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Trade – Led – Growth Hypothesis: An Empirical Investigation from Pakistan

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Abstract

The correlation between international trade and economic growth in least developed countries like Pakistan has been a great debated from both theoretical and empirical point of views. The study aims at finding correlation between international trade and economic growth in Pakistan by employing fully modified ordinary least square (FMOLS) technique for the long run estimates and error correction mechanism (ECM) for the short run estimates for the data of 1973 – 2007. The study concludes that international trade significantly increases economic growth in the long run and reducing economic growth in the short run hence indicating the fact that international trade is a long run phenomenon and trade-led-growth hypothesis works in Pakistan.

Keywords: International Trade, Economic Growth, Cointegration, Fully Modified Ordinary Least Square Method, Error Correction Mechanism.

1. Introduction

The advocates of broad-based growth examine that globalization and trade liberalization are considered as engine of growth. This reveals the significance of trade liberalization that in turn increases economic growth, hence leading to elevate welfare of the citizens of the state. The advocates add that trade enhances literacy rate that expands human capital and efficiency of the inputs. It ultimately strengthens rate of economic growth in the country. Since growth elevates in result of trade; learning and education spreads all over, division of labor improves, productivity improves, and it becomes easy to encourage further foreign direct investment in the country (Ko¨hler, 2002). Economic growth is an exceedingly complicated course, since it depends on many determinants like international trade, stock of capital, price mechanism, law

and order situation, political stability, credit creation etc. Trade-led growth hypothesis (TLGH) explains that an increase in exports and reduction in imports expand net exports that in turn increases foreign exchange earnings. High foreign exchange earnings elevate the returns to business class who ultimately expand production in the market that increases growth rate in the country. The supporters of the hypothesis are of the view that international trade results in efficient and optimal utilization of resources; that introduces economies of scale in the country and higher returns to the entrepreneurs who by reinvesting their profits, further expand rate of production and economic growth in the country and confirming the fact that trade acts as an "engine of growth".

Since least developed countries are subject to many obstacles like the existence of twin deficits, high rate of unemployment and poverty, low productivity, poor technology, misallocation of resources, no economies of scale and many more. Therefore, LDCs must channelize their resources in order to come out from the state of backwardness. The researchers opine that trade comprises of direct and indirect benefits and trade directly promotes specialization and division of labor which increases production that results in economic growth, it also widens the markets for the products, resources are optimally utilized, unemployment declines, savings and investments expand, inflow of factor inputs in export sector also increases leading to generate greater backward and forward linkages with the other sectors in US Watkins (1963). Indirectly trade increases the availability of machinery, capital goods, raw materials etc, technical and non-technical knowledge, availability of foreign capital and it also removes monopolies. In LDCs trade is the key determinant that can heighten economic growth in the country. Policy makers and advisors ought to design and formulate policies that expand net exports in the country leading to strengthen economic growth.

2. Literature Review

Baldwin *et al* (1999) investigated that the role of foreign direct investment and multinational corporations by using a theoretical growth model on the industry level data of seven OECD nations and argued that FDI is a long run process that brings technological spillovers whereas multinational corporations (MNCs) directly affect the endogenous growth rate via technological spillovers. Dollar *et al* (2001) estimated that rich countries are getting more benefits as compare to poor ones during 1980s and globalization has led to faster growth and poverty reduction in poor countries after controlling for changes in other policies and

addressing endogeneity with internal instructions, and its affect on poverty by using cross country growth regression.

Grossman *et al* (2002) investigated that outsourcing is the preferred option for the most productive firms in an industry because principals of the firms who want to induce a high level of effort are able to pass long input costs to a supplier but not to a manager by using mathematical approach of profit maximization. Lehmann (2003) examined that good economic policy and trade openness and total factor productivity (TFP) work in the long run in a better way in order to uplift economic growth. The AK-model, Johansen cointegration and Distributed Lag model are applied to find the association of the variables. Feenstra *et al* (2003) explored that the countries having a greater product variety in exports have higher productivity. They made an attempt to measure product variety in trade by using a mathematical technique of CES production. Lopez (2003) examined that NEFTA has a negative effect on trade balance during the immediate two years after NAFTA came out and Mexico has affected its long run economic growth rate and the raised income elasticity of demand for imports has reduced the speed of long run equilibrium growth rate in Mexico. Ordinary Least Square is applied on the yearly based data of GDP and balance of payments.

