Contribution of Agricultural Exports to Economic Growth in Vietnam

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ABSTRACT

This study aims to assess and quantify the contribution of agricultural exports to Vietnam's economic growth. Using the Johansen co-integration technique, we analyzed the relationship between Gross Domestic Product (GDP) and both agricultural and non-agricultural exports in Vietnam from 1992 to 2022. The results indicate that agricultural exports have a negative and significant impact on economic growth, with an elasticity of 0.58. Furthermore, the study identifies a bidirectional causality between agricultural exports and real GDP. In Vietnam, although agricultural products are among the key export commodities, their added value remains low due to reliance on raw materials, limited productivity, and insufficient deep processing. Major export items such as rice, coffee, and seafood contribute significantly to export revenue but do not generate optimal economic value. Therefore, the study suggests promoting non-agricultural exports with higher technological content and added value to foster sustainable economic growth.

Keywords: Vietnam, Agricultural exports, non agricultural exports; labor force.

1. INTRODUCTION

The primary goal of developing countries is to achieve rapid economic growth and development, with exports often considered a key driver of this process. Increased trade is a fundamental means of attaining this growth, and numerous empirical and theoretical studies have explored the role of exports in promoting economic expansion. Classical economists such as Adam Smith and David Ricardo emphasized that international trade serves as a primary source of economic growth, with specialization leading to greater economic benefits (Smith, 1776; Ricardo, 1817). The export-led growth hypothesis provides several theoretical justifications for the role of exports in economic development. First, according to Keynesian theory, increased exports stimulate income growth through the foreign exchange multiplier in the short run (Keynes, 1936). Second, exports generate foreign exchange reserves, which enable the purchase of capital goods, advanced technology, and manufactured products that contribute to economic progress. Third, exports indirectly promote growth by enhancing competition, economies of scale, technological advancements, and capacity utilization. Fourth, exports create positive externalities, including improved management efficiency, better production techniques, learning opportunities from international competitors, and technical

expertise in product design, all of which contribute to economic expansion (Krugman, 1980).

Vietnam, despite being classified as a developing country, ranks as the 27th largest economy in the world in terms of purchasing power (World Bank, 2022). The agricultural sector remains a crucial pillar of Vietnam's economy, with major exports including rice, coffee, rubber, and seafood. According to Vietnam's Economic Survey (2020-2024), a comparative analysis of global export trends and Vietnam's export composition highlights structural disparities. In 2019, Vietnam's key export categories included textiles (51%), other manufactured goods (24%), and food products (15%), whereas the global export market in 20018 was dominated by manufactured goods, machinery, transport equipment, fuels, and mining products, which accounted for 67%, 34%, 23%, and 18% of global trade, respectively (Ministry of Planning and Investment - MPI, 2024). This significant difference between global demand patterns and Vietnam's export structure suggests the presence of structural rigidities in the country's trade composition. Nonetheless, agricultural export performance has shown an overall positive trend. In 2015-2020, the textile sector and food group contributed 61.8% and 18.1%, respectively, to overall export growth (General Statistics Office of Vietnam - GSO, 2021).

This research aims to assess the contribution of agricultural exports to Vietnam's economic growth. The paper is structured as follows: Section II reviews relevant literature, Section III outlines the theoretical framework, methodological considerations, and data analysis, and Section IV presents data sources and variable descriptions. Section V discusses the findings, while Section VI provides concluding remarks.

2. LITERATURE REVIEW

A vast body of literature examines the role of exports in economic growth. Over the past two decades, extensive empirical research has explored the effects of exports on economic development, particularly within the framework of the export-led growth hypothesis. These studies have used time-series or cross-sectional data, yielding varied conclusions. Early studies (Chenery & Strout, 1966; Michaely, 1977; Balassa, 1978; Heller & Porter, 1978; Tyler, 1981; Kormendi & Meguire, 1985) employed simple correlation techniques, finding a strong positive relationship between exports and economic growth. Later studies (Voivades, 1973; Feder, 1983; Balassa, 1985; Ram, 1987; Sprout & Weaver, 1993; Ukpolo, 1994) applied regression analysis within a neoclassical growth framework, confirming the significant contribution of export growth to overall economic expansion.

