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BUSINESS ADMINISTRATION AND ECONOMICS REVIEW

The Relationships among international trade, trade openness, financial development and economic growth: the case of Thailand

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Abstract

This study is conducted to investigate the relationships among international trade, trade openness, financial development and economic growth in Thailand over the period 1997-2021 using time series analysis. The ADF test is used to verify the order of integration of the variables and the Johansen cointegration methodology is employed to investigate the long run relationship among these variables. It is found that there exists the long run relationship among these variables. The Error Correction Model (ECM) is also estimated to test the short run adjustment of the system. It is found that the system is able to adjust back to its long run equilibrium at the rate of 58 percent of the disequilibrium in each successive time period after the shock occurs. In addition, the direction of causality between these variables is estimated by Granger Causality Test. It is found that there is unidirectional causality from import to economic growth, economic growth to export, import to export, financial development to export and import to financial development; and bidirectional causality between trade openness and economic growth, financial development and economic growth, trade openness and export, and financial development and trade openness.

Keywords: *International trade, Trade openness, Financial development, Economic growth, Cointegration.*

1. Introduction

GDP is the international standard for measuring the economic output and growth of countries. The most important criteria to evaluate the performance of an economy is GDP growth. There are a large number of studies to identify the main drivers of economic growth. These studies indicate different drivers of growth including international trade, trade openness, foreign direct investment, financial development, domestic investment, and capital stock. This study aims to examine the relationship among international trade, trade openness, financial development, and economic growth by using time series analysis for the case of Thailand.

Over the past years, the relationship between economic growth and international trade was focused by many economists when international trades come into being. With the development of international trade, it has been the debate of economic research in academe because of its impact on economic growth. Chen (2009) reviewed several theories on the relationship between trade and economic growth. One is a theory of classical school of economics which believe that international trade promoted economic growth in two ways. One is international trade improved the optimal distribution of resources and productivity consequentially and then stimulated the economic growth; second, a country could gain raw materials and equipment which it could not produce. Those provide the material basis for economic development. The famous theories of classical school are exports of surplus of Adam Smith, comparative advantage of David Ricardo, the interests of the trade development of John Mueller. However, all these theories interpreted the relationship to some extent but ignored that the international environment is complex and unruly. Another one is the theory of new-growth school, led by Romer, Lucas and Svensson, the representatives of this school, pointed out that the growth of developed countries would be attributed to the improvement of productivity. Based on this fact, the theory resulted in a series of models to study the relationship among international trade, technological progress and economic growth. They viewed that international trade could promote economic growth through technology spillover and external stimulation. The relationship between GDP growth and export which is an important component of international trade has conducted in many studies. Most of the studies resulted that export has positive impact on GDP growth. Gokmenoglu et al. (2015) state that there is a long run relationship among international trade, financial development and economic growth. The results indicate that international trade and financial development spur economic growth in Pakistan. Although, there is some empirical evidence

supporting export-led growth, the empirical support for import-led growth hypothesis is relatively stronger. In some cases, there is also evidence for reverse causality from gross domestic product growth to exports and imports (Awokuse, 2008).

There are also many studies focused on the relationship between trade openness and economic growth. It has received a great deal of attention both in the theoretical and empirical literature during the last three decades. However, there is no consensus on whether greater openness to trade stimulates economic growth. Eris and UlaŞan (2013) investigate the relationship between trade openness and economic growth. The results find that no evidence that trade openness is directly and robustly correlated with economic growth in the long run. Keho (2017) found that trade openness has positive effects on economic growth both in the short and long run. Furthermore, they reveal a positive and strong complementary relationship between trade openness and capital formation in promoting economic growth.