Atique *et al* (2004) intend to analyze the facts of trade policy regime on the contribution of FDI to economic growth using time series data over the period 1970-2001 from Pakistan economy by using Cobb-Douglas production function to show the impact of foreign direct investment (FDI) on Pakistan's economic growth and empirical findings conclude that the impact of FDI on economic growth tends to be greater under an export promotion trade regime as compared to an import substitution regime and FDI can stimulate human resource development, stock of human capital and productivity of labor and other production factors hence suggesting export promoting strategies to boost economic growth in the country. Lopez (2005) developed a literature review on trade, growth and trade policies and found that entering into trade (especially in exporting the products), productivity increases which takes the economy on growth path. Feenstra *et al* (2006) explored the impact of labor productivity on economic growth focusing on IT developments over the period of time and investigated that an improvement in pure terms of trade can raise nominal GDP in much the same way as a gain in productivity. If export and import prices move together unless net export equals zero, the prices also affect nominal GDP through a trade imbalance affect by using a Tornquist

formula to calculate price indexes for imports and exports, both indexes grow more slowly but import index grow more slowly as compared to export index. Feenstra *et al* (2006) empirically testify that the richer countries supply and demand high quality products by using demand function side by side with production function on detailed bilateral trade data for over 100 countries from 1984 to 2002.

Afonso (2007) on the impact of commercial and technological aspects, resulting from international trade, on the physical accumulation and quality of productive factors comment on literature review regarding theory of economic growth and theory of international trade and concluded that there has been a positive and negative impact of recent development inside the international trade in the past that makes the relationship between trade and growth more interesting. Khan *et al* (2007) empirical examined the positive impact of financial sector development index (FSDI), real deposit rate (RDR) and trade openness (TOPEN) on the real output in the long run but financial sector development index (FSDI) has a negative and trade openness has a positive impact on the real output in the short run over the annual observations of the period of 1961 – 2005 by using bound test approach of co integration within the framework of Autoregressive Distributed Lag (ARDL) model. Hussain (2007) examined that trade liberalization does faster up economic growth and reduced poverty in Pakistan who can gain from trade through growth-inducing tendencies of trade liberalization and development expenditures.

Nath *et al* (2007) empirically examine that growth results trade and trade causes inequality in Bangladesh over the period of 1971 to 2000 by applying vector autoregressive (VAR) model on eight variables like trade, growth, inequality, investment, inflation, terms of trade, fiscal and real exchange rate. Chen (2009) explored that foreign trade does paced up the economic growth of a country with the arguments of modern empirical economics. Yen (2009) investigated positive impact of trade liberalization on Vietnam's economic growth by using 3 SLS regression.

3. Data Source, Modeling and Methodological Framework

3.1 Data Source

The data of GDP per capita (GDPC), trade as share GDP (TR), domestic credit to private as share of GDP (FD) and government final consumption expenditures as share of GDP (GS) has been obtained from world development indicators (CD-ROM, 2008). The economic survey (various issues) of Pakistan has been combed for annual inflation (INF), remittances as share of GDP (REM) and manufacturing value-added as share of GDP (M). The data period of present study starts from 1973 up to 2007.

3.2 Modeling

The log-linear specification has followed for empirical estimation. Log-linear functional form provides better and comprehensive results as compared to simple linear specification. The algebraic equation is being modeled as given below following the economic theory:

$$LGDPC = \lambda_1 + \lambda_2 LTR + \lambda_3 LFD + \lambda_4 LGS + \lambda_5 INF + \lambda_6 LREM + \lambda_7 LM + \mu_t \qquad (3.1)$$

Where;

GDPC = Real GDP per capita

TR = Trade as share of GDP (exports + imports) / GDP (+)[2]

FD = Financial development proxies by (domestic credit to private sector/GDP) (+)

GS = Government spending as share of GDP (-)

INF = Annual inflation (-, +)

REM = Remittances as share of GDP (+)

M = Manufacturing value-added as share of GDP (+)

3.3 Methodological Framework

3.3.1 Johansen maximum likelihood (ML) approach

Functional forms of model are computed by applying the cointegration test. The test that empirically explores the interrelated association between the two variables in the long run span of time is named as cointegration test. This test is relevant for the series that smooth and stationary at first difference. Moreover, the existence of stable linear correlation among the variables in the long run validates that there exists cointegration among the variables. The

