Journal of Korea Trade Vol. 24, No. 1, February 2020, 146-170
https://doi.org/10.35611/jkt.2020.24.1.146
ISSN 1229-828X

A Study on the Interrelationship of Trade, Investment and Economic Growth in Myanmar: Policy Implications from South Korea's Economic Growth*

JKT 24(1)

Received 2 January 2020
Revised 1 February 2020
Accepted 20 February 2020

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Abstract

Purpose – This paper addresses the concepts of FDI-Trade-Growth nexus in Myanmar's economy and empirically investigates the interrelationships of trade, investment and economic growth to reveal the growth model of Myanmar's economy. Additionally, this paper also addresses the cooperative strategies between Myanmar and South Korea through a case study related to South Korea's economic growth.

Design/methodology – Our empirical model considers the interrelationship among FDI, trade, growth, labor force and inflation in Myanmar. This study employs ARDL (Autoregressive Distributed Lag) to conduct an analysis of the FDI-Trade-Growth relationships using the time series data from 1970 to 2016 and a conducted case study of South Korea provided for practical implication on cooperative strategies between Myanmar and Korea.

Findings – Export equation was chosen through the diagnostic tests. Our main findings can be summarized as follows: Export in Myanmar is positively influenced by labor force, FDI, capital formation and negatively impacted by import and instable inflation rate in the long run. In the short run, GDP and import positively influence export. The Granger causality test proves that Myanmar is an FDI/labor force-led Growth economy, where FDI and labor force are main drivers of export followed by GDP in Myanmar. The case study of South Korea provided that Korea's tax and credit system for promoting export-led FDI industries and cooperative units for joint ventures between Korea and Myanmar in export-led FDI industries are recommended.

Originality/value – No study has yet to be conducted on the interrelationships of macroeconomic factors from the perspectives of FDI-Trade-Growth Nexus in Myanmar under the assumption of labor force and inflation rate as fundamental conditions. The current study also covered a relatively longer period of time series data from 1970 to 2016. This paper also conducts a case study of South Korea's experience in order to evaluate the findings and provide better policy implications.

Keywords: ARDL Model, FDI-Trade-Growth Nexus, Myanmar's Economic Growth, South Korea's Experiences

JEL Classifications: C52, F14, O11, O24

1. Introduction

Due to political and economic reforms, Myanmar's economy has been growing in terms of its foreign direct investment and international trade volume since 2011. It is noticeable that the foreign direct investment (FDI) inflows from China, Japan and Korea have rapidly

* This paper is a revised version of the paper presented at the 14th International Conference of YUE, KOMYRA, KHU & KTRA held in Yangon, Myanmar, on Feb 5 to Feb 8, 2020.

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increased. Myanmar received 9493.63 million dollars' worth of cumulative investment from China between Fiscal Year (FY) 2011-12 and FY 2016-17, attracting 49.44% of Chinese overall cumulative investment between FY 1990 and FY-2017. Regarding Japan's FDI inflow, Myanmar approved 482.28 million dollars of investment from Japan between FY 2011-12 and FY 2016-17, which is 62 times larger than that of the period between FY 2000-01 and FY 2010-11. Korea has also rapidly grown its investment in Myanmar since 2010. In FY 2010-11 alone, Myanmar received a significant amount of investment from Korea, totaling 2,676 million dollars. Between FY 2011-12 and FY 2016-17, Korea had also seen steady FDI growth momentum in Myanmar, ranging from 25.57 million dollars in FY 2011-12 to 299.58 million dollars in FY 2014-15. Notably, its cumulative investment reached 857.80 million dollars between FY 2011 and FY 2017.

