AGRICULTURAL EXPORT AND ECONOMIC GROWTH IN ASEAN COUNTRIES

By

AYE MON MON KYAW

THESIS

Submitted to

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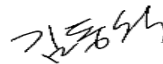**MASTER OF PUBLIC POLICY**

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ABSTRCT

AGRICULTURAL EXPORT AND ECONOMIC GROWTH IN ASEAN COUNTIRES

By

AYE MON MON KYAW

Many of developing countries in ASEAN community are still depend on the agricultural environment. This research applied the fixed effect and random effects regression model to examine the impact of the primary product of agricultural export on the countries economics growth in selected developing ASEAN countries. The study period is from 1995-2014 using year dummy variables. The outcomes of the study show the primary products of agricultural raw materials export is statistically significant on the inverse relation on the growth of economic. But the manufactured export (non-agricultural export) is strongly and positively effect on the economic development. Based on main finding of this research, this study concluded that the domestically value-added processing should be encouraged instead of exporting raw material to the foreign market. Over-reliance on primary agriculture export (raw material) may suffer economic development of the country. The manufactured export should expand to rapid increase of economic development.

ACKNOWLEDGEMANT

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I.   INTRODUCTION

The relationship between export and economic growth is an interesting global issue in both developed and less developed countries. Export growth is also the major engine of economic growth. (CORBO, KRUEGER, A. O, & OSSA, 1985) said that "*export growth can be the determinant of development of economy in any nation, while some considered it to be the key indicators t of the production and employment improvement which is reflected in the gross domestic product (GDP) growth*". Export growth creates flow of foreign exchange, which stimulates the nation's capacity to produce in the long run. Generation of foreign exchange can contribute to the importing of manufactured good, capital goods and technology. Comparative advantages of trade produce significant better effect, such as improve in management efficiency, advanced manufacturing system and experienced profession about production design which lead to economic growth. Most of literature focus on the export growth as an engine of growth, agriculture's contribution to total export is often contribute as major role in developing countries.

Many developed countries have approved the export-led growth backed by empirical evidence and various theoretical justifications. According to the Keynesian theory, increase in export brings increase in earning via foreign money enhancer within short duration. Moreover, the more money from abroad is generated, the more import of production factors like capital goods, manufacture goods and technology can lead to economic development. Competition through the promotion of exports can raise the level of production, technology development and efficient capital utilization. There are also many positive externalities like collecting the information and knowledge of better idea and new implication and positive learning from skilled person of production experiences to more export, which leads to economic growth.

"Until recently, research on the relation between agricultural export and economics growth has not been given serious attention. In the developing world, the main stream of national income is flow from agriculture sector, which why many researchers believe that the relation between agricultural export and economic is a worthwhile to investigate" (VERTER & BEČVAŘOVA, V, 2014). Some controversies are focusing on issue in agriculture trade. International trade imports and exports diversity of commodities which help plenty of choice in partner countries. Although balanced of growth can be elevated by agricultural exports in all countries involved if only contention linked to the global trade in unprocessed agricultural goods such as trade restriction and distortions are faced (Anderson and Martin, 2005).

Agriculture sector is one of the major sectors of ASEAN countries' development, nobody deny that rural development of these countries heavily relies on this sector. Since Southeast Asia has a different nature of topography, ASEAN rich in source of food and variety of agriculture product. A number of commodities stand at the particular position among top global exporters especially in export of stable commodities of livelihood such as rice, fruits, vegetables, and coffee. Furthermore, ASEAN is also a major exporter in industry corps. Many ASEAN member states establish certain bilateral and multilateral trade network in these products with trade partner countries across the world. As the result, development of the agriculture sector still play major role in ASEAN community. Vietnam stand first place in rice export in 2014, followed by Thailand and the Philippines stand second and third respectively among the community Myanmar is the leading country in exporting peas and bean large volume to India and the world.

According to US statistics, *"over $10 billion in agricultural goods were exported from ASEAN in 2015, including over $700 million in tree nuts and $850 million in dairy products. ASEAN is the 6th largest importer of US agricultural goods, and the 3rd largest in Asia after China and Japan.*

ASEAN is also the top global rubber and palm oil exporter, responsible for 75% and 89% of global production respectively in 2014" (US Statistics, 2015). According to these facts, agriculture is the major source of job opportunity for local communities in less developed economies.

The percentage of entire employment in ASEAN, approximately 25 percent has been contributed by agriculture, forestry and fishing sectors which has continuously decreased over the past decades. Specifically, ratio of enrollment in farming becomes somewhat decreased due to globalization and urbanization and labor move their occupation to the industry sector. Agriculture sector has been facing labor scarcity problem due to the migrate working to abroad to get higher salary. Even though lesser working in this sector, more than half of total employment is still devoted, in some countries like Vietnam, Myanmar, Thailand and Laos. Except Singapore, agrarian community still the key area of most of the ASEAN population.