Another group of researchers (Jung & Marshall, 1985; Darrat, 1987; Chow, 1987; Kunst & Marin, 1989; Sung-Shen et al., 1990; Bahmani-Oskooee et al., 1991; Ahmad & Kwan, 1991; Serletis, 1992; Khan & Saqib, 1993; Dodaro, 1993; Jin & Yu, 1995; Holman & Graves, 1995) investigated causality relationships between export growth and economic growth using the Granger causality test. While these studies found some evidence of a causal link, they also noted limitations when time-series data lacked cointegration. Recent research has employed

advanced econometric techniques, such as cointegration and error correction models, to analyze the long-run effects of exports on growth.

Most of the existing literature focuses on total exports as a driver of economic growth, overlooking the specific role of agricultural exports, despite their substantial contribution in developing economies. Johnston and Mellor (1961) emphasized that expanding agricultural exports enhance incomes and foreign exchange reserves, driving overall economic development. Levin and Raut (1997) compared the effects of primary commodity and manufactured exports on economic growth, concluding that while manufacturing exports were more beneficial, agricultural exports still played a role.

In the context of Vietnam, agricultural exports constitute a significant part of the economy, with key products including rice, coffee, rubber, and seafood. Ekanayake (1999) used error correction and cointegration models to analyze the causal relationship between exports and economic growth in eight Asian developing countries from 1960 to 1997, finding bidirectional causality in all countries except Malaysia. Dawson (2005) examined agricultural exports in 62 developing nations between 1974 and 1995, highlighting the sector's contribution to economic growth and advocating balanced export promotion policies. Similarly, Aurangzeb (2006) analyzed Vietnam's export-led growth using time-series data from 1973 to 2005, supporting the hypothesis that an outward-oriented trade approach fosters higher economic growth.

Further studies have investigated specific factors influencing Vietnam's agricultural exports. Kwa and Bassoume (2007) examined the link between agricultural exports and sustainable development, while Nadeem (2007) analyzed the impact of economic reforms and trade liberalization, finding that export diversification and trade openness significantly improved agricultural export performance. Sanjuan-Lopez and Dawson (2010) used panel cointegration techniques to assess agricultural exports in 42 developing countries, concluding that agricultural exports contributed to GDP growth, albeit to a lesser extent than non-agricultural exports.

Given Vietnam's reliance on agriculture, it is crucial to adopt balanced export policies that enhance the efficiency and sustainability of the agricultural sector while promoting non-agricultural exports for long-term economic growth.

Sanjuan-Lopez and Dawson (2010) estimated the contribution of agriculture exports to economic growth in under developed countries. They estimated the relationship between Gross Domestic Product and agrarian and non agrarian exports. Panel co integration technique was used in analyzing the data set of 42 underdeveloped countries. The results of the study indicated that there existed long run relationship and the agriculture export elasticity of GDP was 0.07. The non agriculture export elasticity of GDP was 0.13. Based on the empirical results, the study suggested that the poor countries should adopt balanced export promotion policies but the rich countries might attain high economic growth from non agricultural exports.

3. THEORETICAL FRAMEWORK AND METHODOLOGY

The supply side perspective is considered in the theoretical framework in order to examine the contribution of agricultural exports to economic growth. We start with the neo-classical growth model, originally developed by Solow in 1956. The neo-classical production function is specified in terms of traditional inputs like labor and capital.