Further to that, there has been substantial theoretical and empirical work on the role that financial markets play in fostering economic growth and development. Gregoriom & Guidotti (1995) examines the empirical relationship between long-run growth and financial development. They found that those studies have dealt with different aspects of this relationship. Several studies have attempted to establish whether financial deepening leads to improved growth performance, and have endeavored to analyze the strength of this relationship. Other studies have focused on identifying the channels of transmission from financial intermediation to growth. While empirical studies often find a positive relationship between indicators of financial development and growth, much controversy remains about how these results should be interpreted. There are two main sources of controversy. First, there is debate over the issue of how to measure empirically the extent of financial intermediation. Typically, financial intermediation has been proxied largely by the level of the real interest rate and by various monetary aggregates, all of which pose significant problems of interpretation. The second area of controversy concerns the channel of transmission from financial development to growth. While some studies find there is no clear relationship between measures of financial development and savings or investment rates.

Although there are a lot of studies that investigate the relationships among international trade, trade openness, financial development and GDP growth, the literature on Thailand is limited. And also, after economic crisis in 1997, many indicators pointed out that the economic structure of Thailand has

been changed, especially international trade and financial development. This research aims to investigate the existence of the long run relationship between international trade, trade openness, financial development and GDP growth, the short run adjustment of the system, and the direction of causal relationship among these variables for Thailand after economic crisis.

2. Literature Review

International trade encompasses the inflow and outflow of goods and services in a country. A country's imports and exports represent a significant share of her gross domestic product (GDP); thus, international trade is correlated to economic growth. In an open economy, development of international trade greatly impacts GDP growth (Li et al., 2010). The relationship between international trade, trade openness and GDP growth has conducted in many studies. Most of the studies resulted that export has positive impact on GDP growth. Adeleye et al. (2015) indicates that international trade has a positive effect on economic growth and is also important in boosting economic growth. This is because exports, one of the proxy variables of international trade, give positive and significant effects on economic growth. Purnama & Yao (2019) found that there is a long term co-integrated relationship between international trade and economic growth in ASEAN countries. International trade and foreign direct investment have a long term, positive impact on economic growth. Rodtussana (2002) studies the causal relationship between openness and economic growth. Results show that all openness variables and economic growth are co-integrated and the Granger causality test shows that the export and trade variables are related to the economic growth and the import growth rate and capital and financial growth rate are determined by economic growth rate. Muhammad et al. (2015) investigate the relationship between financial development, international trade and economic growth for Australia. They find the long-run relationship among the variables. Financial development, international trade, and capital appear as the drivers of economic growth in short and long runs. The feedback effect exists between international trade and economic growth. Financial development Granger causes economic growth validating supply-side hypothesis. Sakyi et al. (2015) investigate the long-run impact of foreign direct investment and trade openness on economic growth in Ghana. They find that the interaction of foreign direct investment and exports has been crucial in fostering growth. From a policy-oriented point of view, the study recommends the channeling of foreign direct investment to export-oriented sectors and the promotion of export-led growth strategies in long-term development plans. Fatima et al. (2020) explore the empirical impact of

trade openness on gross domestic product (GDP) growth. The results outline an intriguing indirect relationship between trade openness and GDP growth. If human capital accumulation (HCA) is taken into account as an intervening variable, trade may have a negative impact on GDP growth when countries exhibit a low level of HCA. When the ratio of total trade to GDP, the ratio of exports to GDP, and the trade openness index are used as proxies of trade openness, then trade openness has a significant, positive impact on economic growth in both the short run and the long run. However, when the ratio of imports to GDP is used as a proxy for openness, the study fails to find any significant impact of trade openness on economic growth in both the short run and the long run (Malefane, 2020). Huchet-Bourdon et al. (2017) study the relationship between trade openness and economic growth on some new insights on the openness measurement issue. The finding shows that countries exporting higher quality products and new varieties grow more rapidly. More importantly, there is a non-linear pattern between the export ratio and the quality of the export basket, suggesting that openness to trade may impact growth negatively for countries which are specialized in low-quality products. A non-linear relationship between export variety, the export ratio and growth are also found, suggesting that countries increasing their exports will grow more rapidly after reaching a certain degree of the extensive margin of exports.