Agriculture is the potential tool for poverty reduction. As an empirical example, accelerate agricultural development has also to be sure means of efficient way in reduction of poverty empirical evidence in Vietnam. Similarly, Cotsomitis and Kwok found that "an increase in overall GDP arising from agricultural labour productivity is on average 2.9 times more effective in raising the incomes of the poorest quintile in developing countries than an equivalent increase in GDP coming from non-agricultural labor productivity. Comparable results hold for the agricultural growth-poverty linkages at the country level" (Kwan & Cotsomitis, 1996).

1.1   Problem Statement

Athukorala (1991) noted that trade policy remained the center of debate on economic policy making in developing countries. When the government tries to adapt international trade, trade

policy has influenced the level and composition of import allocation, income distribution of structural production and development structure of the economy. The nature of trade regime, the mechanism could have the critical management of resource allocation and labor-force efficiency of nation economy.

The globalization economy opens up the new opportunities for multinational corporations. Krueger (1984) argued that trade openness brings advantages such as export expansion. To be more specific, the relative importance of national policies and exported oriented policy for external market demand has been widely debated in different literature. ASEAN members signed the ASEAN Free Trade Area (AFTA) in 1992, which reduced import quotas significantly eliminate import tariffs. Agriculture production and output are sharply increase after trade liberalization. Products from each country need to be more competitive to overcome the sensitive list of unprocessed products to get agriculture development (Mahadevan, 2003).

Johnston and Mellor (1986) said that moving forward, expansion of agriculture export is the fundamental means of increasing income and foreign earning. For many less developed countries and developing countries, more than half of the population relies on the agriculture sector. Agriculture is the major employment source and plays a key role in poverty reduction. Agriculture trade remains a crucial part of overall economic activities and domestic agricultural production employment. Although productivity increases for domestic consumption, the big challenge is that export earnings have relied more on only a small number of exportable commodities. Many countries suffer from the price discrimination because of heavily rely on the income from traditional primary product agriculture.

Meanwhile, agricultural exports are failed to meet the international market because ASEAN regional produce has been left to compare with cheap imports generated by the subsidies given to

producers in developed countries. In order to diversify and improve the economy, most countries have focused on primary agricultural product exports as a means of stimulating growth. However, the impact of agricultural raw material exports on economic development of developing ASEAN countries remains unclear.

1.2 Research objectives and Research question

The study intends to ascertain the level of impact that agricultural raw product exports have on the economic growth of ASEAN countries using a panel analysis which spans from 1995 to 2014 and focuses on the eight developing ASEAN countries. The study is apt because it will provide a platform for assessing the impact of agricultural exports on the economic growth of ASEAN member countries, which will aid decision-making and policy formulation towards developing a synergy in stimulating the growth process of the ASEAN region.

The research question of this study is "Can agricultural export lead the economic growth of developing countries?"

1.3 Organization of the Paper

This study is structured into five sections. Section 1 is about the introduction and background of the study. Section 2 will review the theories and previous research concerning with the impact of export of agricultural product on economic growth. Section 3 will explain the research methodology and data. Section 4 will be explained the statistical interpretation of how much the dependent variable has been effect by the explanatory variables and the discussion of results. Section 5 will provide summary and conclusion.

II. LITERATURE REVIEW

2.1 Causality of Export and Economic Growth

This study will look into the impact of agricultural exports on economic growth of developing ASEAN countries. Many scientists have recently researched the correlation of exports and economic development from various point of view and using different analysis method. The outcome of each research still mixed. Most of studies have strong prof positive effects of the export growth especially agricultural products, admitting that there might also be negative influence in a certain analysis.

Theoretically speaking that export-led growth can promote economic growth conversely according to the growth theory. There are various theoretical and practical explanations why these two variables are related to each other. The growth of export increases the total productivity of output which stimulates the capital formation positively. Trade implies that a country gets better access to stimulate the outside demand, which acts as a stimulus not only to domestic(inside) output but also foreign market which creates the incentive to highly productive export sector. Flow of foreign exchange can be created to raising growth of export which provides import of other factor of production like manufactured good and technology. Competition ensures comparative advantages and efficient management of resource allocation by applying better production technology which leads to economic growth.

Growth of output leads to the growth of export. Some authors provide evidence work supporting the fact that growth of export will leads economic growth to export-led-growth (ELG) hypothesis (Arnade etal,1995) and other researcher discovered the evidence in support of growth-led-export (GLE) hypothesis (Thornton,1996). Under growing economy, firms are facing technology innovation thorough foreign direct investment. Export-oriented policies contribute to the output

growth expansion to the overseas market rather than focusing only on the domestic demand. Another possible hypothesis shows the inverse causality runs from output growth to export growth. Increase in domestic demand of output of non-exportable and nontraded good will reduce the export concentration. Therefore, it is easier to identify negative relationship between increase in productivity and the exports growth (Bhagwati 1979).

