An empirical analysis of agricultural export on economic growth: A case study of Pakistan

Dilshad Ahmad *, Jamil Ahmad

Department of Management Sciences, COMSATS Institute of Information Technology, Vehari, Pakistan

A B S T R A C T

This study has focused to analyze the influence of agricultural and non-agricultural export on economic growth in Pakistan obtaining annual time series data from 1972 to 2014. Gross domestic product, labor force, capital formation, agriculture exports, non-agriculture exports, exchange rate and consumer price index are prominent variables of the study. Johansen cointegration, Error Correction Model (ECM) and Granger Causality econometric approaches have employed for empirical analysis of the study. Labor force and exchange rate stationary at 1st difference while all other variables are stationary at level. According to empirical estimates, long run equilibrium exists among agriculture exports and non-agriculture exports. Error correction model estimates have justified the existence of short run equilibrium among variables of the study. Agriculture must have significant importance, increasing productivity through priority policy measures of adequate provision of inputs, infusion of innovative mechanization and minimization of market imperfection. Potential productivity in agriculture more desirable goal and agro-based industries must familiarized in agriculture to export value added goods rather than raw material to increasing foreign exchange earning of country.

1. Introduction

Classical and modern economist's theories have significant role in policy measures of international trade, exports and imports. Gain from trade through specialization of production was a masterpiece work of Classical school of thought in economic growth and development. International trade have significant role in economic growth Marshall (1890). Applicability of export led growth hypothesis has justified with bounty of empirical work of trade literature. In short run analysis Keynesian theory has focused the dominant role of foreign exchange multiplier in increasing export growth with further multiple increases in income growth. In secondary procedure of multiplier, exports increases foreign exchange, which significantly sponsors importing as infusion of mechanization, capital goods and manufactured goods as indirectly boost up economic growth in the economy. In third stage, significant developments have injected in the economy with infusion of up-to-the-minute mechanization,

expanded capacity of optimal utilization of resources with economies of scale, boosting up competition, such uprights indirectly way out of export promotion growth. In last stage, more exports have optimistic impact on economic growth; considerably promote positive externalities, improved expertise in production, and sophisticated technical expertise from rival in competition and significant managerial competencies for accuracy in production practices Faridi (2012).

Generally, most of developing economies have contingent with agriculture sector, which is currently playing significant role in provision of nutritional wants and employment of major population. In Pakistan, agriculture historically contributing major role in economic growth and now it is sharing the second largest sector of country subsequent to manufacturing. Agriculture sector is contributing 42.3 percent in employing labor force and 19.5 percent in gross domestic product of the country.

Agriculture sector is considering main source of nourishment basket, engagement of population and coactive partner to industrial sector with adequate supply of raw material in developing countries. Pakistan is sited as 40th largest economy with gross domestic product of 271 billion US dollars and 26th largest economy accordingly to purchasing power

parity of the world. Pakistan exports remained rigorous to few items which contributed major share 69.3% in the exports cotton and cotton manufacture 55.4 % rice 8.8 % and leather 5.1% and all others exports contributes just 30.7%. Raw material and low value added products exports generate lower foreign exchange to economy as compared to imports.

In literature, phenomena of export led growth has significantly justified with empirical work of exports promotion as engine of economic growth and development. Developing countries generally have agrarian economies such economic pattern have priority importance for agricultural countries to promote agricultural exports for economic growth in the economy. Multidimensional work and divergence empirical findings have found in literature, which justly panel, time series and cross sectional studies. Numerous econometric techniques, Simple correlation coefficient techniques, Regression techniques with neo classical growth accounting equations and Causality tests of Granger causality test have employed in literature for empirical estimation of the studies. In preceding literature of exports and economic growth, studies of Ohkawa and Rosovsky (1960), Johnston and Mellor (1961), Chenery and Strout (1966), Michaely (1977), Balassa (1978), Heller and Porter (1978), Tyler (1981), and Kormendi and Mequire (1985) have employed Simple correlation coefficient technique analyzing relationship regarding export. Empirical findings of these studies have justified significant and positive correlation between export and economic growth. The studies of Voivodas (1973), Feder (1983), Balassa (1985), Ram (1987), Siamwalla et al. (1991), Sprout and Weaver (1993), Ukpolo (1994), and Vohra (2001) have used regression approach to analyzing export and economic growth nexuses.