The literature usually defines financial development as the improvement in quantity, quality and efficiency of financial intermediary services. This process involves the combination of many activities and institutions. One of commonly used measure of financial development is the ratio of broad money (M2) to GDP. A higher M2/GDP ratio implies a larger financial sector and therefore greater financial intermediary development (Calderón & Lin Liu, 2003). However, there are another measurement of financial development. Gregorio (1995) indicates that it is more advantage in using the ratio of bank credit to the private sector to GDP over measures of real interest rates or monetary aggregates such as M1, M2, M3. The ratio of bank credit to the private sector to GDP more accurately represents the actual volume of funds channeled to the private sector. Therefore, it is more directly linked to investment and economic growth. With the limitation of availability of data, this study uses broad money (M2) as the indicator of financial development.

The question of whether financial development causes economic growth or economic growth causes financial development has been empirically examined in the recent literature. For example, Calderón & Liu (2003) examine the direction of causality between financial development and economic growth on pooled data of 109 developing and industrial countries from 1960 to 1994.

The paper finds that financial development generally leads to economic growth, the Granger causality from financial development to economic growth and the Granger causality from economic growth to financial development coexist, financial deepening contributes more to the causal relationships in the developing countries than in the industrial countries, the longer the sampling interval, the larger the effect of financial development on economic growth and financial deepening propels economic growth through both a more rapid capital accumulation and productivity growth, with the latter channel being the strongest. Caudill & Chang (2005) examine the relationship between financial development and economic growth in Taiwan from 1962 to 1998. The results from Granger causality tests suggest unidirectional causality running from financial development (measured as the ratio of M2 to GDP) to economic growth which supports the supply-leading hypothesis for Taiwan. Khan et al. (2000) indicate that the effect of financial development on growth is positive, the size of the effect varies with different indicators of financial development, estimation method, data frequency, and the functional form of the relationship. Financial development is a key factor in changing economic conditions. Moreover, financial development has a positive correlation with economic growth regardless of the economic situation. This shows that financial development is a stimulator for economic growth while the openness of the country is a factor that stimulates the financial development (Khattirat, 2016). However, there are conflicting views concerning the role that the financial system plays in economic growth (Hassan et al., 2011). Pagano (1993) indicates that domestic gross saving is positively related to growth. Moreover, other proxies for financial development, such as domestic credit provided by the banking sector and domestic credit provided to the private sector, are positively related to economic growth.

The literature on the relationship among export, import, trade openness, financial development and economic growth is far from consensus. The findings depend on the differences in countries examined, time periods examined, variables measured, and the conducted methodologies of the study, thus the empirical findings in these studies are somewhat contradictory.

3. Methodology

3.1 Data

The data used in this research are the quarterly figures of 1997-2021 containing variables, gross domestic product (GDP), import (M), export (X), trade openness (TO) and monetary aggregate; broad money (M2) as the indicator of financial development (FD). GDP figures are chain volume measures GDP on reference year 2002, trade openness data is the total volume of export and import in percent of GDP and broad money are in percent of GDP. GDP data is collected from the office of the National Economic and Social Development Council of Thailand (2022). Export, import and M2 are gathered from the Bank of Thailand. The data is transformed into natural logarithmic form in order to capture growth effects.

3.2 Econometric analysis

This study investigates the relationship among international trade, trade openness, financial development and economic growth in Thailand by using time series econometrics methodology. The empirical investigation involves four steps. First of all, Augmented Dickey-Fuller (ADF) (1981) unit root test is used to test whether variables are stationary. The second step tests the presence of long-run relationships among the variables using Johansen and Juselius (1990) cointegration test. The third step is to estimate the short run adjustment of these variables using Error Correction Model (ECM). The fourth step is to carry out the estimation of causal relationships among the variables using Granger causality tests. To avoid the potential of multicollinearity, some variables are redefined to express in ratio, such as trade openness and broad money, so that each independent variable has a clear, unique role in explaining the dependent variable.