2.2   Empirical Findings on Agricultural Export and Economic Growth

Ekanayake (1999) examined the causality between overall commodities export increase and economic development. The author made analysis the annual time series data of eight Asian developing countries covering the period of 1960 to 1997 by using two method of co-integration model and error-correction model. This study provided the positive relation between the higher the export the grower economy by proofing the causality among seven of the eight countries except Malaysia. There was significant result for long-run Granger causality between the variables used in all countries.

In another study, Dawson (2005) analyzed the major export commodities of agriculture to in under developing countries. The study was applied with two theoretical models in the analysis, source-of-growth equation developed from dual economy model including both agricultural and manufactured exports where each sector. Panel data of 62 LDC countries during the study 1974–1995 has been analyzed using fixed and random effects estimator. The study encourages export lead growth theory and highlighted a balance of export promotion policies.

Empirically, Sanjuán-López and Dawson (2010) tried to access the correlation between GDP growth and these two sectors using panel cointegration methods in 42 countries. Vigorous suppot of evidence showed long-run causality between those variables. Thus, confirming the export-led growth hypothesis for the 42 countries under these studies.

Kang (2015) investigated ELG (export-led growth) hypothesis of agricultural export especially focus on the major rice exporting countries. This study conducted with VECM model to analyze the link of agricultural export, nonagricultural export and rice export and GDP from the period of 1980-2010. The empirical evidence show that agricultural raw material and rice export contribute to increase economic growth such as Pakistan, Vietnam and Thailand.

Francis analyzed based on two model, co-integration and ECM models to discover the link between product diversification of agriculture sector and country development in selected Caribbean countries. The study period is from 1961 to 2000. The time series data result showed that the export diversification of agriculture has positive and statistically significant outcome on economic development in Barbados and Belize in the short run, while Costa Rica, Haiti, and Jamaica showed the similar results in the long run. Furthermore, non-causality existed in Trinidad and Tobago. *"The findings reveal that the export-growth linkage holds in the face of an outward oriented trade strategy in some Caribbean countries"* (Francis, 2007).

Siboleka (2014) investigated whether or not there is long run relation between both the agriculture and manufacturing sectors on GDP growth over the period of 1981 to 2012 with 31 observations. Time series data using analytical model of correlation and Granger Causality model. According the analytical findings, showed there has without causal relationship were established between those sectors.

In another empirical analysis, Nahanga and Becvalova (2016) analysed using the time series data from 1980 - 2012 in Nigeria. The study was based on the OLS regression and Granger Causality test. Both model confirmed no causal relationship between the agricultural degree of openness and economic growth of the country.

Using panel data analysis, (BBAALE & MUTENYO, J., 2011) confirmed using GMM estimation method. The observation period was based on the data from 1988 to 2007. They found that growth in agricultural export is positively and significantly associated with GDP per capita in Sub-Saharan countries. However, the contribution of manufactured export sector in insignificant.

Abrar M. (2015), investigated the agricultural export and economics growth employing econometrics model of Johansen co-integration technique. The empirical result through the case study of Pakistan depicted negative relation with agricultural exports and positive relation with non-agricultural export on the economic growth respectively. Their study provides the advice that the government of Pakistan should implement structural change in agricultural exports by adding value to convert processed products.

According to the empirical analysis of Cynthia and Johannes (2017), agricultural exports have the positive and insignificant on economic growth while non-agricultural exports have direct effect on GDP of Namibia. This study made use of time series quarterly data from the observation period between 1990-2014 based on Augmented Dicky Fuller test, and error correction techniques and Johansen co-integration test respectively.

Based on the afore mentioned empirical works, the total export contributes meaningfully to the economic development but agriculture's share in total exports is generally substantial in underdeveloped economies. It can be concluded there are mixed findings due to the environmental differences and data used in different studies. However, very few studies have tried to address the role of agricultural exports on economic growth of developing countries in the ASEAN region using a panel data analysis; rather, most of them have focused on other developing countries. he knowledge gap is filled by this study.

METHODOLOGY AND DATA

3.1. Model Specification

This study is intended to investigate whether agricultural export has an impact on the economic growth of selected developing ASEAN countries. We have also tried to analyze the role of agricultural export in developing countries. To achieve our objectives, the study based on the classical growth model developed by Commer (2012). The relation between export and economic growth can be framed from Cobb-Douglas production function:

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

The level of impact of agricultural export to the economics growth from supply side of view have been examined by considering the following the theoretical framework.

$$Y_t = A_t L_t^{\alpha} K_t^{\beta} X_A^{\gamma} X_N^{\delta} \pi_t^{\lambda} e^{\mu t}, \tag{2}$$

Where, Y_t denote the gross domestic product of the economy, L_t denote the labor force participation, K_t the capital stock, X_A denote the agricultural export, X_N denote the non-agricultural export (manufacture goods). π_t is the inflation and the t is the time period. α, β, γ, δ and λ are the elasticities of production with labor, capital, agri-export, non-agri-export and inflation respectively.