In literature the studies of Jung and Marshall (1985), Darrat (1987), Chow (1987), Sephto (1989), Kunst and Marin (1989), Sung-Shin et al. (1990), Bahmani-Oskooee et al. (1991), Ahmad and Kwan (1991), Matsuyama (1992), Serletis (1992), Khan and Saqib (1993), Dodaro (1993), Jin and Yu (1995), Holman and Graves (1995), Ahmad and Harnhirun (1996), Shan and Tian (1998), and Konya (2006) have used Granger causality test for empirical causality relationship of export and economic growth. Empirical findings of these studies have indicated significant and positive Causality relationship subsisted export and economic growth. Cointegration in original time series is necessary for applicable estimation of results. Absence of cointegration in original time series indicates the problem of causality and spurious estimation. The contemporary studies of Kugler (1991), Serletis (1992), Oxley (1993), Bahmani-Oskooee and Alse (1993), Dutt and Ghosh (1994), Ghatak et al. (1997), Rahman and Mustafa (1997) and Islam (1998) have investigated export and economic growth employing econometric technique Cointegration, Error Correction models to overcoming problem as original time series not cointegrated.

In developing countries, agriculture sector is playing dominant role in economic growth. Frequent literature in research of empirical findings has investigated significance of export growth as prerequisite to economic growth. Agriculture sector is playing considerable role in promoting economic activity of developing countries. In developing countries trade of agriculture export has major contribution in total exports and economic growth while this area not properly explored, minor literature vacant in this pattern, which focused substantial role of agriculture exports. Johnston and Mellor (1961) have focused on magnifying agricultural exports to mounting income and foreign exchange earnings. Quddus et al. (2005) have analyzed export and growth in Pakistan employing Johansen Cointegration approach for the period of 1971- 2004. Empirical findings of the study have significantly supported the vision of export led growth hypothesis and boost up exports. Azam (2012) has empirically examined influence of export and FDI on economic growth employing annual time series data obtained from 1971-2009. Results of the study have indicated significant effect of exports and FDI on economic growth.

Faridi (2012) has deliberated contribution of agriculture exports to economic growth in Pakistan. The study has obtained annual time series data 1972-2008 to quantifying relationship GDP, agriculture exports and non-agriculture exports through Johnson Cointegration approach. Empirical findings of the study have indicated negative and significant influence of agricultural exports on GDP and bidirectional causality found in agricultural exports and Gross Domestic Product. Shah et al. (2015) have studied agricultural exports and economic growth in Pakistan. The study has focused to evaluate impact of agricultural exports on macro-economic performance estimated through employing Johansen cointegration approach for 1972-2008 of Pakistan. Empirical findings of the study have reported agricultural exports negative and nonagricultural exports positive relation to economic growth.

Shah et al. (2015) have examined the relationship of agriculture production and economic growth, obtaining panel data from 1960 to 2014. The study has concentrated the rapport agriculture production and economic growth, assessed based on categorized of rich, middle and poor income nations. Empirical findings of the study has pronouncement indicated, agriculture sector main source of income and employing industry poor to nations as compared to rich nation minor portion of population

In current era, world is a global economy and concept of closed or Autarky economy has vanished. Increasing exports is mainly desirable goal of all economies of the world. Trade imbalances are consider burning issue to developing economies due to exporting agro based raw material or low value added commodities and importing manufactured high value added capital goods. A least number of work regarding to agriculture exports vacant in

literature, which contributed to explore this issue while still more need to explore to overcome such influencing matter. Empirical studies of Faridi (2012) and Shah et al. (2015) have specified the agriculture exports. Findings of the studies have investigated negative impact of agriculture exports to economic growth due to low value added while ignoring exchange rate variable, which initially influences exports or imports of economy. This study has incorporated the exchange rate in the model and find out its influence of agricultural exports in the economy.

2. Model specification and methodology

Faridi (2012) model has been followed in this study to find out influence of agricultural exports on economic growth in Pakistan. Solow (1956) growth model is prominently known as Neo classical growth model of production function with specific traditional inputs of capital and labor given below

$$Y_t = f(L_t, K_t) \qquad (1)$$

The study has focused to comprehend impact of agriculture export on economic growth, with variables of agriculture exports, non-agriculture exports, exchange rate and consumer price index (as control variable of inflation) incorporated in Solow model extension.

$$Y_t = f(L_t, K_t, AG_t, NAG_t, EXCH_t, CPI_t) \qquad (2)$$

taking the model in Cobb Douglas form

$$Y_t = A_t L_t^\beta, K_t^\gamma, AG_t^\delta, NAG_t^\varphi, EXCH_t^\chi, CPI_t^\phi, e^u) \qquad (3)$$

Eq. 3 indicates the variables of study as t denotes time with specific Y_t = gross domestic product, Labor with L_t and K_t capital stock in the economy. Agriculture exports have identified with AG_t, and non-agriculture exports NAG_t of the economy. $EXCH_t$ has denoted with exchange rate and CPI_t consumer price index known as control variable as inflation. The e captures the error term of model in Eq. 3.