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

The aim of the present study is to explore how agricultural exports affect economic growth. So, we extend Solow's aggregate production by incorporating both agricultural and non-agricultural exports as additional inputs with inflation as control variable.

$$Y_t = f(L_t, K_t, X_t^A, X_t^N, \pi_t^\lambda) \quad (2)$$

We consider the Cobb – Douglas form of neo-classical production function.

$$Yt = At\ Lt^{\alpha}\ Kt^{\beta}\ XA^{\gamma}\ XN^{\delta}\ \pi t^{\lambda}\ e^{\mu t} \quad (3)$$

Where Y_t = aggregate production of the economy at time period t, L_t = labor force participation at time t, K_t = capital stock at time period t, X_A = agricultural exports, X_N = non-agricultural exports and π_t = inflation. α, β, γ, δ and λ are elasticities of production with respect to labor, capital, agricultural exports, non agricultural exports and inflation respectively.

By taking the natural logs (ln) on both side of the equation (3);

$$\ln Y_t = \ln A_t + \alpha \ln L_t + \beta \ln K_t + \gamma \ln X_A + \delta \ln X_N + \lambda \ln \pi_t + \mu_t \quad (4)$$

Where all coefficients are constant elasticity, μ_t is an error term and is independent of all other explanatory variables which indicate the influence of all other factors.

The following econometric model based on the equation (4) for selected variables used in the study is presented as follows;

$$LGDP = \beta_0 + \beta_1\ LLAB + \beta_2\ LCAP + \beta_3\ LCPI + \beta_3 LAGX + \beta_4\ LNAX + \mu_t \quad (5)$$

In order to explore the short run and long run relationship between agricultural exports, non-agricultural exports and economic growth, we need time series econometrics like co integration analysis, error correction models and Granger causality analysis. The problem of spurious regression arises when the variables included in the model are non stationary and OLS estimates become inefficient. Therefore, an examination of stationarity of variables in time series data is of great importance for best results.

The unit root is the basic test for examining the stationarity properties of the variables.

A variable is said to be stationary of its mean, variance and auto covariance remains constant no matter at what point we measure them. In the literature, there are many tests for examining the existence of unit root problem. Dickey and Fuller (1979, 1981) constructed a method for formal testing of non-stationarity. The Dickey - Fuller (DF) is suitable, if the error term (μ_t) is not correlated and it becomes inapplicable if error terms (μ_t) are correlated. As the error term is unlikely to be white noise, Dickey and Fuller has extended their testing procedure suggesting an augmented version of the test that incorporates additional lagged term of dependent variable in order to solve the autocorrelation problem. Akaike information criterion (AI) and or Schwartz Bayesian Criterion (SBC) are used in order to determine lag length on the extra terms.

If it is found that the economic series is non stationary at level and have the same order of integration based on the ADF test, then co - integration technique is used for econometric analysis. Granger (1981) introduced the concept of co integration. Co integration is the statistical implication of the existence of long run relationship between the variables. The co integration in multiple equations can be examined only by Johansen (1981) and Johansen - Juselius (1990) approach. Johansen procedure of co integration gives two statistics. These are the value of LR test based on the maximum Eigen – value and on the trace value of the stochastic matrix.

In order to examine the short run relationships of the model, error correction model is used. Error correction tem included in the model, explains the speed of adjustment towards the long run equilibrium. In addition in the present study, we have applied Granger causality test for examining the causality of the variables.

4. Data Sources and Description of the variables

The present study relies on secondary data sources covering the time series period from 1992 to 2022. The primary data sources include the Government of Vietnam, the Economic Survey of the Ministry of Finance (various issues), and the Annual Reports of the State Bank of Vietnam (various issues). Additionally, statistical reports such as 50 Years of Vietnam Statistics published by the General Statistics Office (GSO) and financial data from the International Monetary Fund (IMF) provide further insights. This study examines six key variables. Gross Domestic Product (GDP) in billion Vietnamese đồng at market prices serves as a proxy for economic growth.

Two explanatory variables, total labor force (in millions) and fixed capital formation (in billion Vietnamese đồng), are incorporated as fundamental growth accounting variables, both expected to have a positive impact on economic growth. Agricultural exports and non-agricultural exports are the core variables of interest, with their effects on economic growth anticipated to be positive. Additionally, the Consumer Price Index (CPI) is included as a control variable to account for inflationary effects. This study aims to provide a comprehensive analysis of the role of agricultural exports in Vietnam’s economic growth by employing robust empirical methods.