By taking natural logs(ln) to each variable on both side of equation, we can be liberalized the differences in the units of measurement of variables based on the above function:

$$lnY_t = lnA_t + \alpha \, lnL_t + \beta lnK_t + \gamma lnX_A + \delta \, lnX_N + \lambda ln \, \pi_t + \mu t, \tag{3}$$

Due to the panel model technique, both longitudinal and cross-sectional data were used. We introduce the dynamic dimension identities of 8 across countries, 20 years and 6 variables. Thus the question (3) is given:

$$\ln Yti = \ln Ati + \alpha \ln Lti + \beta \ln Kti + \gamma \ln XAi + \delta \ln XNi + \lambda \ln \pi ti + \mu ti \tag{4}$$

where, I denote across countries 1-8 and t denote time period from 1995 to 2014.

To investigate the impact of agricultural export on each country over the specific country effect, we used time dummy variable on each time period. We developed the equation (5) by introducing dummy variable (D_i).

$$Yit = \beta 0 + \beta 1Cit + \beta 2Kit + \beta 3Hit + \beta 4Nit + \beta 4Iit + \beta 4Oit + \beta 5Di + eit, \tag{5}$$

where Dt is the country dummy variable for the time period of 1995 to 2014.

In this study, both fixed effect and random effect model were tested in order to find the most efficient estimates. The fixed effect model controls the effect of time-invariant characteristics within each country variables. Thus, we can assess the net effect of explanatory variables on the dependent variables. The fixed effects model is especially created to study the causes of changes within entities.

In the random effect, the variation across groups is assumed to be random and there is no correlation among with the predictors. The important distinction between the fixed and random effects is either the unobserved individual effect embodies element that are correlated with the regressors in the model, not whether these effects are stochastic or not (Green, 2008). According to the assumption, the dependent variables have been influenced by some differences across entities, and so random effects model should be more appropriate to use. The usefulness of random effects than fixed effects model is that it can add time invariant variables, while the fixed

effect model is absorbed by the intercept. The random effects model equation can be generated from equation (4) :

$$Y_{it} = \beta_0 + \beta_1 C_{it} + \beta_2 K_{it} + \beta_3 H_{it} + \beta_4 N_{it} + \beta_4 I_{it} + \beta_4 O_{it} + \beta_5 D_i + e_{it} + \mu_{it} \tag{6}$$

To know the most appropriate way to carrying out this analysis, we used the Hausman test. Based on the result of Hausman test, we decided the fixed effect and random effect which is more appropriate for this analysis. The null hypothesis is no correlation between unique error (u_i) and the regressors and the alternative hypothesis are correlated with each other. If the null hypothesis is rejected, we can conclude that the correlation is relevant and panel fixed effect is the appropriate way to analyze the relationship of agricultural export and economic growth. From the other point of view, if the null hypothesis fails to be rejected, the correlation is not relevant and panel model of random effects is appropriate. The Hausman test model can be represented as:

$$H = (b1 - b0)1 \; (Var \; (b1) - Var \; (b1) \; \chi \; (b1 - b0), \tag{7}$$

Moreover, we generate the Level equation from equation (4) in order to estimate the time effect by adding time dummy.

$$lnrealgdpwb = \alpha_{0+} \; \alpha_1 lnagriex + \alpha_2 \; lnmanuex + \alpha_3 \; GCFofGDP + \alpha_4 \; inf + \alpha_5 \; lnl + e_t \tag{8}$$

$$lnrealgdpwb = \beta_{0+} \; \alpha_1 lnagriex + \beta_2 \; lnmanuex + \beta_3 \; GCFofGDP + \beta_4 \; inf + \beta_5 \; lnl + \beta_6 D_t + e_t \tag{9}$$

Where lnrealgdpwb is natural log of the real GDP, lnagriex is the natural log of agricultural export, lnmuex is the natural log of manufacture export, GCF of GDP is the gross capital formation (% of GDP), inf is the inflation(CPI) and lnl is the natural logof laborforce participation and et is the error term.

For the Growth equation, we take one year lagged of GDP

$$D.lnrealgdpwb = \gamma_0 + \gamma_1 \, lnrgdpna_{t-1} + \gamma_2 \, lnagriex_{t-1} + \gamma_3 \, lnmanuex_{t-1} + \gamma_4 \, inf_{t-1} + e_t \qquad (8)$$

$$D.lnrealgdpwb = \gamma_0 + \gamma_1 \, lnrgdpna_{t-1} + \gamma_2 \, lnagriex_{t-1} + \gamma_3 \, lnmanuex_{t-1} + \gamma_4 \, inf_{t-1} + \gamma_5 D_t + e_t \qquad (9)$$

To test the stationary of the variables, the Fisher Unit root test is used. The null hypothesis is that the variable is not stationary or have unit root and alternative hypothesis is stationary. The test was conducted for the variables which were not stationary can be made by differentiating them.