Along with FDI growth, Myanmar's total trade volume has also increased since 2010. The volume of total exports were 8,861 million dollars in 2010, which was more than twice that of 3,558 million dollars in 2005. Then, in 2016, the volume of exports showed only a slight increase by 27% compared to 2010. Meanwhile, Myanmar recorded a three-fold increase for imports in 2010 than it did in 2005 and showed a 90% increase in import volume in 2016, compared to 2011. For instance, Myanmar's imports from China rose up to 33.35% of overall import volume as of 2018, which was ten times higher than it was in 2010. However, the imports from Japan and Korea only accounted for a small portion of 8.32% and 2.67% respectively, of Myanmar's total imports in 2018.

It seems that economic openness in Myanmar has accelerated competition surrounding FDI and trade opportunities among foreign investors from non-ASEAN countries such as China, Hong Kong, U.K, Japan, and South Korea. For instance, according to Myanmar's government report on cumulative amounts of FDI by country from FY 1988-89 to FY 2010-2011 during the military rule, Korea recorded 2,916 million dollars' worth of accumulative FDI and ranked as the fourth largest investor in Myanmar, followed by the U.K, and Singapore. Japan's FDI in Myanmar was relatively miniscule at 211.902 million dollars during the same period. During two civilian governments, there has been a slight drop in the cumulative FDI inflow stock position of Korea to sixth place in Myanmar at 1,059 million dollars between 2011-12 and 2018-19. Meanwhile, Japan's FDI in Myanmar has been showing signs of recovery since 2012, and surpassed Korea at 219.793 million dollars in 2016. It is obvious that Korea's investors can face a number of challenges in outward FDI entering Myanmar, as the entry of more foreign firms into Myanmar will increase competition in Myanmar's FDI and trade sectors.

Under these circumstances, South Korea's government must find a way to strategically cooperate with Myanmar's government so as to improve Korea's FDI and trade competitiveness in Myanmar. Offering what Myanmar's government needs in ongoing economic transition will be appropriate for Korea's government to foster trust and build governmental ties, thus fostering strong relationships, which would facilitate further economic cooperation and gain market insights. South Korea is well known as an experienced nation from being one of the poorest nations to becoming one of the fastest growing economies in the world. Thus, Korea's experiences may give some policy implications to Myanmar's government.

Considering FDI-Trade-Growth nexus, understanding of the role of FDI and trade in Myanmar's economic growth will help South Korea offer potential corporative FDI-Trade policy and help Myanmar's government and policy makers adopt the most effective FDI and competitive trade policies for increasing export competitiveness and economic growth. Thus, a proper understanding of the relationships among FDI-Trade-Growth in Myanmar is expected to offer a solution for current challenges.

Questions concerning the relationships among FDI-Trade-Growth and whether FDI and

trade affect economic growth in Myanmar remains unanswered. More specifically, how are FDI and trade associated with Myanmar's economic growth? Are FDI and trade complementary or substitute in economic growth? How does FDI affect economic growth in Myanmar? Does trade also matter in economic growth? Do trade and growth rates also matter for FDI inflow? Only a few empirical studies have focused on exploring the role of FDI, and trade openness in economic growth, and the important finding was that export was examined as a main contributor for economic growth in Myanmar (Grossman and Helpman, 1991; Takhun, 2013) while Pann (2017) discovered that the growth rate of GDP was positively associated with FDI inflows in Myanmar (Pann, 2017). However, the relationship was not significant. Previous FDI-Trade studies in Myanmar focused on FDI performance at the firm level (Sei Shwe Tun, 2015), and trade performance through export competitiveness' analysis such as RCA (Revealed Comparative Advantage) (Kim and Thunt, 2017). Thus, there remains a lack of empirical studies on how the growth in the inflows of FDI and trade volume are linked with economic growth and other externalities such as technology transfer, the increased rate of domestic investment and productivity and employment. In addition, there are no studies or empirical findings on the role of FDI and trade in relation to economic growth in Myanmar, and the interrelationship among important macroeconomic factors including FDI and trade. Since 2011, Myanmar has initiated a series of economic and political reforms. It is therefore the most important period for policy makers of Myanmar to investigate the interrelationships of investments, trade and economic growth for better policy decisions. Moreover, this study is expected to provide the South Korean government with important policy implications on FDI and trade cooperation with Myanmar.