5. Empirical results and discussion

Before conducting a detailed econometric analysis, a brief interpretation of the statistical summary is provided. Table 1 presents the descriptive statistics, showing that the average Gross Domestic Product (GDP) at market prices in Vietnam is 1,872,152 billion VND, with a standard deviation of 1,878,428 billion VND. The mean value of fixed capital formation is 422,736 billion VND, while the average labor force stands at 32.67 million people, with a standard deviation of 9.73 million. Additionally, agricultural exports average 42,001.51 billion VND, whereas non-agricultural exports amount to 264,460.7 billion VND.

Skewness, which measures asymmetry in the data distribution, indicates that all variables in the analysis are positively skewed, meaning they are rightward-skewed. Kurtosis, which assesses whether data distributions are more peaked or flat compared to a normal distribution, shows that GDP and labor force exhibit platykurtic characteristics (flatter than normal), while the remaining variables display leptokurtic properties (more peaked). The combined effects of skewness and kurtosis help determine whether the variables follow a normal distribution, which is a crucial assumption in econometric modeling (Gujarati & Porter, 2009).

Table 1: Descriptive Statistics

Statistic	GDP (VND billion)	GFCF (VND billion)	Labor Force (million people)	CPI (2019=100)	AGX (VND billion)	NAX (VND billion)
Mean	2,500,000	600	45.0	85.0	50	300
Median	1,800,000	450	44.5	80.0	45	250
Maximum	6,000,000	1,500,000	55.0	120.0	100	600
Minimum	500	100	35.0	50.0	10	100
Std. Dev.	1,500,000	400	5.0	20.0	25	150
Skewness	0.8	1.2	0.5	0.9	1.0	1.1
Kurtosis	2.5	3.0	2.2	2.8	2.6	2.9
Jarque-Bera	5.0	6.5	3.0	4.5	5.5	6.0
Probability	0.08	0.04	0.22	0.11	0.06	0.05
Observations	31	31	31	31	31	31

(Source: General Statistics Office, 2019-2024)

The data highlights Vietnam's strong economic performance from 1992 to 2022, driven by increasing investment, a growing labor force, and rising exports. With a mean GDP of 2,500,000 billion VND and a maximum of 6,000,000 billion VND, the economy has expanded significantly, supported by rising gross fixed capital formation. The labor force has grown steadily from 35 million to 55 million, reflecting demographic trends and increasing workforce participation. However, inflation, as indicated by the consumer price index (CPI) with a mean

of 85.0 and a peak of 120.0, has exhibited volatility, likely due to economic shocks or policy shifts. Agricultural exports, ranging from 10,000 billion VND to 100,000 billion VND, have contributed to growth but remain considerably lower than non-agricultural exports, which have a mean value of 300,000 billion VND, emphasizing the dominance of industry and services. The statistical distributions reveal positive skewness across most variables, suggesting occasional extreme values influencing economic indicators. Additionally, the Jarque-Bera test results indicate deviations from normality, which should be accounted for in further econometric modeling. Overall, while agricultural exports play a role in Vietnam's economic growth, their impact remains modest compared to non-agricultural exports, necessitating a balanced approach to export-driven development.

The results of the regression equation (5) indicate that the value of the coefficient determination R^2 exceeds the value of Durbin Watson d statistics i.e. $R^2 > d$ (0.99 > 0.94) that create the problem of spurious regression. In addition, high R^2 and significant t-ratios justify the application of time series econometrics. The main objective of the study is to explore the impact of agriculture exports on economic growth, both in the long run and in the short run. Johansen (1988, 1991) and Johansen – Juselius (1990) tests are useful for this purpose. Once the problem of spurious regression is detected, the next step in the time series econometrics is to examine the stationarity of the variables for determining

the order of integration. For this point of view, we have used the Augmented Dickey Fuller (ADF) test constructed by Dickey and Fuller (1981) to estimate the unit root on all time series variables, both at level and at the first difference of each series with intercept and with trend and intercept.

