Therefore, this study focuses on SAARC member countries and using a new measure of trade openness recently developed to study the explicit relationship between trade openness and economic growth. The current study utilized both conventional measure of trade openness (ratio of export plus import to GDP) and ratio of industrial output to GDP a new measure of trade openness. Ratio of industrial output was proposed in the studies of Tahir and Norulazidah (2014) and has been implemented in the context of developing countries in a paper of Tahir and Azid (2015).

3. Model Specification

The study used is following empirical frame work to explored relationship between trade openness, economic growth and other determinants of economic growth. The model in general form can be summarize in production function as:

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

In equation 1 Y denotes economic growth which is measured through growth in real GDP per capita. K indicates physical capital which is measured through proxy variable, fixed capital formation as a percentage of GDP, while L indicates labor force which can be measured through active population ages between 15 to 64 years.

$$Y = f\left(K^{\alpha}, L^{\beta}, Hc^{\gamma}, Openk, inf\right) \tag{2}$$

Equation 2 indicates augmented production function by incorporating human capital, inflation and trade openness. The term Hc denotes human capital which can be captured through gross entrollement ratio at secondary level. Inf shows inflation which is measured through GDP deflator . The following log linear model is specified for empirical analysis:

$$grgdpc_{it} = B_0 + B_1 lnopenk_{it} + B_2 lnK_{it} + B_3\, lnHc_{it} + B_4\, lninf_{it} + B_5 glabf_{it} + U_{it} \tag{3}$$

In equation 3 ln indicate natural logarithem while, subscripts i denote cross-sectional unit. Small subcript t denote time dimension and U_{it} represent error term. Notatation $grgdpc_{it}$ denotes growth in real per capita GDP and used as the dependent variable which can be calculated by taking log difference while $glabf_{it}$ indicates growth in labor force which can also be calculated by taking log difference.

4. Data Sources, Variables' Measurement and Research Methodology

The current study focused on a sample for SAARC six member countries over the period 1990 to 2014. The data have extracted from WDI and Penn World Table version 7.1. List of countries and variables measurement are provided in Appendix 1 and Appendix 2.

The empirical analysis of study is based on panel data. Panel data capture characteristics of both time dimension and cross section dimension (Table 1). Generally, panel data model can be estimated through fixed or random effects estimator as documented by Dewan and Hussian (2001). Which model is appropriate for panel analysis either random or fixed model, the correct decision is taken based on Hausman test. Hausman test is applied and results suggest that the model should be estimated through fixed effect estimator rather than random effect. The results of Hausman test presented in Appendix 3.

Table 1. *Fixed effects estimation*

	Conventional Model 1	Instrumented Model 2	New measure Model3
Variables	Coefficient	Coefficient	Coefficient
Constant	-0.061211	-1.310958	-0.104328
LNOPENK	0.011631***	…….	……..
LNINST	…….	0.962284*	…….
LNINDS	……..	……..	0.035520*
GLABF	-0.071751	-0.103365	-0.102716
LNEDU	-0.007495*	-0.007868***	-0.013189*
LNINV	0.027835***	0.033770***	0.025632***
LNINF	-0.003498***	-0.003976**	-0.003033**
Statistical criteria			
R^2	0.51 9	0.515	0.528
R^2(Adj)	0.375	0.374	0.387
F(statistics)	3.6	3.5	3.7
Prob(F)	0.000000	0.000000	0.000000
Grpcgdp: growth of real per capita GDP, used as a dependent variable while *,** and *** denote level of significance at 10% ,5% and 1% respectively.			