Labor, capital, agriculture exports, non-agriculture exports, exchange rate and consumer price index elasticies of production have reported as β,γ,δ,φ,χ,ϕ.

A simple procedure has been followed to rule out the difference in unit of measurement of variable in Eq. 4 taking natural log on both sides

$$log\, Y_t = logA_t + \beta logL_t + \gamma logK_t + \delta logAG_t + \varphi logNAG_t + \chi logEXCH_t + \phi logCPI_t + u_t \qquad (4)$$

Eq. 5 has indicated the econometric model variables, which employed in the study as mentioned model form as given below

$$LGDP = \psi_0 + \psi_1 LLAB + \psi_2 LCAP + \psi_3 LAG + \psi_4 LNAG + \psi_5 LEXCH + \psi_6 LCPI + U_t \qquad (5)$$

Time series econometrics of Cointegration, Error Correction Model and Granger Causality has used to find out relationships of variables with specification of long run and short run analysis. The study has focused to find out long run and short run analysis rapport of agriculture exports, non-agriculture exports and economic growth employing the methodology as given above. Spurious regression or invalid outcomes can be avoided employing the stationarity of variables. As mean, variance or covariance has remained constant and no problem to measure at any point considering the variable. The study has used unit root test for patterned the stationarity properties of variables. Acquiring the reliable and valid findings stationarity of variables have measured through the ADF or PP unit root test.

Dickey and Fuller (1981) have introduced the concept of testing non-stationary with the condition if Ut error term not correlated it is applicable otherwise if error term Ut correlated test is not applicable. Autocorrelation problem has also solved with incorporating the Augmented in Dickey Full as Augmented Dickey Fuller test (ADF). Lag length in extra terms have determined employing Akaike Information Criteria (AIC) and Schwarz Bayesian Criteria (SBC). Long run relationship among variables has determined through cointegration existing procedure which advanced by Granger (1981) and cointegration in multiple equation developed by Johansen (1988) and Johansen and Juselius (1990). Maximum Eigen value and Trace value stochastic matrix of long test have obtained the test of Johansen. Short run relationship has determined with Error Correction Model and ECt term which indicates the speed of adjustment toward long run equilibrium. Causality of variables has measured with employing Granger Causality test.

Secondary annual time series data 1972 – 2014 has acquired through assorted sources of Economic Survey of Pakistan(statistical supplements various issues), State Bank of Pakistan (various publications), Pakistan 50 years data and World Bank statistics for this study. Seven variables have used to find out empirical findings of study. Gross domestic product (billions rupees) is as dependent variable of the study which consider the deputy accounting variable in model. Labor force (no in millions), gross fix capital formation (millions rupees), Agriculture exports (millions rupees), non-agriculture exports (million rupees) and exchange rate incorporated the explanatory variables in the model. Consumer price index is proxy of inflation in the model incorporated as explanatory variable.

3. Analysis of results

Empirical analyses of the study have specified in this section with various tables. Descriptive statistics of the variables Gross Domestic Product, labor force, capital, agriculture exports, non-agriculture exports, exchange rate and consumer price index have indicated in Table 1.

Table 1 has reported the interpretation of statistical analysis of variables of study. Average GDP at market prices is 4.54E+12billion rupees with

standard deviation of 6.60E+12. Average of Agriculture exports is 1.06E+12 million rupees and standard deviation of 1.57E+12 and non-agriculture exports with mean value of 6.32E+11 million rupees and standard deviation of 8.95E+11. Labor force

mean value is 36709028 million peoples and standard deviation of 13955387 and mean of gross fix capital formation 6.76E+11million rupees with standard deviation of 9.13E+11.