[2] Expecting signs are given in parenthesis

evolution of this approach goes back to the work of Engel and Granger (1987) that formulated and presented the Johansen cointegration technique for the first time. Afterwards, this approach was presented by Stock and Watson (1988); Johansen (1988) and Johansen and Juselius (1990) with certain modification. This approach aims at investigating interrelationship between the variables in the long run. The present study aims to scrutinize the long run association between the explained and explanatory variables; therefore, Johansen maximum likelihood (ML) test is applied to compute the connection between the variables in the long run. The present study comprises small data size; therefore, it permits and allows to apply this approach. Additionally, the approach is also useful and significant in the sense that it facilitates to investigate the various long run associations between the variables simultaneously. The literature examines that the existence of inter correlation between the variables can be diagnosed by applying two tests such as trace test and maximum eigen value test. The steps which reveal the understanding to compute these statistics can be derived below:

If presume that a vector Xt (that is n X_1) of sample t; is assumed to pursue a course of action of stationarity at first difference which ultimately represents the number of vectors of cointegration. This method derives vector error correction mechanism that is given below:

$$\Delta X_t = \mathrm{A}_0 + \Pi X_{t-p} + \sum_{i=1}^{p-1} \mathrm{A}_i \Delta X_{t-1} + \varepsilon_t \quad \textbf{(3.2)}$$

The equation **(3.2)** contains "ΔXt" and "ΔXt-1" vectors. These variables are interconnected to each other at first difference so, order of integration is I(1). Equation **(3.2)** converts into vector autoregressive model at a point where "r" becomes equal to zero. The rank and order of the matrix "Π" determines stable association among vector Xt in the long run. The term "r = 0" depicts that there does not persist any cointegration among the variables at level. If the range of the term "r" is 0 < r < n; then it represents that there are nXr matrices along with the parameters "α" and "β" that is shown in equation **(3.3)**:

$$\Pi = \alpha\beta' \quad \textbf{(3.3)}$$

The degree and strength of the vectors that how strongly they are connected and linked to each other can be computed by using the parameters “α” and “β”. However, the vector Xt is integrated at first difference and the vector $\beta' X_t$ is integrated at level. The series (A0, A1,….., Ap-1, Π) can be computed by applying the maximum likelihood approach, whereas “Π” is the

matrix of vectors given in equation **(3.2)**. All the constants and parameters are examined and computed by applying two steps approach. Firstly, the vector ΔXt is solved for the series such as ΔXt-1, ΔXt-2, …., ΔXt-p+1 in order to obtain an error term "$\hat{\mu}_t$". Secondly, the residual "$\hat{e}_t$" is being obtained by simplifying the series ΔXt-1, ΔXt-2, …., ΔXt-p+1. The variance – covariance matrix is examined and explored by using the error terms "$\hat{\mu}_t$" and "$\hat{e}_t$" such as:

$$\sum\nolimits_{uu}^{\wedge} = \left[\frac{1}{T}\right]\sum_{t=1}^{T}\hat{u}_t\hat{u}_t'$$

$$\sum\nolimits_{ee}^{\wedge} = \left[\frac{1}{T}\right]\sum_{t=1}^{T}\hat{e}_t\hat{e}_t'$$

$$\sum\nolimits_{ue}^{\wedge} = \left[\frac{1}{T}\right]\sum_{t=1}^{T}\hat{u}_t\hat{e}_t'$$

The parameter "β" is calculated for ML by simulating the following expression:

$$\left|\lambda\sum\nolimits_{ee}^{\wedge} \quad -\sum\nolimits_{eu}^{\wedge} \quad INV\,(\sum\nolimits_{uu}^{\wedge} \quad)\sum\nolimits_{ue}^{\wedge} \quad\right| = 0$$

From the previous expression; the term "λ" represents eigen value and these values are $\hat{\lambda}_1 > \hat{\lambda}_2 > \hat{\lambda}_3 > ..... > \hat{\lambda}_n$; that means each next eigen value is less than the previous eigen value. The estimated vectors are $\hat{\beta} = (\hat{\beta}_1, \hat{\beta}_2, ...\hat{\beta}_n)$ that can be expressed in the form of integration as $\hat{\beta}'\sum\nolimits_{ee}^{\wedge}\hat{\beta} = I$. Additionally, the both null and alternative hypotheses are investigated once the standardized test is obtained. The tests for finding the long run association between the variables are derived below:

$$\lambda\text{trac} = \text{LA} - \text{L0} \qquad \textbf{(3.4)}$$

and,

$$L_0 = -\left(\frac{Tn}{2}\right)\log(2\prod) - \left|\frac{Tn}{2}\right| - \left(\frac{T}{2}\right)\log\left|\sum\nolimits_{uu}^{\wedge}\right| - \left(\frac{T}{2}\right)\sum_{i=1}^{h}\log(1-\hat{\lambda}_i)$$

where

$$L_A = -\left(\frac{Tn}{2}\right)\log(2\prod) - \left|\frac{Tn}{2}\right| - \left(\frac{T}{2}\right)\log\left|\sum\nolimits_{uu}^{\wedge}\right| - \left(\frac{T}{2}\right)\sum_{i=1}^{n}\log(1-\hat{\lambda}_i)$$

Therefore

$$L_A - L_0 = -\left(\frac{T}{2}\right)\sum_{i=1+h}^{h}\log(1-\hat{\lambda}_i)$$

$$2(L_A - L_0) = -T\sum_{i=r+1}^{h}\log(1-\hat{\lambda}_i)$$

The above expression exposes that the eigen values are estimated by pursuing the series $\hat{\lambda}_{r+1},.....\hat{\lambda}_p$ for obtaining the maximum numbers of vectors that are strongly connected to each other in the long run. The way that represent null hypothesis is that the term "r" should be less than equal to 0 if researchers are keen to investigate one cointegrating vector, and if more cointegrating vectors are desired to be explored then the null hypotheses can be less than equal to 1,2,3,4, ... The maximum eigen value test is represented in its mathematical form as:

$$\lambda_{\max} = -T\ \log(1-\hat{\lambda}_{r+1}) \quad \textbf{(3.5)}$$

Equation **(3.4)** and equation **(3.5)** encourages the econometricians and researchers to investigated whether the variables are connected to each other in the long period of time or not; but, the long run association becomes misleading in the absence of lag length criteria. Therefore, length of the lags should be computed before to explore long run association between the variables. The literature limits the researchers to the least value of both Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC) in order to diagnose the length of the existing lags. The equation is being constructed to simplify the results for the association and interrelationship of variables in short run period of time, which is given as below:

$$\Delta LGDPC = \delta_1 + \delta_2\Delta LTR + \delta_3\Delta LFD + \delta_4\Delta LGS + \delta_5\Delta INF + \delta_6\Delta LREM + \delta_7\Delta LM + \eta ecm_{t-1} + \mu_t$$

……(3.6)

4. Empirical Interpretations

The study examines descriptive statistics and correlation matrix by using normality test that reveals the existence or exclusion of normal distribution. The computed results are given in Table 4.1.

Table 4.1: Descriptive Statistics and Correlation Matrix

Variables	LGDPC	LFD	LGS	INF	LTR	LREM	LM
Observations	35	35	35	35	35	35	35
Mean	9.5129	3.2687	2.4107	9.0158	3.5204	1.3812	2.7887
Median	9.5147	3.2938	2.4124	8.2600	3.5397	1.5727	2.7756
Maximum	10.2371	3.5112	2.8204	26.6600	3.6612	2.3608	2.9522
Minimum	8.9508	2.9396	2.0584	2.9100	3.3221	-0.6143	2.6862
Std. Dev.	0.3646	0.1191	0.1839	5.4193	0.0893	0.7491	0.0631
Skewness	0.2618	-0.5989	0.0729	1.6491	-0.5685	-0.9714	0.8851
Kurtosis	2.2256	3.6438	2.7295	5.7384	2.6072	3.3039	3.6526
LGDPC	1.0000						
LFD	0.4438	1.0000					
LGS	-0.3179	0.3878	1.0000				
INF	-0.5007	-0.4692	0.1244	1.0000			
LTR	0.2031	0.3823	0.4719	0.1734	1.0000		
LREM	0.1333	0.4372	0.0718	-0.6064	0.1271	1.0000	
LM	0.5225	0.3902	0.1378	0.0681	0.5124	0.0884	1.0000

Table 4.1 represents the descriptive statistics and pair-wise correlations and concludes that the distribution is normal. Now Table – 4.2 exposes the unit root problem and its elimination at first difference by applying ADF test. This similarity of order of integration implies to apply Johansen cointegration approach for long run relationship. It is imperative to select lag length in order to apply Johansen cointegration approach and lag length of variables is selected on the basis of minimum value of AIC which is 2 and it is shown in Table – 4.3. Table – 4.4 represents the long run association among the variables selected in the model.