Log-linear specification of the variables are used. There are two reasons why variables are converted into natural logs. First, the coefficients of the cointegrating vector can be interpreted as long-term elasticities if the variables are in logs. Second, if the variables are in logs, the first difference can be interpreted as growth rates (Adhikary, 2011). The following equation in log-linear form is estimated:

$$LY_t = \beta_0 + \beta_1 LX_t + \beta_2 LM_t + \beta_3 LTO_t + \beta_4 LFD_t + \varepsilon_t \quad (1)$$

Where Y is real GDP. X, M, TO, FD represent, export, import, trade openness and financial development respectively. All are measured as percent of real GDP. β_0 is an intercept of the relationship in model. $\beta_1, \beta_2, \beta_3, \beta_4$ are coefficients of exogenous variable which present the elasticity of the explanatory variables. The error-term (ε) is assumed to be independently and identically distributed. The subscript (t) indexes time.

3.2.1 Unit Root Test

Prior to any empirical analysis, the order of integration of the variables has to be investigated. In this study, ADF test is used to test whether the series are stationary. The null hypothesis for ADF test is that the series has unit root. If the series is non-stationary at level, the first differences of the series should be taken in order to see if the series is stationary. Stationary series at level is denoted by I (0) and stationary series at first differences is denoted by I (1).

Rodtussana (2002) suggests that testing unit root should be started from the general model includes trend and intercept. The model can be written as follows;

$$\Delta X_t = \alpha_0 + \alpha_1 t + \alpha_2 X_{t-1} + \sum_{i=1}^{p} \theta_t \Delta X_{t-i} + \varepsilon_t \qquad (2)$$

Where X is variable tested, α_0 is the constant, α_1 is the coefficient of time trend, α_2 is the coefficient of lagged variable, t is the time trend, ε_t is a pure white noise error term and p is the lag level.

3.2.2 Co-Integration Test

The Johansen test and estimation strategy; maximum likelihood, makes it possible to estimate all cointegrating vectors when there are more than two variables. If there are three variables each with unit roots, there are at most two cointegrating vectors. More generally, if there are n variables which all have unit roots, there are at most n-1 cointegrating vectors (Dwyer, 2015).

In the event of the non-stationarity of each variable, the cointegrating relationship among variables is studied by the Johansen-Juselius procedure (Johansen 1988, Johansen-Juselius 1992, 1999) to overcome the associated problem of spurious correlation and misleading inferences. The basic idea behind cointegration is that if two or more series move together in the long-run, even though the series themselves are trended, the difference between them is stationary, and it is possible to regard these series to have a long-run equilibrium relationship (Adhikary, 2011).

Johansen's methodology takes its starting point in the vector autoregression (VAR) of order *p* given by

$$Y_t = \mu + A_1 Y_{t-1} + \cdots + A_\rho Y_{t-p} + Bx_t + \epsilon_t \quad (3)$$

where Y_t is a k-vector of non-stationary I(1) variables, x_t is a d-vector of deterministic variables, and ϵ_t is a vector of innovations.

3.2.3 Granger Causality Test

The last aspect of the analysis presented in this paper is to find the direction of long run relationship among variables. Granger causality tests are conducted (Granger, 1969). The empirical results presented in this paper are based on a pairwise bivariate causality test between the four variables stated earlier. There are four sets of bidirectional hypotheses to be tested:

1. Export Granger causes economic growth and vice versa,
2. Import Granger causes economic growth and vice versa,
3. Trade openness Granger causes economic growth and vice versa, and
4. Financial development Granger causes economic growth and vice versa

In order to examine the hypotheses, suitable econometric models are required. Since the objective of this research is to test the Granger causality of two variables, the test should be based on the appropriate bivariate time series models.