Table 1: Descriptive statistics

	GDP	LF	GFC	AG	NAG	EXCh	CPI
Mean	4.54E+12	36709028	6.76E+11	1.06E+12	6.32E+11	38.36434	9.47387
Median	1.33E+12	33142287	2.56E+11	2.98E+11	1.99E+11	28.10718	8.267047
Maximum	2.51E+13	65361409	3.36E+12	5.98E+12	3.33E+12	101.6289	26.66303
Minimum	5.41E+10	18341035	6.81E+09	1.79E+10	7.77E+09	8.681383	2.914135
Std. Dev.	6.60E+12	13955387	9.13E+11	1.57E+12	8.95E+11	28.91571	5.258987
Skewness	1.77332	0.562374	1.521269	1.864826	1.715181	0.726751	1.468083
Kurtosis	5.106138	2.102795	4.159129	5.416028	4.913223	2.30062	5.184102
Jarque-Bera	30.48426	3.708811	18.99278	35.38093	27.64148	4.661556	23.99287
Probability	0	0.156546	0.000075	0.000000	0.000001	0.09722	0.000006
Sum	1.95E+14	1.58E+09	2.91E+13	4.54E+13	2.72E+13	1649.666	407.3764
Sum Sq. Dev.	1.83E+27	8.18E+15	3.50E+25	1.03E+26	3.36E+25	35116.96	1161.591
Observations	43	43	43	43	43		43

Mean of exchange rate is 38.36434 and standard deviation of 28.91571 while consumer price index with mean value 9.47387 and standard deviation 5.258987. Statistical analysis of Skewness has employed to measure departure from symmetry. All values of Skewness of variables GDP, agriculture exports, manufactured exports, labor force, gross fix capital formation, exchange rate and consumer price index are right ward skewed or positively skewed. Kurtosis measures flatness of data comparative to data normal distribution. Kurtosis, labor force and exchange rate are plato-kurtic or flate while GDP, agriculture exports, manufactured exports, gross fix capital formation and consumer price index are peakedness or lapto kurtic. Normal distribution of random variables determined through joint combination of Skewness or kurtosis.

The basic idea of the study is to focus of relationship short run and long run agriculture exports and economic growth. Johansen (1988) and Johansen and Juselius (1990) tests has employed for

long run and short run relationship. Spurious regression cannot find valid findings and stationarity of data prerequisite for suitable results. Stationarity of data has measured by employing Augmented Dickey Fuller unit root test in the study.

Table 2 has indicated the augmented dickey fuller unit root test results. LCPI is stationary at level with intercept of 5percent level of significance while LGDP, LNAG and LGFC are significant at level with trend and intercept at 1percent level of significance. LAG is significant at level with trend and intercept at 10 percent level of significance. LLF is significant at first difference with intercept at 1percent level of significance and LEXC is significant at first difference with trend and intercept at 1 percent level of significance order of integration (1). The selection of optimal lags length is with vector Auto regressive test on Akaike Information Criteria (AIC) and Schwarz Bayesian criterion (SBC). The study has the selection of optimal lag length 2. Unrestricted cointegration rank test is shown in Table 3.

Table 2: Results of augmented dickey- fuller test (ADF) for unit root

Variables	Level		1st Difference		Order of Integration
	Intercept	T rend and intercept	Intercept	Trend and intercept	
	ADF t-statistics	ADF t-statistics	ADF t-statistics	ADF t-statistics	
LGDP	-1.801311	-4.356846***	------------------	------------------	I(0)
LLF	0.843186	-1.641761	-5.926901***	-----------------	I(1)
LGFC	-2.439130	-5.567587***	-----------------	-----------------	I(0)
LAG	-0.307409	-3.255448*	------------------	------------------	I(0)
LNAG	-1.515166	-6.182447***	------------------	-----------------	I(0)
LEXC	-0.613144	-1.870027	-2.514060	-4.759039***	I(1)
LCPI	-2.963326**	----------------	-------------------	-----------------	I(0)

*** at 1 percent level of significance ** at 5percent level of significance * at 10 percent level of significance

Table 3: Unrestricted cointegration rank test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.691976	162.7050	125.6154	0.0000
At most 1 *	0.629310	114.4243	95.75366	0.0014
At most 2 *	0.509420	73.73631	69.81889	0.0235
At most 3	0.432039	44.53747	47.85613	0.0991
At most 4	0.359215	21.34371	29.79707	0.3365
At most 5	0.066682	3.096194	15.49471	0.9624
At most 6	0.006487	0.266821	3.841466	0.6055

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level

The cointegration vectors have selected after the selection of appropriate lags and trace test matrix of Johansen and Juselius (1990). Trace test points out

the 3-cointegration vectors at 5% level of significance and null hypothesis of zero cointegration vectors rejected against the one

cointegration vector. At most 1 and At most 2 null hypothesis is rejected against the alternative hypothesis. Concluding 3 cointegration vectors are specified in the model. Table 4 shows the results of cointegration at which the 4-cointegration vectors at

5percent level of significance. Null hypothesis of zero cointegration vectors is rejected against alternative hypothesis and null hypothesis of At most 1 is rejected against alternative hypothesis. Two cointegration vectors have specified in the model.