Table 4.2: Unit Root Problem

Variables	ADF at Level		ADF at 1st Difference	
	t- values	Prob-value	t - values	Prob-value
LGDPC	0.999347	0.9956	-4.688642	0.0007
LTR	-2.524432	0.3151	-4.637952	0.0041
LFD	-3.082132	0.1270	-5.616789	0.0003
LGS	-1.787547	0.6879	-3.786484	0.0306
INF	-2.392288	0.3761	-3.704479	0.0006
LREM	-2.893939	0.1772	-4.310677	0.0089
LM	0.684104	0.8586	-4.076964	0.0002

Table 4.3: Lag Length Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	40.45163	NA	3.11e-10	-2.027371	-1.709930	-1.920562
1	227.0813	282.7723	7.94e-14	-10.36857	-7.829038*	-9.514092
2	289.0054	67.55347*	5.59e-14*	-11.15184*	-6.390225	-9.549701*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Short Run Diagnostic Test

Serial Correlation LM Test = 0.4780 (0.6262)
ARCH Test = 0.7507 (0.3931)
Normality Test = 1.3243(0.5157)
White Heteroskedasticity Test = 3.9091 (0.0047)
Ramsey RESET Test = 3.4812 (0.0748)

Table 4.4: Johansen First Information Maximum Likelihood Test for Co-integration

Hypotheses	Trace test	5 % critical value	Prob-value**	Hypotheses	Max Eigen Statistic	5 % critical value	Prob-value
R = 0	314.4869	125.6154	0.0000	*R = 0*	105.1571	46.2314	0.0000
R ≤1	209.3298	95.7536	0.0000	*R= 1*	75.1138	40.0775	0.0000
R ≤2	134.2160	69.8188	0.0000	*R = 2*	60.8341	33.8768	0.0000
R ≤3	73.3818	47.8561	0.0000	*R = 3*	41.8760	27.5843	0.0004
R ≤4	31.5057	29.7970	0.0315	*R = 4*	17.5916	21.1316	0.1459
R ≤5	13.9140	15.4947	0.0853	*R = 5*	11.6346	14.2646	0.1251
R ≤,6	2.2794	3.8414	0.1311	*R = 6*	2.2794	3.84146	0.1311

Note: Trace test indicates 5 cointegrating eqn(s) at the 0.05 level. Max-Eigen Statistic indicates 4 cointegrating eqs(s) at 0.05 level of significance.* denotes rejection of the hypothesis at the 0.05 level. **MacKinnon-Haug-Michelis (1999) p-values

Johansen information maximum likelihood approach comprises two statistics (i) Trace statistics and (ii) Maximum Eigen statistics; the computed results diagnose that there persist long run association among the variables. Estimated results can be viewed in Table – 4.4. There is no long run association among the variables is taken as null hypothesis and it is examined across the alternative hypothesis that there persist long run connectivity among the variables in the long run. The first hypothesis of no long run association among the variables is

investigated by the trace test and its computed value (314.4869) validates that the tabulated value (125.6154) of trace test for the first null hypothesis is less than the computed value of trace test; hence indicating that there persist long run association among the variables. The second hypothesis of no long run association among the variables is explored and the estimated value (209.3298) of trace test again confirms that the tabulated value (95.7536) of trace test is less than the calculated value, hence concluding that there is long run connectivity among the variables. Besides this, the maximum eigen test is another tool to diagnose the long run association of trade and economic growth in addition to other factors of economic growth. The first hypothesis of no long run association among the variables is empirically testified and its computed value (105.1571) confirms that the tabulated value (46.2314) of eigen value test for the first null hypothesis is less than the calculated value of eigen value test; hence indicating that there persist long run association among the variables. The second hypothesis of no long run association among the variables is scrutinized and the computed value (75.1138) again verifies that the tabulated value (40.0775) is less than the calculated value, hence concluding that there is long run connectivity among the variables.

On the same grounds, the study diagnoses analytically all the hypothesis of no long run association against the alternative hypothesis of long run association among the variables and concludes that there persist five vectors that show long run association as per examined by trace statistics and there are four cointegrating vectors between trade and economic growth including all the determinants of economic growth according to maximum eigen value test in Pakistan for the period of 1973 - 2007.