3.2. Method of Data Collection

To investigate the role of agricultural export on economic growth in developing countries, dataset of this study includes 8 developing ASEAN countries which were collect from the World Bank (World Development Indicators 2015), Penn World Data (Version 9.0) and UNCTADStat. This study used Real GDP at constant 2011 national prices as the indicator of economic growth. The time period for all variables collected covered 20 years between 1995 and 2014.

This paper also included control variables to mitigate the effect of omitted variables. These were labor force participation to control the aggregate production, employment and population level of the nation economy, inflation(CPI) to control the inflation effect on GDP and capital stock to control the investment on GDP. All variables have been transformed into natural log to deal with the issue of outliers and different measurement units.

Table1: Variable Source and Definition

Variable	Source	Variable Definition
realgdpwb	World Bank	Real GDP at constant 2011 national prices (in mil. 2011US$)

agriex	UNCTADStat	Agricultural exports primary products rather than value added products. (SITC Rev.3 product group)
manuex	UNCTADStat	Non-agricultural exports consist of manufactured goods (SITC Rev.3 product group)
inf	World Bank	Inflation, consumer prices (annual %)
l	Penn World Table (9.0)	Labor Force, Number of persons engaged (in millions)
GCFofGDP	World Bank	Gross fixed capital formation (% of GDP)

3.3   Meaning of Variables

3.3.1   Dependent Variable

Real Gross Domestic Product (realgdpwb)

This was the dependent variable because we are focusing on the relation between the real GDP and agricultural export in developing ASEAN countries. It is defined as "*the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. These data are based on constant US dollar*". (World Bank, 2017)

3.2.2 Explanatory variables

Agricultural export (agriex)

This refers to total export of raw material of agricultural products excluding oil seeds and oleaginous fruits, crude fertilizer other than division 56 and crude materials and metalliferous ores and metal scrap.(UNCTAD stat SITC Rev.3 product group 2 less 22,27 and 28)

Manufactured export (manuex)

This includes miscellaneous manufactured articles, manufacture goods, industrial equipment and transport equipment and chemical and related products, by excluding pearls, precious and semi-precious stone, non-ferrous metal. (UNCTAD stat SITC Rev. 3 product group 5,6 and 7 less 667 and 68)

Inflation (inf)

Inflation as measured by "*the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used*". (World Bank, 2017)

Gross Fixed Capital Formation (GFC%ofGDP)

Gross fixed capital formation includes "*land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, commercial and industrial buildings. According to the 1993 SNA, net acquisitions of valuables are also considered capital formation. Data are in current U.S. dollars*". (World Bank, 2017)

Labor Force Participation Rate (lnl)

It is the total employment of the labor, number of person engaged in million.

IV. RESULTS OF EMPIRICAL ANALYISIS AND RELATED DISCUSSION

Table 1. Descriptive Statistics

Panel A: Summary Statistics

	lnRealGDPWB	lnagriex	lnmanuex	GCFofGDP	lnl	inf
Mean	25.05	13.06	16.03	23.86	2.64	6.69
S.D.	1.5	2.65	2.22	7.76	1.85	9.43
Min	22.02	4.11	11.54	10.15	-2.08	-2.31
Max	27.57	16.6	18.93	43.64	4.75	58.39

Panel B: Correlation Matrix

	lnRealGDPWB	lnagriex	lnmanuex	GCFofGDP	lnl	inf
lnRealGDPWB	1					
lnagriex	0.736	1				
lnmanuex	0.864	0.763	1			
GCFofGDP	0.404	0.234	0.362	1		
lnl	0.661	0.858	0.635	0.152	1	
inf	-0.051	0.145	-0.15	-0.272	0.279	1

From Table 1 Panel, this table show the descriptive statistics of the data series. The maximum value of agricultural product export is 16.6 and the minimum value is 4.22. The means of average is 13.06. The maximum value of manufacture export is 18.93 and the minimum value is 11.54. The mean of average is 16.03. According to the statistical value, we can realize that our variables can meet the qualification to apply in the regression analysis and they do not found the outlier.

From the aforementioned Table 1 Panel B, it is shown that inf (inflation) is negatively related to lnRealGDPWB. lnRealGDPWB is also positively related to lnagriex, lnmanuex and GCFofGDP. Lnagriex, lnmanuex and GCFofGDP is positively correlated with each other. Inflation is positively correlated with agricultural export and negatively correlated with the rest of variables.