Therefore, this paper addresses the concepts of FDI-Trade-Growth nexus in Myanmar and explores the interrelationship among the macroeconomic variables so as to reveal the FDI-Trade-Growth model of Myanmar's economy through VAR (Vector Auto Regression) analysis. Additionally, South Korean experiences will be discussed in order to provide both governments with insightful implications on FDI and cooperative trade policy.

Thus, the paper first discusses the concepts and empirical findings of FDI-Trade-Growth nexus in the literature review. Trade and FDI performance during economic transition were also discussed, especially for South Korea's FDI which currently is facing more competition in Myanmar. In the model specification session, the discussion on the methodologies of VAR (Vector Auto Regression) and ARDL (Auto Regressive Distributed Lag) are included for the analysis of FDI-Trade-Growth relationship.

2. Literature Review: FDI-Trade-Growth Nexus

When it comes to the discussion of economic development in a developing nation in the modern world, foreign direct investment and trade are an important consideration to be included. Foreign direct investment and trade are imperative economic determinants in development literature. Foreign direct investment followed by domestic saving and investment are the most dominant factors in development literature (Borensztein, De Gregorio and Lee, 1998). This is because they are able to link with other important economic outcomes such as employment, increases in fixed capital formation, factor productivity, export performance, technology transfer, and even improvement in human capital. Firstly, regarding FDI's association with economic growth, FDI and economic growth can have unidirectional effects according to several empirical findings. Some findings confirmed that output growth rate influences FDI (Berthélemy and Demurger, 2000; Wang and Swain, 1997). On the other hand, it is found that FDI also increase economic growth (Hansen and Rand, 2006). As Solow model also argued that FDI positively influences technology in a long run (Solow, 1956), FDI

is considered not only as a factor increasing investment and efficiency, but also as a factor facilitating positive externalities such as technology transfer, diffusion and spillover effects including human capital development (Liu, Shu and Sinclair, 2009; Sghaier and Abida, 2013). Therefore, foreign direct investment gains more attention in growth literature due to a strong and positive linkage between FDI and growth, as FDI causes an increase in not only fixed foreign capital and employment, but also, technology know-how and managerial skills in a host country through spillover effects based on the entry mode of FDI (Lensink and Morrissey, 2006).

However, there are some FDI literatures concerning its negative or insignificant effects on economic growth (Castejón and Wörz, 2006). Moreover, recent studies of FDI as a determinant of economic growth by panel data analysis during 1991-2010 found that the inflows of FDI are highly correlated with GDP growth rate in upper middle economy countries above those of any other economies in the world (Lenka and Sharma, 2015). This can mean that lower income economies may potentially generate weak or insignificant associations. In fact, some findings have already showed that there is no statistically significant relationships or inconclusive effects between FDI and economic growth (Kosack and Tobin, 2006; Thunt Htut Oo, 2018). Its insignificant effect may rely on the type of FDI approved in a nation. Zilinske (2010) studied the effects of FDI on GDP growth and found that the effects of FDI can be both negative and positive. It depends on the entry mode of FDI such as greenfield (new investment) which turns out to have more positive externalities than M&A (Merge and Acquisitions), which combine or replace the existing investments with new investments without creating a new presence in a host nation (Zilinske, 2010). Some scholars argued its insignificant effects from other channels such as international trade. Therefore, it can be concluded that the significant positive effect of FDI on economic growth cannot be generated in isolation, even in the developed world, as FDI shows its significant associations with GDP growths in a host nation with conditions such as a sound linkage with export industries and human capital. Sghaier and Abida mentioned that FDI can have a positive effect on economic growth through international trade (Sghaier and Abida, 2013). Ineffective trade policies in a nation can make it hard to realize the positive effect of FDI on GDP growth. Trade plays an important role in incorporating new ideas and methods into a nation, which may become the channel of transferring technology. Technology transfer then enhances productivity. It is understood from the findings of Kohpaiboon (2003) that it is less likely to realize the positive impact of FDI on GDP under an import-substitution policy (Kohpaiboon, 2003). Thus, a more liberalized trade environment under an export-oriented strategy can contribute to FDI's positive effects on GDP. Certain levels of regional integrations have been realized in many economies including the E.U in Europe and ASEAN in Asia. Its determinants on economic development have also been confirmed as strong and positive by numerous scholar (Edwards, 1998; Sachs et al., 1995).