Bivariate regressions of the form for all possible pairs of series in the group are as follows:

$$Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \ldots + \alpha_l Y_{t-l} + \beta_1 X_{t-1} + \ldots + \beta_l X_{-l} + \epsilon_t \quad (4)$$

$$X_t = \alpha_0 + \alpha_1 X_{t-1} + \ldots + \alpha_l X_{t-l} + \beta_1 Y_{t-1} + \ldots + \beta_l Y_{-l} + \mu_t \quad (5)$$

The reported *F*-statistics are the Wald statistics for the joint hypothesis:

$$\beta_1 = \beta_2 = \ldots = \beta_l = 0 \quad (6)$$

The null hypothesis is that X does not Granger-cause Y in the first regression and Y does not Granger-cause X in the second regression. If the F statistic is higher than the critical one, the null is rejected. Depending on upon the results, there are the following possibilities: the variables are independent; there is a one-way causality; or there is a two-way causality.

4. Empirical Finding and its interpretations

4.1 Unit Root Test for Stationarity

Table 4.1 shows the results of ADF unit root test. The results indicate that all variables are integrated of order one, I(1).

Table 4.1 Results for ADF test

Statistics (Level)	LGDP	lag	LX	lag	LM	lag	LTO	lag	LFD	lag
t_t (ADF)	-0.0444	(6)	-3.4007	(0)	-2.1076	(0)	-2.1905	(4)	-2.1749	(4)
t_c (ADF)	-2.6581	(6)	-2.3344	(0)	-1.4024	(0)	-1.7691	(5)	0.0952	(4)
t (ADF)	2.7717	(6)	2.2032	(0)	1.9697	(0)	1.3998	(5)	1.8470	(4)
Statistics (First differences)	LGDP	lag	LX	lag	LM	lag	LTO	lag	LFD	lag
t_t (ADF)	-6.5698***	(5)	-10.487***	(0)	-7.6556***	(1)	-5.3700***	(4)	-4.1581***	(3)
t_c (ADF)	-4.5851***	(3)	-10.351***	(0)	-7.6746***	(1)	-5.3768***	(4)	-4.0768***	(3)
t (ADF)	-3.5111***	(3)	-9.8608***	(0)	-8.4991***	(0)	-5.1350***	(4)	-3.5966***	(3)

Note: GDP represents real gross domestic product, X is export, M is import, TO is trade openness, and FD is financial development; t_t is testing equation with an intercept and trend, t_c is with an intercept and without trend, t is without an intercept and trend. Numbers in brackets represent lag lengths used in ADF test used to remove serial correlation in the residuals. *** denote rejection of the null hypothesis at the 1% level.

4.2 Co-integration Test

Table 4.2.1 presents the result of Johansen co-integration test both in the trace and maximum eigenvalue levels. The result found one cointegration relationship at the 5% level both the trace (Panel: 4.2.1a) and maximum eigenvalue (Panel: 4.2.1b) statistics. In other word, there is the presence of a long-run equilibrium relationship among variables. As a result, the cointegration equation and error correction model are estimated and shown in table 4.2.2.

Table 4.2.1 Results for Johansen cointegration test

Panel: 4.2.1a

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.355561	88.54856	69.81889	0.0008
At most 1	0.210873	45.92918	47.85613	0.0750
At most 2	0.163429	22.95681	29.79707	0.2482
At most 3	0.042558	5.647732	15.49471	0.7367
At most 4	0.014626	1.429211	3.841466	0.2319

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Panel: 4.2.1b

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.355561	42.61938	33.87687	0.0035
At most 1	0.210873	22.97238	27.58434	0.1747
At most 2	0.163429	17.30907	21.13162	0.1579
At most 3	0.042558	4.218521	14.26460	0.8356
At most 4	0.014626	1.429211	3.841466	0.2319

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

The cointegration equation can be express as follow.

log (GDP) = 5.3227 + 0.4999log(X) + 0.4971log(M) - 0.9998log (TO) + 0.0025log (FD)