Table 2. **Result of Unit Root Test**

Variables	Difference	Statistics
Economic Growth	First Difference	-5.2199 (0.0000)***
Agricultural Export	First Difference	-5.1066 (0.0000)***
Non-agricultural Export	First Difference	-4.9493(0.0000)***
Labor Force Participation	First Difference	-2.9192 (0.0018)***
Capital Stock	First Difference	-4.3655(0.0000)***
Inflation(CPI)	First Difference	-4.5262(0.0000)***

Source: Author's own calculation

Before estimating the model, I tested the data whether each data series in both cross section and year are non-stationary or stationary by using the panel unit root test. The model of Levin-Lin-Chu panel Unit root test was applied to conduct the test for unit root in order to analysis the stationary. Table 2 presents the result of the unit root test and reveals that all variables used in this study are stationary at first difference level. Therefore, this result strongly rejects the null hypothesis of all panel contain unit root test.

Table 3. **Regression Result of the Impact of Agriculture Export on Economic Growth**

VARIABLES	Pool OLS lnRealGDPWB	Fixed Effect lnRealGDPWB	Random Effect lnRealGDPWB
lnagriex	0.016	0.049***	0.071***
	(0.050)	(0.018)	(0.019)
lnmanuex	0.471***	0.172***	0.230***
	(0.044)	(0.026)	(0.025)
GCFofGDP	0.025***	0.008***	0.008***
	(0.008)	(0.002)	(0.002)
inf	0.006	-0.007***	-0.007***
	(0.007)	(0.002)	(0.002)
lnl	0.132**	1.268***	0.762***
	(0.062)	(0.151)	(0.120)
Constant	16.295***	18.144***	18.280***
	(0.560)	(0.278)	(0.407)
Observations	160	160	160
Number of group		8	8
R-squared	0.782	0.833	0.833

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Test: Ho: difference in coefficients not systematic

$$chi2(5) = (b-B)'[(V\_b-V\_B)^{\wedge}(-1)](b-B)$$
$$30.06$$

Prob>chi2 =   0.0000
(V_b-V_B is not positive definite)

Empirical results posted in Table 3, model 1 Pool OLS represent that the estimated coefficient of agricultural export have theoretically expected signs showing positive relationship but its coefficient can be interpreted as it is not statistically significant . The manufacture export is positively related and highly significant 1% and 5% confidence interval with economic growth. The coefficient of lnmanuex can be interpreted as 1% increase in manufacture export is associated with almost about 0.47 % increase in GDP growth. Interestingly, the coefficient of GFC (% of GDP) is positively related and statistically significant at 5%. which means 1% increase in Gross Fixed Capital formation can increase 0.025% in the growth of GDP growth. The estimated coefficient of lnl is positively related and significant 5% level with economic growth. The coefficient of labor force participation is 0.132 which means 1% increase in labor force participation   can be interpreted 0.132 % increase in GDP growth.

Regression result of fixed effect model estimate agricultural export shows positive relationship with the economic growth and   It has theoretically expected sign and coefficient indicate strongly significant at 1% percent level with economic growth. The estimated coefficient of agricultural export is 0.049 which explains 1percent increase in agricultural export is dealing with 0.049 percent increase in the growth of GDP. The manufacture export has positive relation and have highly significant effect on economic growth. The coefficient of lnmanuex is 0.172 which means an more export of manufacture product by one percent high in growth of GDP by

0.172 percentage point. Interestingly, GFC (% of GDP) is positively related and statictically strongly significant at 5% level. The coefficient of GFCofGDP is about 0.008 which means 1% increase in Gross Fixed Capital formation is associated with approximately 0.008% raise in growth of GDP. The estimate coefficient of inflation have the expected sign between dependent variable and independent variable.The inf is negativerelation and highly significant at 1% and 5% level . The estimated coefficient of inflation is 0.007 which means inflation increase by 1 percentage ed the growth of GDP decreade by 0.007 percentage point. The estimated coefficient of labor force participation has supposed sign and which is positive relation with economic growth. The coefficient of labor force participation is 1.268 and strongly significant which means 1% increase in manufacture export can be explain 1.268 % increase in GDP

Regression result of random effect model shows agricultural export exhibits direct relationship with variable we are focusing on and its expected coefficient is highly significant at 1% and 5% level. The estimate result of agricultural export is 0.071 which means 1% increase in agricultural export GDP increase by 0.071 percentage point. The manufacture export is positively related and statistically significant 1% and 5% with economic growth. The coefficient of lnmanuex is 0.230 which means 1% increase in manufacture export, economy growth by 0.230 percentage.The estimated sign of GFC (% of GDP) is positively related with independent variable. The coefficient of GFCofGDP is 0.008 which means in Gross Fixed Capital formation increase by 1% which help to increase 0.008% in GDP growth. The expected sign of inf is inverse relation with development of economic. The highly significant of coefficient of inflation is 0.007 which means 1% increase in manufacture export can decrease approximately 0.007 % in GDP growth. The labor lnl is positively related and strongly significant at 1% and 5% with economic growth. The coefficient of labor force participation is 0.762 which means 1% raise in export of manufacture product is associated with approximately 0.762 % higher in GDP growth.