Table 4: Unrestricted cointegration rank test (Maximum eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.691976	48.28067	46.23142	0.0298
At most 1 *	0.629310	40.68797	40.07757	0.0426
At most 2	0.509420	29.19884	33.87687	0.1635
At most 3	0.432039	23.19377	27.58434	0.1654
At most 4	0.359215	18.24751	21.13162	0.1209
At most 5	0.066682	2.829373	14.26460	0.9575
At most 6	0.006487	0.266821	3.841466	0.6055

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level

Long run estimates of cointegration have reported in Table 5. The coefficient of LAG with positive sign and statistically significant at 5percent level of significant which denotes as one percent increase in agriculture exports leads 0.51% increase GDP having significant influence on economic growth and results are familiar with studies like Ijirshar (2015). Non agriculture exports coefficient have positive and statistically significant which reports as 1% increase non agriculture export will increase 0.26% increase GDP and findings have relevancy with the studies by Bahmani-Oskooee et al. (1991), Lopez and Dawson (2010), and Faridi (2012). Labor force (LLF) coefficient is negative and statistically insignificant which concludes 1% increase labor force will decline gross domestic product -0.19 percent results are familiar with the study of Shah et al. (2015). Capital is considering prerequisite for economic growth and it has positive and statistically significant coefficient. Findings of capital indicate 1% increase capital will raise 0.34% gross domestic product. Empirical estimates of the study confirm economic theory of investment multiplier and familiar with the study of Faridi (2012).

Table 5: Long run cointegration LGDP

Variables	Coefficient	Standard Errors	t-statistics
C	-1.038767		
LLF	-0.190717	0.11163	-1.70841
LGFC	0.343302	0.03397	10.1048
LAG	0.508181	(0.03723)	13.6498
LNAG	0.255383	0.05235	4.87834
LEXC	-0.050367	0.02317	-2.17342
LCPI	-0.033919	0.00743	-4.56375

Exchange rate (LEXC) coefficient is negative while statistically significant at 5percent significance level. Results points out as one percent increase exchange rate will decrease -0.05 percent in gross domestic product. Findings are consistent with studies of Ijirshar (2015). LCPI coefficient is negative while statistically significant at 5percent level of significance. Consumer price index indicates inflation negatively impact on economic growth with one percent increase in inflation decreases 0.03 percent of gross domestic product. Findings are familiar with the studies of Faridi (2012) and Ijirshar

(2015). Interesting conclusion related to capital, which positively affect GDP as inventions and technical advances positively affect economic growth through efficiency of production and reducing cost. Capital findings are familiar with study of Faridi (2012). Labor force negatively influences economic growth and findings are against the economic theory while it is justifiable in developing countries like Pakistan. Labor productivity is low in Pakistan due to many reasons as lack of expertise in professions, unfamiliarity of technical advances, immobility of labor force and non-competitive envoi mental conditions in society. These factors of incompetence's and increasing population can consider as increasing human being not human capital in economy.

Findings of the study have reported as agriculture exports, non-agriculture exports and gross fix capital formation positively affect economic growth while labor force, exchange rate and consumer price index negatively influence economic growth.

Empirical estimates of the study have find out the long run relationship among variables. Error Correction Model (ECM) has used in the study capturing relationship long run and short run relation among variables.

Short run dynamics relationship as short run coefficient of vector error correction has reported in Table 6. Association of change in log GDP, change in others variable and disturbance term has denoted through Error Correction Model. Speed of adjustment has measured through value of coefficient ECt-1. The value of Error Correction term 0.71, which is insignificant, indicates, as any disequilibrium in short run cannot expect to restore in long run.

Agriculture exports (LGDP) one year lag (-1) increases the one percent will increase in GDP 0.3 percent, at the year lag (-2) one percent increase will increase 0.26 percent in GDP. In the non-agriculture exports on year lag (-1) increase in one percent increases GDP 0.06 percent while the year lag (-2) decreased the -0.01 in GDP. Labor force in one year lag (-1) increase in one year increase the GDP 0.18 percent while year lag (-2) increase in one percent decreases - 0.11 decrease in GDP. Exchange rate in the lag one (-1) decreasing effect on GDP and lag (-2)

showing positive effect on GDP. CPI with the one year (-1) and (-2) is mentioning the increasing to GDP.