Secondly, regarding the association of export and import with GDP, export is more likely to produce a positive effect on GDP growth since an increase in exports enhances factor productivity and efficiency through foreign market expansion and local business expansion (Miankhel, Thangavelu and Kalirajan, 2009). Therefore, a more liberalized trade policy can increase the level of productivity and efficiency, and thus link to income growth through certain channels including the inflows of FDI. Adversely, GDP growth can also attract more export and import. It can be explained that increasing output growth can be associated with the increased production of goods, which will need to be sold in domestic and overseas markets as well (Findlay, 1984). However, if the goods produced are more exportable, a negative growth-led export is possible (Lee Chien-Hui and Huang Bwo-Nung, 2002). Like FDI, the significance of trade policy on GDP growth can rely on certain conditions such as man-

agerial behaviors of government on macroeconomic stability, public investment in infrastructure and human capital, and FDI policy as well (Arodoye and Iyoha, 2014).

Thirdly, regarding the associations between FDI and trade in developing nations, export attracts FDI because it provides more information to a host nation and knowledge of a potential market to FDI investors (Hsiao and Hsiao, 2006), which are particularly interested in exporting their productions from the host nation to the third nations. On the other hand, FDI causes importing (Rahman, 2011) depending on the type of FDI. For example, FDI under CMP (cutting, making and packing) contracts definitely increases the imports of certain materials. Accordingly, the relationships between FDI and trade are more likely to be complementary rather than substitution (Nguyen, Sun and Anwar, 2017).

However, the significances of FDI-Trade-Growth associations may be hindered by other factors such as demographics labor force characteristics, the level of human capital and innovation, political stability, and macroeconomic stability. The negative effect of migration on economic growth of the sending country will be one of the empirical studies' negative effects of labor force on economic growth. Innovation and Research and Development became positive causality of economic development through the development of high-quality human capital following increases in productivity. Therefore, a high quality of human capital is demanded, especially in advanced nations. Inflation, fiscal policy and budget deficits are also necessary factors to be considered for the building of fundamental conditions where investment, innovation and human capital can play a significant and positive role on economic development. The understanding of the interrelationships among FDI, trade, economic growth and other fundamental variables in the early stage of economic development would highly contribute to policy makers of both nations to adopt the right FDI and trade policy.

3. Trade and FDI Performance during Economic Transition

As a result of a series of economic reforms, the Myanmar economy had grown by 8.5% in 2016. There is a significant structural change in industries. The manufacturing value added to GDP never reached above 10% to GDP. However, it has been showing gradually an upward trend since 2009. As of 2010, GDP by industry in Myanmar constituted 36.8% for agriculture, which showed only 66% declines from 57.2% in 2000, and 26.5% for manufacturing sector, which was more than two times larger than it was in 2000. As of 2016, the agriculture sector recorded 25.5% and industry contributed 35% of GDP, which is nearly four time larger than it was in 2000. In addition, inflation was also managed well and decreased into 1.5% in 2011 from 36.6% in 2003.