Table 4.   **Fixed Effect Regression with time dummy variable**

VARIABLES	Model (1) lnRealGDPWB	Model (2) lnRealGDPWB
lnagriex	0.049***	-0.040**
	(0.018)	(0.012)
lnmanuex	0.172***	0.168***
	(0.026)	(0.040)
GCFofGDP	0.008***	0.007
	(0.002)	(0.007)
inf	-0.007***	-0.005*
	(0.002)	(0.002)
lnl	1.268***	-0.170
	(0.151)	(0.726)
		(0.177)
		(0.382)
Year Dummy	No	Yes
Constant	18.144***	22.830***
	(0.278)	(1.618)
Observations	160	160
Number of count1	8	8
R-squared	0.833	0.885

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The Regression output from Table 4 shows that agricultural export exhibits positive relationship with economic growth and its coefficient is statistically highly significant at 1% confidence interval. The coefficient of agricultural export is 0.049 which means 1% increase in agricultural export can   increase nearly 0.049 % in GDP growth. The manufacture export is positively related and highly significant 1% and 5% with economic growth. The coefficient of lnmanuex is 0.172 which means manufacture export increase by one percent associated with almost 0.172% increase in GDP growth. Interestingly, GFC (% of GDP) has positive relation. The coefficient of GFCofGDP significant at 5 percent level which means 1% increase in Gross Fixed Capital formation is indicated with nearly 0.008% more in GDP growth. The expected sign of inf is negatively related with GDP and coefficient is highly significant at 1%   The coefficient of

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inflation explains 1% increase in manufacture export is associated with approximately 0.007 % decrease in GDP growth. The lnl is positively related and statistically significant at 1% and 5% with economic growth. The coefficient of labor force participation is 1.268 which means increase in 1% of manufacture export brings 1.268 % increase in GDP growth.

In Table 4 model 2, we add time dummy variable to investigate year-specific effect. Considering the year-specific effect, the result represents agricultural export become negative correlation and significant at 5% level. The coefficient of agricultural export is 0.040 which means 1% increase in agricultural export is associated with an approximately 0.040 decrease in GDP growth. Moreover, the manufacture exports become positively correlated and statistically significant 1% and 5% with economic growth. The coefficient of lnmanuex is 0.168 which means manufacture product export is increase by 1 % which relatively high 0.168% in GDP growth. Interestingly, GFC (% of GDP) is positively related and statistically insignificant. The inf is negatively related and statistically significant at 10% with economic growth. The coefficient of inflation is 0.007 which means 1% increase in manufacture export is associated with approximately 0.007 % decrease in GDP growth. The lnl is negatively related and statistically insignificant with GDP growth.

Although the impact of agro- product exports on growth of economic with year specific was weak, there was an overall positive relationship between agricultural raw material exports and economic growth in this region. However, the result also means that the agricultural exports has not contributed to the growth process in ASEAN counties.

Table 5. **Panel Regression result of Growth Equation**

VARIABLES	Growth Equation	
	Model (3) D.lnRealGDPWB	Model (4) D.lnRealGDPWB
L.lnRealGDPWB	-0.956***	-0.039062**
	(0.141)	(0.017261)
L.lnagriex	-0.356***	0.000217
	(0.069)	(0.004041)
L.lnmanuex	0.083	0.011288**
	(0.112)	(0.005576)
L.inf	0.001	-0.000285
	(0.014)	(0.000320)
		(0.014724)
Year Dummy	No	Yes
Observations	152	152
Number of count1	8	8
R-squared	0.3897	0.48613
Standard errors in parentheses	0.779	0.486

*** p<0.01, ** p<0.05, * p<0.1

The result of growth equation in table 4 model (3) shows agricultural export become negatively correlated to economic development and strongly prof at both 1% and 5% level. The coefficient of agricultural export is 0.356 which means 1% increase in agricultural export is associated with approximately 0.356 % decrease in GDP growth. Moreover, the manufacture exports become negatively correlated and statistically significant at 1% and 5% with economic growth. The coefficient of lnmanuex is 0.083 which means 1% more in manufacture product export is associated with approximately 0.083 % decrease in GDP growth. However, inflation is statistically insignificant on the GDP growth.

Adding time specific effect in model (4), the regression result shows agricultural export become positively correlated and statistically insignificant with economic growth. Moreover, the

manufacture exports become positively correlated and statistically significant 5% with economic growth. The coefficient of lnmanuex is 0.0113 which means 1% higher in manufacture export, 0.0113% increase in GDP growth. However, inflation is statistically insignificant on the GDP growth.