(695.95) (177.52)* 195.63)* (-350.75)* (1.63)

The long run estimated equation indicates that trade openness (TO) is negatively related to economic growth in the long run. Other things remain constant a one percent increase in log(TO) is associated with a decrease in economic growth by 0.9998 %. This result is supported by the finding of Keho (2017) who states that although trade openness can potentially enhance economic growth in the long run by providing access to goods and services, achieving efficiency in the allocation of resources and improving total factor productivity through technology and knowledge. However, trade openness may impact economic growth negatively for countries which specialize in production of low-quality products. For example, countries exporting primary products are vulnerable to terms of trade shocks. The long run estimated equation also indicates that export and import have a positive effect on economic growth. A one percent increase in log(X) and log(M) are associated with an increase in economic growth by 0.4999 % and 0.4971 % respectively. Positive but insignificant coefficient is reported for financial development. The results go in line with the study of Azeez et al. (2014) who found that the import (IMP) and export (EXP) have direct relationship with GDP cause GDP to rise by 0.359 units and 0.635 units respectively.

The shot-run estimates for Error Correction Model (ECM) are shown on table 4.2.2. The speed of adjustment is the coefficient of the error correction variable. The coefficients of the error correction term are negative and significant at the 5% level further providing evidence of the existence of a long-run relationship between the variables. The coefficient of ECM -0.580837 indicates that 58.08 percent departure from the long-run equilibrium is corrected in the short-run. 58.08 percent of the disequilibrium of the previous quarter's shock adjusts back to the long-run equilibrium in the current quarter. The numeric of adjusted R^2 at 0.99 shows a very high explanatory power of the model. However, each economic variable has a different impact. The changes in lagged export and import have positive and statistically significant impact to the economic growth while trade openness have negative effects. Financial development has a positive but not statistically significant effect. These results are in line with the findings of Adhikary (2011), who found that the changes in lagged trade openness have negative significant effects on real GDP growth of Bangladesh. The reason behind the negative relationship between trade openness and economic growth rates is probably due to high imports and depreciating exchange rates of Bangladesh which has created negative trade balance position in almost all the years covered in the study.

Table 4.2.2 Results for the Error Correction Model (ECM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOG(X))	0.506937	0.003722	136.2091**	0.0000
D(LOG(M))	0.493739	0.003777	130.7077**	0.0000
D(LOG(TO))	-1.007281	0.006178	-163.0397**	0.0000
D(LOG(FD))	0.008907	0.006345	1.403674	0.1637
ECT(-1)	-0.580837	0.087995	-6.600821**	0.0000

** denotes significance at 5% level of significance

$R^2 = 0.99$ DW statistic = 1.95

4.3 Granger Causality Test

After applying the cointegration analysis and seeing that the variables are cointegrated, Granger causality tests are applied to see the direction of the causality between the variables. If cointegration exists, it has to be either bidirectional, unidirectional or neutral causality between the variables. The results are obtained by using the error correction model pairwise with Granger causality and Wald test. The Wald F-statistics of the lagged variables indicated the short run causality effects.

The results of the Granger causality tests are presented in Table 4.3. There is unidirectional causality from import to economic growth, economic growth to export, import to export, financial development to export and import to financial development. In other word, import Granger causes economic growth, export and financial development while economic growth and financial development Granger cause export. The results also reveal bidirectional causality between trade openness and economic growth, financial development and economic growth, trade openness and export, and financial development and trade openness.