Regarding the trade sector, it is noticeable that Myanmar recorded a trade surplus between 2002 and 2011 and rose to 3,406 million dollars in 2009. However, due to rapid increases in importing, a trade deficit has started since 2012 with the biggest trade deficit of 5,441 million dollar in 2016 according to central statistic organization data (CSO). The shares of Myanmar's export volume to China suddenly rose more than 15.1% since 2011 and reached the highest shares of 40.7% in 2016 while Japan only reached 6.6% in 2017. South Korea still remains a small portion in Myanmar's export shares comprising 3.3% in 2014 and 3.0% in 2017. The Myanmar export commodities are filled with primary commodities with the exception of apparel and clothing. The export of manufactured goods ranged 12~13% in 1990 and 50~58% in 2000, which sharply declined to about 20% in 2005 (Kudo, Kumagai and Umezaki, 2013), which rose again to 49.1% in 2015 and to 48.3% in 2018. On the other hand, China has been a dominant player in Myanmar's importing market, ranging from 25.8% in 2007 to 31.4% in 2017, while Japan and Korea still remain lower, with their export shares to Myanmar under

being under 11% and 6% respectively. Even though Korea's export to Myanmar started growing since 2010, the position has not yet been competitive enough.

Regarding the cumulative total foreign investment of permitted enterprises as of March 31 2018, Myanmar received 76,028.26 million dollars in which China still remains the top foreign direct investors in Myanmar with 19,949.91 million dollars followed by Singapore with 19,011.80 million dollars, Thailand with 11,047.23 million dollars, Hong Kong with 7,811.80 million dollars, and the UK with 4,340.92 million dollars. South Korea became the sixth largest investor with 3,809.57 million dollars followed by Vietnam with 2,100.27 million dollars, Malaysia with 1,954.61 million dollars and Netherlands with 1,528.49 million dollars. Japan only recorded 1,076.07 million dollars' worth of investment. The 21% of FDI was realized by wholly foreign-owned enterprises while the 60% was conducted by joint ventures between foreign enterprises and local enterprises.

Among them, 26% of FDI went into the manufacturing sector followed by transport at 23% and real estate development at 12% in FY 2017-2018. In FY 2018-2019, transport and communication became the leading sectors with 171.79 million dollars followed by manufacturing with 100. 07 million dollars and livestock and fisheries with 19.56 million dollars. Even though the agriculture sector ranked in fifth place attracting 10.62 million dollars of FDI, Myanmar still showed the biggest shares of employment in agriculture with 49.69% in 2019 which declined from 67.1% in 2010 similar to that of Vietnam in the past. In connection with Korea's FDI by sectors in Myanmar, as of June, 2018, the mining sector accounted for 37 percent of cumulated Korea's FDI inflows in Myanmar, followed by manufacturing sector by 22.7%, finance sector by 20.4%, and real estate by 12.4%. According to data of newly established investments from Export-Import Bank as of 2018, oil and natural gas production in mining sector, garment, leather good and bread production in manufacturing sector, and banking in service sector are gaining momentum in recent years. As a result, it is obvious that Korea's FDI in Myanmar are capital or labor intensive. Sein Shwe Tun also conducted an empirical study on the Korean's FDI performance in Myanmar in 2015 and revealed that the location advantage of production factors positively affect firms' investment performance in Myanmar while market related factors turned out insignificant. It indicates that production factors are still dominant attraction for FDI inflows in Myanmar (Sein Shwe Tun, 2015).

Trade and FDI performance could be improved through the participation of regional production networks. Myanmar as the member of ASEAN (Association of Southeast Asian Nations) can also benefit by participating in the regional production network as part of the economic growth strategies, since there are some empirical studies of international production showing that FDI patterns took place within regions rather than through the global context (Yeung, 2001). The emergence of regional production networks due to increasing regional integration, better quality of international transportation and more liberalized economies than ever before has gained in popularity as a novel development strategy in East Asian countries. For Myanmar, with the lack of provided data for global value chain participation index for Asian Economies from OECD, GL (weighted Grubel-Lloyd) index is used for the degree of participation to East Asian Production Networks. Both Myanmar and Vietnam scored about 0.02 in 1990, which means that their trade pattern was not based on intra-industry as it is away from 1. However, the score was significantly improved for Vietnam to 0.38, while it has almost remained the same for Myanmar at 0.05 in 2010.