Considering the time-specific effects, the results indicate that agricultural exports had an inverse relationship with economic growth during the years 1997, 1998, 2001, and 2009. The rest of the study period showed weak the impact of agricultural exports on economic growth. Although a positive relationship exists between agricultural exports and economic growth in the years 1997, 1998, 2001, and 2009, overall, agricultural exports have not contributed to the growth process in ASEAN member counties and are insignificant to GDP growth.

V.   SUMMARY AND POLICY IMPLICATIONS

5.1   Summary

This research attempts to examine the impact of agricultural raw material export on the growth of GDP especially in developing agriculture based ASEAN countries. The rational of study is located on selected developing ASEAN countries such as, Brunei Darussalam, Cambodia, Indonesia, Thailand, Malaysia, Philippines, Viet Nam, Myanmar using of panel data series. The study period is from 1995-2014 applying panel fixed effect model at level and growth equation model using year dummy variables.

The following are the primary findings. The impact of variable we want to know is agricultural product export which shows the positive relation on level fixed effect equation and inverse relation on growth rate fixed effect regression. This is not so amazing by the reason of the export product of agricultural by most developing countries are based on the primary products, i.e. raw materials than the processing products. The price of the products is failed to compete in the world market. study area of South East Asia is closely located to major competitors China and India, and import of agricultural goods is high in some commodities. Well processed agricultural goods have been enormously import from the developed countries. These commodities are higher-value products and also higher in price. The unfavorable balance of trade in agriculture export and import product may be the prominent reason of this negative outcome.

Our study also observed that non-agricultural export's impact on improvement of nations economy has which has positive relation with the economic growth. This result is our expectations on this variable. There is a larger market for manufactured product export because they are higher value-added product and the price are substantially high in globally demand. Manufacture export sector provide more revenue and support to the country development than

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agriculture sector in developing ASEAN countries. Consequently, this sector strongly reveals the economic growth.

At the last, we can be made the decision that this study does not support the hypothesis of export-led growth by the agriculture sector in developing ASEAN countries. On the other hand, over-reliance on primary agriculture export (raw material) may suffer economic development of the country. Agriculture diversification and value-adding to the product will be the fundamental issue of the problem. Importing of higher value-added product from other should be discourage by encouraging domestically agro-processing sector.

5.2   Policy Recommendation

Above discussion highlight the following policy implication,

i.   Due to the outcome of the analysis, primary product of agriculture is the negatively related to the country's economic development in developing ASEAN. The government should be changed the framework and arrangement of international trade. To perform the export-oriented policy, the proportion of primary agricultural product should be reduced and the manufactured goods should try to increase in the total share of export.

ii.   To expand the manufactured products export (non-agricultural product), the government should encourage the farming system from raw materials to final product and the domestically processing industry. Tax abatement and tax avoidance should provide by the government as an inducement to investor.

iii.   The primary agro-products should be export as the value-added products instead of raw materials. For instead – exporting paddy should be converted to the milled rice or parboiled rice

which are high price and demand in global market. This way will help to secure the benefit from the agriculture sector.

iv.   The competitive environment in the global market, modernized production practices and facilities should be conduct. The global standard quantity and quality of the product will get the high revenue and enhance the economic product.

v.   The ASEAN member states already exit the strong foreign market for raw materials, there will also exist the proper market for processing agricultural products and expand the market conditions. Foreign market demand creates the expansion of domestic productivity.

vi.   The government of the ASEAN member states should also invite the FDI to invest in the agro-processing sector. ASEAN regions are abundant in cheap labor force. Positive externalities from the foreign direct investment brings the experiences and skilled labor to employ in sector of production.

vii.   The policy of input substitution and export promotion should be considered as the strategy for economic development of the countries. Export expansion is the promising way of efficient resource allocation, better production practices via improved techniques to get better production efficiency, getting enlarge in economy scale, increase capital formation and opportunities for job creation will lead to the economic development.

viii.   To increase the output per worker, the following are some measure,

- Government should provide the capacity building program to improve the skill of each of worker.
- Infrastructure facilities providing should also be considered.

- The appropriate new technologies should be accepted to increase per worker productivity.

- Human resource management should be efficiently allocated through appropriate strategy.

- Farm gate price of agricultural products should be stable for farmer to avoid the fluctuation of raw commodities.

- The supply chain practices of crops should be well manage to reduce the undesirable intermediate man' price playing.

ix.   Government should also prioritize the infrastructure development for domestic value-added processing. Transportation facilities should be convenience to readily transport from one place to another. The countries entrance and exit building like international airport, seaport should be promoted to enhance the export volume to full fill the global demand

x.   The strong points of ASEAN member states are that these countries are located closely near the well-developed countries like India and China and not so far from Japan, Korea, Taiwan. Thus, the qualified export commodities   have the strong trade link and definitely get the benefit from these neighboring countries. But the weak point is that our commodities must compare the exports from those countries.

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