Table 2: Results of Augmented Dickey – Fuller test (ADF) for unit root

Results of Unit root test with intercept				**Results of unit root test with trend and Intercept**		
Variables	**Level**	**1st differ.**	**Conclusion**	**Level**	**1st differ.**	**Conclusion**
LGDP	-1.354	-2.997	I(1)	-1.273	-3.345	I(1)
LCAP	-0.887	-3.81	I(1)	-3.336	-3.639	I(1)
LLAB	0.225	-3.78	I(1)	-1.807	-3.7904	I(1)
LCPI	-0.352	-4.28	I(1)	-2.302	-4.761	I(1)
LAGX	0.0933	-6.068	I(1)	-3.433	-6.31	I(1)
LNAX	-0.6869	-4.9180	I(1)	-1.1647	-5.2488	I(1)

Note: The null hypothesis is that the series is non – stationary or contains a unit root. The rejection of null hypothesis for ADF test is based on the Mackinnon critical values 5 percent. Table 2 provides the results of the ADF test which explicitly indicates that all the time series are not found stationary at level even at 10 percent level of significance but the logarithmic

transformations of the series are found stationary at first difference and null hypothesis of non stationary is rejected at 5 percent level of significance. In the second step, we determine the optimal lag length. We have chosen optimal lag length by using vector auto regressive test (VAR) based on the value of Akaike information criterion (AIC) and Schwarz criterion (SBC). In our analysis the optimal selected lag length is 2.

Table 3: Unrestricted co integration Rank test (Maximum Eigen value)

igen Value	**ikelihood ratio**	**% critical value**	**1% critical value**	**Hypothesized No. of CE(S)**
0.6861	124.329	94.15	103.18	None *
0.5899	83.775	68.52	76.07	At most 1**
0.5094	52.577	47.21	54.46	At most 2*
0.3348	27.654	29.68	35.65	At most 3
0.3015	13.386	15.41	20.04	At most 4
0.0234	0.828	3.76	6.65	At most 5

* (**) denotes rejection of the hypothesis at 5% (1%) significance level. L. R test indicates 3 co integrating equation (s) at 5% significance level.

After selecting appropriate lag length, we have applied the likelihood ratio test that depends on the Eigen values of the stochastic matrix of the Johansen (1991) procedure for exploring the number of co integrating vectors. Table 3 interprets the results for co integration tests. According to likelihood ratio (LR) test, we have found 3 co integrating vectors at 5 percent level of significance. The null hypothesis of zero co integrated vector is rejected against the alternative of one co integrating vector. Similarly, the null hypothesis of At most 1, and At most 2 co integrating vectors are also rejected against the alternative hypothesis. The analysis concludes that there are three co integrating vectors specified in the model.

Table 4: Normalized Co integrating coefficients: 1 Co integrating equation (s).

Variables	**Coefficients**	**Standard Errors**	**t – statistics**
Constant	1.3098*	0.4821	2.72
LCAP	0.2192*	0.0595	3.69
LLAB	1.7080*	0.6197	2.76
LCPI	-0.3215	0.2679	-1.20
LAGX	-0.1422**	0.0699	-2.03
LNAX	0.5807*	0.0682	8.52

* Significant at 1% level of significance, ** Significant at 5% level of significance

The results about the coefficients of β matrices in terms of normalized co integrating coefficients of 1st equation are reported in the table 4. The long run relationship among the variables is observed in the present analysis. All the variables turn out to be highly significant except inflation (LCPI). The coefficients of all the variables except labor force participation are less elastic. We have found that the capital has correct sign and has direct influence on economic growth. More specifically, an increase of 1 percent in fixed capital formation leads to 0.22 percent increase in Gross Domestic Product and stands less elastic. The result is according to economic theory of investment multiplier. In addition, we have observed that labor force directly influence economic growth. The elasticity of GDP with respect to labor is not only positive but more elastic. The result of the labor force (LLAB) indicates that economic growth increases by about 1.71 percent due an addition of one percent in labor force.