Source: *Research findings.*

Table 1 demonstrated statistical results of conventional measure of trade openness (column 2) and instrumented trade openness (column 3) on economic growth. Empirical results are positive and statistically significant at 1% and 10% level of significance. The empirical results indicated that one-unit increase in conventional trade openness increases 0.0116-unit economic growth. Similarly, if instrumented trade openness increases by one unit, then economic growth increases by 0.96 units. The significant positive impact of trade openness on economic growth is consistent with the studies of Edward (1998), Dollar (1992), Frankel and Romer (1999), Tahir (2013) and Tahir and Azid (2015). The last column of Table 1 shows a new measure of trade openness that is the ratio of industrial output to GDP, which has significant

positive impact on economic growth. The statistical result indicated that one-unit increase in new measure of trade openness increases 0.035-unit economic growth. Statistical positive results regarding impact of new measure of trade openness on economic growth is consistent with the study of Tahir and Azid (2015). The statistical result shown new measure of trade openness (ratio of industrial output to GDP) can be also applicable to measure degree of trade openness therefore, it can also be used as an alternative measure of trade openness. The empirical results confirm positive relationship between measures of trade openness and economic growth.

Therefore, it is required for the SAARC member countries to remove all those barriers which may restrict outward oriented policies in order to gain desirable economic growth. The statistical result shows investment has highly significant impact on economic growth in the context of SAARC member countries. High investment significantly contributes to economic growth because investment increases capital stock, wellbeing and prosperity of the economies. The similar result regarding investment and economic growth is also concluded by Barrow's (2003), Tahir and Azid (2015) and Tyler (1981).

The unexpected negative result of education in the process of economic growth may be due nonlinear relationship or level of education that is secondary level education in the current study is not too effective to contribute directly to economic growth. Similarly, poor proxy variable is another responsible factor that is gross ratio instead of net enrollment ratio at secondary school level. The result regarding negative role of education to economic growth process is consistent with the research of Tahir and Azid (2015), Benhabib and Spiegel (1992), Rizavi *et al.* (2015) and Khattak and Khan (2012).

On the other side, other determinant such as labor force negatively contributes to economic growth but it is statistically insignificant. To dig out basic reason behind this negative relationship is that labor force increases at alarming rate more than the capacities of the economies in the SAARC member countries due to increasing population which may develop unemployment situation. On other side, majority labor force in the SAARC member countries are unfamiliar with supreme technology and tools of production as result the industrial sector are decline which may negatively contribute to economic growth. The result regarding insignificant role of labor force and economic growth is documented by Tahir *et al.* (2016) and Lacheheb *et al.* (2013).

The statistical results regarding inflation rate on economic growth is too harmful for economic growth because it has negative impact on economic growth. The similar result regarding inflation and economic growth also concluded by Judson and Orphanides (1996), Tahir (2013), Tahir and Azid (2015), Bassanini andd Scarpetta (2001), Azam and Ahmed (2015) and Mahmood *et al.* (2014). That is why, it is suggested to policy makers to take appropriate approaches to restrict frequent fluctuation in prices to reduce harmful impact of inflation on economic growth.

5. Conclusion

The main objective of the current study is to revisit empirical relationship between trade openness and economic growth in the context of SAARC member countries. Panel regression methodology was applied. The data sample range has taken from 1990 to 2014 six SAARC member countries. Empirical results indicated that trade openness has significant impact on economic growth in the context of SAARC member countries. Statistical result revealed both conventional measure of trade openness (ratio of export plus import to GDP) and new measure of trade openness (ratio of industrial output to GDP) significantly contribute to economic growth. The new measure of trade openness significantly contributes to economic growth that is why, it could be used a new alternative measure of trade openness in the future studies for time series and cross analysis purpose.

The SAARC countries are suggested to remove all those barriers which may restrict trade policies. SAARC member countries should require to import capital intensive products instead of labor intensive and traditional goods. Beside trade openness, other determinants such as domestic investment highly significant and played very active role in the growth process of SAARC member countries. The insignificant role of labor force in the growth process of SAARC member countries may be due to increased alarming rate of labor force much more than the capacities of the economies as a result unemployment situation are creating which negatively contribute to economic growth. Education and inflation are statistically significant but negatively contribute to economic growth. The negative impact of education on economic growth may be as a result of possible reasons. There may be a nonlinear relationship between education and economic growth. Other possible reason is the level of education in the current study which is not too effective to directly contribute to economic growth.