Table – 4.5 discloses the whole picture for the long run estimates. The empirical evidence shows that 1 percent increase in domestic credit to private sector increases economic growth almost by 0.66 percent, hence indicating that financial development stimulates economic growth in the country. The findings are consistent with economic literature on financial development and economic growth e.g., Levine and Renelt (1992), King and Levine (1993), Levine et al. (2000), Ang and Mckibbin (2007), Ang (2008, 2009) and Shahbaz (2009). The impact of government spending is negative and highly significant. This shows that high proportion of non-development expenditures in Pakistan results in elevating inefficiency that decline economic performance of the country. Moreover, the pace of economic growth is slow down in the country if the volume of government expenditures elevates and vice versa. This

inverse relationship seems to support the view by Shahbaz (2009). Inflationary environment in the country significantly reduces the speed of economic growth through its detrimental channels. This also shows that high rate of inflation lowers purchasing power of the people leading to reduce demand for goods and services that further reduces incentives to business class hence declining the pace of economic growth.

Table : 4.5 Long Run Results

Dependent Variable = LGDPC			
Variable	**Coefficient**	**t-Statistic**	**Prob-Value**
Constant	-0.8950	-0.6105	0.5464
LFD	0.6587	1.7412	0.0926
LGS	-0.9695	-4.8224	0.0000
INF	-0.0448	-5.2939	0.0000
LTR	1.2060	2.6560	0.0129
LREM	-0.1974	-3.8074	0.0007
LM	0.2518	4.2933	0.0002
R-Squared = 0.8181 Adj-R-Squared = 0.7791 Akaike info Criterion = -0.512 Schwarz Criterion = -0.201 F-Statistic = 20.991 Prob(F-Statistic) = 0.000 Durbin-Watson = 1.661			

The empirical exercise shows that trade openness is significantly, strongly and positively linked with economic growth and summarizes that trade openness is the main contributor to strengthen economic growth in Pakistan, hence validating that there persist trade-led-growth hypothesis in the country. Besides this; more the volume of remittances, higher will be the decline in the rate of economic growth. This is argued that remittances are misused and misallocated so, rather to improve the speed of economic growth; it is deteriorating the rate of economic growth in the country. Finally, manufacturing value-added promotes economic growth. The development in manufacturing sector generates employment and returns to the factors of production that tends to increase the aggregate demand in the country, hence increasing the pace of economic growth.

Now using equation no 3.6 to find out short run results of the present study and equation 3.6 is given below:

$$\Delta LGDPC = \delta_1 + \delta_2 \Delta LTR + \delta_3 \Delta LFD + \delta_4 \Delta LGS + \delta_5 \Delta INF + \delta_6 \Delta LREM + \delta_7 \Delta LM + \eta ecm_{t-1} + \mu_t$$

……(3.6)

Table – 4.6 summarizes the results for short run coefficients that are attained by using error correction method. The pace of adjustment can be viewed by the coefficient of ECM (***ecm*$_{t-1}$**) i.e. how quickly/ slowly variables go back to stability. The literature exposes that ***ecm*$_{t-1}$** should be having considerably negative sign at high level of significance. The hidden and stable equilibrium in the dynamic short run model can be reestablished by the pace of adjustment of the coefficient ***ecm*$_{t-1}$**. The long run stable equilibrium is being obtained with the existence of significant negative coefficient of ***ecm*$_{t-1}$**. Bannerjee *et al* (1998) explores that long run association among the variables can easily be estimated by the coefficient ***ecm*$_{t-1}$**. The coefficient of ***ecm*$_{t-1}$** is (-0.0735) and significant with 10 percent significance level for the short run model. This illustrates that long-term deviation in growth is corrected each year by 7.32 percent, hence indicating slow speed to adjust to long run equilibrium.

Table : 4.6 Short Run Relationship

Dependent Variable = ΔLGDPC			
Variable	**Coefficient**	**t-Statistic**	**Prob-value**
Constant	0.0384	6.4416	0.0000
ΔLFD	-0.1129	-0.9349	0.3591
ΔLGS	-0.1436	-1.9438	0.0637
ΔINF	-0.0001	-0.0531	0.9580
ΔLTR	-0.1932	-1.6868	0.1046
ΔLTR$_{t-1}$	-0.1773	-2.4486	0.0220
ΔLREM	-0.0010	-0.0708	0.9441
ΔLM	0.5348	2.1047	0.0460
ecm$_{t-1}$	-0.0735	-1.8270	0.0801
R-Squared = 0.4002 Adj-R-Squared = 0.2003 Akaike info Criterion = -3.525 Schwarz Criterion = -3.117 F-Statistic = 2.002 Prob(F-statistic) = 0.090 Durbin-Watson = 2.083			