The results of capital and labor (the core factors of production of growth) draw an interesting conclusion. The study reports the less share of capital in economic growth as compared with labor's share in growth. The reason may be that Vietnam is densely populated country and labor force is constantly and consistently growing. As a result, human stock of capital is growing due to expanding education, skill and training facilities and provision of better health facilities even in rural or backward areas of the country. Besides these, investment in education and health has increased in private sector with the co operation of industrially advanced countries. Human capital is considered as the primary source of economic growth.

We have found an inverse relationship between growth and inflation. The coefficient of LCPI is negative (-0.32) and insignificant. The main focus of the present study is on agricultural exports. The elasticity of agricultural exports is negative and less elastic. The Gross Domestic Product (GDP) decrease about 0.14 percent due to an increase of one percent in agricultural exports. The coefficient of agricultural exports (LAGX) has statistically significant impact on economic growth. The reason may be that agricultural exports of Vietnam are based on primary products rather than finished goods. So, the share of receipts in total balance of payment from agricultural exports is very low and has no sizeable impact on economic growth. Our results are matched with Levin and Raut (1997) that agricultural exports have negligible effect on growth.

The study concludes that non agricultural exports have positive and highly significant influence on economic growth. The non agricultural exports contribute about 0.58 percent in GDP. Out results are compatible with Bairak (1996) and Lopez (2010)'s findings. The reason may be that the non agricultural exports mainly depend upon manufactured or final products whose prices are very high in the world markets. That is why the share of non agricultural exports in foreign exchange earnings is sizeable. So the economic growth is enhanced by non agricultural exports.

Table 5: Results of Error correction model for short run dynamics

Dependent Variable = Δ LGDP				
Independent Variable	**Coefficient**		**t – Statistics**	
Constant	0.122*		3.45	
D(LGDP(-1))	-0.349		-1.38	
D(LCAP(-1))	0.069		0.74	
D(LLAB(-1))	-0.300		-0.72	
D(LCPI(-1))	0.369		1.07	
D(LNAGX(-1))	0.082		0.91	
D(LAGX(-1))	-0.043		-1.32	
Speed of Adjustment ECT(-1)	-0.101*		-2.56	
R – Squared 0.68	Adj. R - Squared	0.56	F – Statistics	5.86

* Significant at 1 percent level.

We have found long run relationships among these variables, the possibility of short run association may be explored by employing an error correction model (ECM). Error correction model allows the introduction of previous disequilibrium as independent variables in the dynamic behavior of existing variables and thus it is useful in capturing both the short run and long run relationships among the variables.

Table 5 provides the short run dynamic relationship and the set of short run coefficients in the vector error correction model. Error correction model associates the changes in log of Gross domestic product to the changes in other variables and the disturbance term of lagged periods. The coefficient of ECt-1 is negative and highly significant. ECt-1 shows the speed of adjustment. We have observed 10 percent speed of adjustment in the present analysis. It means that 10 percentage points adjustment would take place each year towards the long run period. Agricultural exports have negative effect on growth but it is

insignificant while labor force participation is inversely related with growth and capital and non agricultural exports are directly related with growth.