Table 6: Results of error correction model for short run dynamics

Variables	Coefficient	Standard Errors	t-statistics
Constant	0.075781	0.02277	3.32854
D(LGDP(-1))	-0.719076	0.54964	-1.30827
D(LGDP(-2))	-0.267322	0.51995	-0.51413
D(LLF(-1))	0.185786	0.44516	0.41735
D(LLF(-2))	-0.107634	0.38159	-0.28207
D(LGFC(-1))	0.215346	0.16386	1.31423
D(LGFC(-2))	-0.020954	0.15752	-0.13302
D(LAG(-1))	0.302989	0.29462	1.02842
D(LAG(-2))	0.262148	0.26662	0.98323
D(LNAG(-1))	0.062240	0.17775	0.35015
D(LNAG(-2))	-0.016591	0.16243	-0.10214
D(LEXC(-1))	-0.074153	0.18366	-0.40375
D(LEXC(-2))	0.012813	0.17792	0.07201
D(LCPI(-1))	0.036780	0.02709	1.35776
D(LCPI(-2))	0.003925	0.02631	0.14914
ECT-1	0.710779	0.43214	1.64480

Selection of optimal lag length procedure has performed employing AIC and SBC with k = 2 and finding as indicated in above Table 7. Bidirectional causality prevails in labor force and GDP while GDP and gross fix capital has unidirectional causality. There is no directional causality between GDP and agriculture exports while GDP unidirectional causing non-agriculture exports. GDP is unidirectional causing exchange rate and CPI unidirectional causing GDP.

4. Conclusion and suggestions

The study has emphasized the empirical investigation of agriculture exports on economic growth using secondary time series data 1972 to 2014. Gross domestic product, agriculture exports, non-agriculture exports, gross fix capital formation and consumer price index are stationary at level while labor force and exchange rate are stationary at 1st difference. Empirical findings of Johansen's cointegration test has confirmed long run cointegration exists among the variables of GDP, agriculture exports, non-agriculture exports, labor force, gross fix capital formation, exchange rate and consumer price index.

Table 7: Results of granger causality test

Pair wise Granger Causality test Sample : 1972-2014, lags (2)			
Null Hypothesis	Observations	F-statistics	Probability
LLF does not Granger Cause LGDP	41	5.73337	0.0069
LGDP does not Granger Cause LLF	41	10.1450	0.0003
LGFC does not Granger Cause LGDP	41	1.25146	0.2982
LGDP does not Granger Cause LGFC	41	7.31725	0.0022
LAG does not Granger Cause LGDP	41	0.11893	0.8882
LGDP does not Granger Cause LAG	41	0.25299	0.7778
LNAG does not Granger Cause LGDP	41	1.54607	0.2269
LGDP does not Granger Cause LNAG	41	3.37875	0.0452
LEXC does not Granger Cause LGDP	41	1.11899	0.3377
LGDP does not Granger Cause LEXC	41	5.74897	0.0068
LCPI does not Granger Cause LGDP	41	9.72415	0.0004
LGDP does not Granger Cause LCPI	41	0.39090	0.6793

Findings of the study have indicated agriculture exports, non-agriculture exports and gross fix capital formation positively affect economic growth. Labor force negatively affects economic growth due to low productivity of labor and increase in exchange rate while consumer price index inversely affects the GDP. GDP and agriculture export has no directional causality while unidirectional causality prevails between GDP and non-agriculture exports. Labor force and GDP has unidirectional and bidirectional causality.

Agriculture exports positively affect economic growth government must have priority measures regarding to agriculture crops, livestock and forestry. Adequate provision of quality inputs, infusion of advance mechanization, availability of credit, farming training campaign to improving efficiency by agriculture extension department and improving market mechanism for proper support price of agriculture commodities are prerequisite measures for agriculture growth. Agriculture productivity will meet the local demand of country and its export will source of foreign exchange earnings. Agro based industries must develop in agriculture sector for convergence of value added commodities rather than raw material for agriculture exports. Farming must structure as the farming industry and value added commodities preferred to exports rather the raw material. Professional expertise must familiarized in labor force, labor mobility must encouraged, skills and technical advances need to encourage in labor force with proper training and workshops to improving the productivity of the labor.

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