The short run evidence reveals that financial development has an insignificant and adverse impact on economic growth that means 1 percent increase in financial development lowers economic growth by 0.1129 percent. This shows that economic growth could not attain

benefits from financial development in the country in short run; hence indicating that financial development is not a short run phenomenon. The volume of non-development government expenditures have significant and adversely impact on economic growth in the short run as well. The reason is that the high size of non-development expenditures raises inefficiency of the inputs that leads to slowdown the pace of economic growth. This shows a 1 percent increase in the volume of government spending leads to reduce rate of economic growth by 0.1436 percent. Besides this, increase in inflation is also insignificantly damaging economic growth in both short run and long run and it shows that 1 percent increase in inflationary pressure reduces economic growth by 0.0001 percent in the country. The study empirically finds that trade openness and its lag term diminish rate of economic growth, hence indicating that trade-led growth hypothesis does not persist in the short run. Macroeconomic shocks are subject to short run so these shocks move an economy towards crises situation. Remittances have to be utilized productively to attain high growth but it is not true in Pakistan, it shows that 1 percent increase in remittances reduces 0.001 percent economic growth and indicates that the opportunities that could improve socio-economic environment in the country are not availed, hence economic growth declines in the country. The empirical evidence shows that manufacturing sector is the main contributor to economic growth that is 1 percent increase in manufacturing sector increases rate of economic growth by 0.5348 percent in the country. It shows that an improvement in manufacturing sector brings overall increase in production and employment that elevate the returns to factors of production, hence raising economic growth.

5. Conclusion and Recommendations

5.1 Conclusion

Section V reveals conclusion and recommendations of the present study scrutinizes the correlation between trade openness and economic growth in addition to other determinants of economic growth. The Johansen cointegration technique is applied for cointegration whereas error correction method is used for short run impacts of independent variables on dependent actor. The period starts from 1973 to 2007.

The empirical evidence reveals that financial development impacts economic growth positively and significantly in the long run but its role is insignificantly negative in the short run. Present study empirically finds that; as volume of government expenditures expands in Pakistan the economic growth declines significantly in both periods. The study also shows that

inflation is significantly and inversely linked with economic growth in long run but it is insignificantly and inversely linked with economic growth in short run. The study investigates that expansion of trade significantly promotes economic growth in long run period of time but it significantly declines economic growth in short run. This reveals that as exports of a country like Pakistan move in upward direction, she earns high foreign exchange which increases higher profits to the firms in the country leading to increase production which resultantly expands growth rate in the country. This confirms the existence of trade led growth hypothesis in the long run. Additionally, increase in remittances contributes positively to economic growth only in long run but it lowers economic growth insignificantly in the short run. This study also examines the importance of manufacturing sector which also plays its vital role to enhance economic growth significantly in both periods of time. The study concludes that trade led growth hypothesis works in Pakistan.

5.2 Recommendations

The study comprises of the following policy recommendations.

i. Agriculture sector of Pakistan is more burdened because of disguised unemployment which should be mobilized to the sectors where their absorption is required by offering them value added services and high returns. The process of urbanization raises production and efficiency of all the sectors leading to generate high employment, high growth rate and high poverty reduction.

ii. Proportion of development expenditures (expenditures on infrastructure, education and training, research and development, health facilities, electricity and technological spillovers etc) should be increased as compared to non-development expenditures. It will condense inefficiency of all the sectors and the inputs of these sectors, leading to encourage the production and their returns, hence economic growth expands and poverty declines.

iii. Political and law and order stability are also an important instruments that cause stabilization in the economy, if these tools should be ensured to be stabilized in the country then not only should domestic investors raise investments but also foreign investors feel secure to invest in the country. The raised investments lead to strengthen the economy.

iv. Tax exemptions for all newly installed industries up to five years so that; the process of industrialization expands in the country that results in high production, income and employment leading to shrink poverty in the country.

v. Government must aim to stop illegal exports to abroad. This ensures the removal of deficit in food items. This brings stabilization in domestic price mechanism that stops misallocation of resources in the country leading to increase efficiency of the inputs in the market. This encourages all the investors to invest more in the market, that raises production, hence more production expands high economic growth in the country.

These are few of the suggestions that contribute in expansion of economic growth and reduction of poverty via international trade.

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