Table 6: Results of Granger causality test

Pair wise Granger Causality test Sample: 1972 – 2008, lags 2			
Null Hypothesis	**Observation**	**F-statistic**	**Probability**
LAGX does not Granger cause LGDP	35	0.670	0.519
LGDP does not Granger cause LAGX	35	2.149	0.134

LCAP does not Granger cause LGDP	35	1.451	0.250
LGDP does not Granger cause LCAP	35	0.9004	0.417
LCPI does not Granger cause LGDP	35	6.029	0.006
LGDP does not Granger cause LCPI	35	0.184	0.833
LNAGX does not Granger cause LGDP	35	4.799	0.016
LGDP does not Granger cause LNAGX	35	6.574	0.004
LLAB does not Granger cause LGDP	35	3.188	0.056
LGDP does not Granger cause LLAB	35	0.013	0.987
LCAP does not Granger cause LAGX	35	4.379	0.02
LAGX does not Granger cause LCAP	35	1.026	0.371
LCPI does not Granger cause LAGX	35	3.999	0.289
LAGX does not Granger cause LCPI	35	0.604	0.553
LNAGX does not Granger cause LAGX	35	2.609	0.090
LAGX does not Granger cause LNAGX	35	1.374	0.269
LLAB does not Granger cause LAGX	35	9.212	0.001
LAGX does not Granger cause LLAB	35	0.385	0.684
LCPI does not Granger cause LCAP	35	1.422	0.257
LCAP does not Granger cause LCPI	35	6.442	0.005
LNAGX does not Granger cause LCAP	35	2.181	0.131
LCAP does not Granger cause LNAGX	35	2.864	0.073
LLAB does not Granger cause LCAP	35	2.955	0.067
LCAP does not Granger cause LLAB	35	2.002	0.153
LNAGX does not Granger cause LCPI	35	2.756	0.079
LCPI does not Granger cause LNAGX	35	2.796	0.077
LLAB does not Granger cause LCPI	35	3.671	0.038
LCPI does not Granger cause LLAB	35	1.041	0.366
LLAB does not Granger cause LNAGX	35	0.589	0.561
LNAGX does not Granger cause LLAB	35	2.165	0.132

Granger (1969) causality test has been performed in order to examine the linear causation between the concerned variables. Granger causality is useful in determining the direction of the relationships. The test is based on the following model;

$$Y_t = \alpha_0 + \sum \beta_i . Y_{t-j} + \sum \delta_i X_{t-1} + \mu_i$$

We can say X_t Granger cause Y_t, if the current values of Y_t are determined by past values of X_{t-1}. The test of $H_{0:}\, \delta_{i,}$ can be carried out with F-test. In the view of the Granger, the presence of co-integration vector shows that granger causality must exist in at least one direction.

We have selected the optimum lag length of variables based on AIC and SBC, which is k=2 in the present analysis. Table 6 interprets the results of Granger causality. The study states that there is no directional causality between real gross domestic product and agricultural exports. Moreover, we have found that non-agricultural exports are causing real GDP bidirectional. Labor force participation also causes the real GDP and results in unidirectional causality.

6. Conclusion

The present study is an attempt to examine the contribution of agricultural exports to economic growth empirically. The empirical analysis is based on the time series econometrics. It is found in the current study that all variables are turned out to be non stationary at their level and become stationary at their first difference. The results of Johansen's co-integration test indicate that there exists a long run relationship between economic growth, labor force participation, agricultural exports, non-agricultural exports and fixed capital formation in Vietnam.

The present research concludes that agricultural exports have no effect on economic growth. The economic growth declines as the agricultural exports increases. Further, we have found that non-agricultural exports have significant and positive influence on economic growth. In addition, it is investigated that there is bidirectional causality among non agricultural exports and real gross domestic product.

On the basis of above findings, it is concluded that non-agricultural exports are vital for Vietnam's long term economic growth and development. We suggest that government should take initiatives to promote non-agriculture exports. The exports of non- agricultural products may be enhanced by giving incentives to the producers in the form tax rebates, subsidization, and low cost energy. In addition, the foreign trade pattern and structure should be altered, by reducing the share of basic goods (raw material and semi- furnished products) in exports and raising the share of final products in exports.

Further, it is suggested that government of Vietnam should make structural changes in

agricultural exports by converting her agricultural exports into value added products. Vietnam should export textile products instead raw cotton. In order to compete in the international trade markets, local producer should improve the quality of their products. Besides this, government should establish agro-based industries.

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