Other causing agent behind this negative relationship is poor proxy variable of education that is gross ratio instead of net ratio at secondary level. In the last it is found inflation has too adverse effect on economic growth which may negatively contribute to economic growth. Frequent variation in prices greatly reduces the purchasing power of fixed income earner and disturbs confident level of investors. In conclusion, the SAARC member countries are suggested to remove all those barriers which may retard economic growth. On other hand, other determinants also consider under the policy scope to gain desirable economic growth.

6. Policy Recommendations

By looking the empirical result of the current study the following suggestion are proposed in order to achieve the high economic growth. Trade openness significantly contributes to economic growth. Therefore, SAARC member countries are suggested to remove all those barriers which may retard trade policies. Liberalize outward oriented trade policies in order to gain more and more foreign exchange and capital

goods. SAARC member countries design policies in future in such a way to promote the concept of trade openness.

Inflation negatively contributes to economic growth. High inflation greatly affects the fixed income earners of the economies and confident level of investors. Therefore, it is required for policy makers in SAARC member countries to manage policies to avoid destructive effects of inflation. The Central banks of the SAARC member countries are suggested to develop well manage monetary policies in order to maintain low inflation.

The investment is highly significant and positively contributes to economic growth. Therefore, policy makers in SAARC member countries are suggested to encourage more and more investors in order to gain more capital stocks. Supreme capital equipment makes labors, business and countries more efficient in productivity. So, investment is the basic component of aggregate demand. Increase in investment lead to enhance productive capacity and wellbeing of the economy.

7. Future Research Directions

The unexpected negative relationship between trade economic growth and education can be improved by utilizing better proxy variable for education. New measure of trade openness (ratio of industrial output to GDP) as an alternative measure can be further utilizes rather than SAARC member's countries in order to examine a comprehensive relationship between trade openness and economic growth. Data sample and cross section dimension in the current study can be extended in the future to examine how the established relationship between dependent and independent variables deviate over time. In future in order to gain robust and comprehensive relationship among the variables other qualitative variables like political stability, exchange rate and corruption can also add to the model.

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Appendix 1: *List of variables included in the study*

Varibles	**Data sources and indentification of the variables**
Dependent variable $grgdpc_{it}$	The growth of real per capita GDP is used as a dependent variable.The data have taken from WDI.The growth rate is calculated by taking log difference
Independent variables	
$Lnopen_{it}$ Ln $instr_{it}$	Data on trade opennes are extrcted from Penn World Tables(PWT,7.1).Trade openness is the ratio of export+import to GDP.
$Lninds_{it}$	The instrumented trade openness is obtained by regression conventional trade openness(opens) on population.The estimated values of trade opennes then used as an instrumented for openness in order to controll endogeniety.
$Lnedu_{it}$	The new measure of trade openness that is ratio of industrial output to GDP is used as alternative measure for the degree of trade openness and the respective data are extracted from World Development Indicators.
$glabf_{it}$	Gross enrollement ratio were used as a proxy variable for education regardless of age and data have taken trom WDI.
$lninf_{it}$	For labor force proxy variable growth of active population agening between 15 and 64 years have taken and data obtained from World Development Indicators.
	The inflation rate is approximated by inflation GDP deflator(%annual)

Source: *World Development Indicator-World Bank Data Bank.*

Appendix 2: *List of sampled countries*

Pakistan	Bangladesh	sirLanka
Bhutan	Nepal	India

Source: *Research findings.*

Appendix 3: *Result of Hausman test*

Hausman test (Fixed effect vs. random effects)			
Test Summary	Chi-Sq.Statistic	d.f	Prob
Cross-section random	12.799370	5	0.0253

Source: *Resarch findings.*