The finding of economic growth being caused by trade openness goes in line with the results found by Keho (2017). He found that economic growth being caused by trade openness supports the trade-led growth hypothesis in the case of Cote d'Ivoire. Rodtussana (2002) studies the causal relationship between openness and economic growth in Thailand between 1961-1998. Results show

that according to the causal relationship, the export and trade variables are related to the economic growth. The relationship is of bi-direction causality or feedback type. While the import growth rate and capital and financial growth rate are determined by economic growth rate. For the finding of bidirectional Granger causality between financial development and economic growth, this finding is supported by the finding of Al-Tamimi et al. (2002), who investigate the causal relationship between the indicators of financial development and economic growth by using time-series analysis for selected Arab countries. The results indicate that financial development and economic growth are strongly linked in the long-run. However, Granger causality tests and the impulse response functions indicate that the linkage is weak in the short-run. Moreover, there is no clear evidence that financial development affects economic growth or *vice versa.*

Table 4.3 Results for the Granger Causality Test

Dependent Variables	F-statistics					Direction of Causality
	ΔLGDP	ΔLX	ΔLM	ΔLTO	ΔLFD	M→GDP, GDP→X
ΔLGDP	-	2.13471	3.14710**	2.64582*	3.57805**	M→X, FD→X
ΔLX	5.55181***	-	3.23427**	8.05899***	4.42511**	M→FD,
ΔLM	1.45482	1.22795	-	2.21840	0.86564	TO↔GDP, FD↔GDP
ΔLTO	16.9949***	9.24330***	9.62759***	-	14.1711***	TO↔X, FD↔TO
ΔLFD	13.0437***	1.02341	2.53235*	3.10286**	-	

Note: ***, ** and * denote rejection of the null hypothesis at the 1%, 5% and 10% levels respectively.

5. Conclusion

This study is conducted to evaluate the long run equilibrium relationship and the direction of causality between economic growth, export and import as a composition of international trade, trade openness and financial development. To this aim, firstly, unit root tests are applied and the null hypothesis cannot be rejected at their level forms which means that the variables are not stationary. However, the first difference of the series is found to be stationary. After that step cointegration relationship is analyzed by employing Johansen cointegration test both in the trace and maximum eigenvalue levels. The result found one cointegration relationship at the 5% level both the trace and maximum eigenvalue statistics which means there is a long-run equilibrium relationship among variables. The shot-run estimates are tested. The coefficients of the error correction term are negative

and significant at the 5% level further providing evidence of the existence of a long-run relationship between the variables. The error correction coefficient terms suggest an adjustment to equilibrium 58.08% of the disequilibrium in the previous quarter is corrected in the following quarter. The direction of causal relationship is evaluated by Granger causality approach. The results show that there is unidirectional causality from import to economic growth, economic growth to export, import to export, financial development to export and import to financial development. The results also reveal bidirectional causality between trade openness and economic growth, financial development and economic growth, trade openness and export, and financial development and trade openness.

International trade is one of the main engines of economic growth in a country and has an important role in increasing the GDP as well as the overall economic welfare of a country. However, the impact of international trade, trade openness and financial development on economic growth is a subject of debate in the existing literature. The impact was found to be positive in some studies and nonsignificant or even negative in others. An interesting finding of this study is the difference of the directional relationship between trade openness and economic growth before and after Thailand economic crisis in 1997. Former study by Rodtussana (2002), using data study during 1961-1998, found a positive relationship between the variables while this study (the data study during 1997-2021), has found a negative relationship. However, bidirectional causality between trade openness and economic growth are the same. While the study of Azeez et al. (2014) found the co-efficient of trade openness (OPEN) is -0.985, implying that OPEN and GDP are inversely or negatively related; therefore, a unit increase in OPEN leads to fall in GDP by 0.985units. Hye (2012) found a one percent increase in trade openness is associated with a decrease in economic growth by 0.301 percent in case of India. A one percent increase in trade openness index causes negatively to economic growth by 0.145–0.368 percent in case of Pakistan (Hye & Lau, 2015). These mixed results might be attributed to the difference in analytical frameworks, data set being used and country specific characteristics.

For further study, it might be interesting to use the ratio of bank credit to the private sector to GDP as the indicator of financial development. With this new variable being entered in the regression, the result may be different from that obtained in this paper.

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