4. Models Specification: FDI-Trade-GDP Model

Based on empirical evidence discussed in the FDI-Trade-Growth nexus, we propose an analytical framework in which foreign direct investment (FDI) and capital formation as

proxies of investments; export and import volume for trade performance, and GDP per capita are included under the FDI-Trade-Growth nexus. In addition, labor force for factor endowments and macroeconomic stability for managerial behaviors of governments are considered fundamental conditions for significant associations of FDI-Trade-Growth relationships. We considered labor force more importantly than the level of human capital since most export commodities and the inflows of FDI to Myanmar mainly seek their competitiveness in cheap labor force rather than the quality of human capital.

The measurement of the underlying variables is summarized in Table 1.

Table 1. Variables and Measurement

Variables	Definition
GDP	Gross Domestic Production in per capita ($ dollar)
LF	The share of labor workers
FDI	Share of Foreign Direct Investment ($ dollar) to GDP (%)
CP	Capital Formation to GDP (%)
TL(EX/IM)	International Trade (Export and Import Volume)

Several studies have analyzed and confirmed the role of foreign trade in economic growth. Export was examined as a main contributor for economic growth in Myanmar by Richard Takhun in 2013 as well as by Grossman and Helpman in 1991 (Grossman and Helpman, 1991; Takhun, 2013). The endogenous growth theory initiated by Romer in 1986 and Lucas in 1988 have proposition towards the positive effects of export on growth (Lucas, 1988; Romer, 1990). Some studies confirmed there is a two-way causation between GDP and trade, but no link exists between import and export (Hye and Boubaker, 2011; Ramos, 2001). Liberalized trade environments can also benefit from economic growth. According to Bhagwati (1978), trade liberalization can be defined as "any policy which reduce the degree of anti-export biases" and he found that there are two channels of trade openness, which have influences on economic growth, namely: direct effects (dynamic advantages) and indirect effects (export) (Bhagwati, 1978). There are some studies providing strong evidences for the positive effects of trade liberalization on economic growth. Herath (2010) examined the impact of trade liberalization on economic growth in Sri Lanka (Herath, 2010). Khan and Khan (2011) also studied this relationship and initiated consistent findings for Pakistan. Nannicini and Billmeier (2011) also found that trade liberalization has a positive and strong impact on the pattern of real GDP per capita. However, Kiyota (2012)'s studies for trade liberalization, economic growth and income distribution showed inconsistent findings and proved that trade liberalization in a nation with labor abundance can lead to a rise in income inequality and a fall in GDP per capita (Kiyota, 2012). However, macroeconomic stability can be discouraged by trade openness, since high level of trade openness can cause inflation rate and depreciation of exchange rate (Andriamananjara and Nash, 1997; Levine and Renelt, 1992; Rodrik, 1992). The proper management of macroeconomic stability would be necessary for promoting the positive externalities of FDI and trade in an economy.

Regarding the role of FDI on economic growth, according to UNCTAD (2000), 974 FDI regulatory changes have been established, in over 100 developing countries to attract inward FDI (UNCTAD, 2000). This proves evidence for the significant effects of FDI on economic growth in developing nations. However, FDI alone is less likely to lead to significant positive impacts on an economy. As discussed above, the significant positive effect of FDI on economic growth can only be realized under a sufficient level of human capital, and proper management of macroeconomic stability (Arodoye and Iyoha, 2014). Borensztein, De

Gregorio and Lee (1998) examined the effect of FDI on economic growth in cross country regression frameworks, using data following FDI outflows from OECD countries to sixty-nine developing countries over the period of 1970-1989. They found that FDI effects on economic growth depends in large part on the level of human capital available. Moreover, Balasubramanyam, Salisu and Sapsford (1996), Bengoa and Sanchez-Robles (2003) and Li Xiao-Ying and Liu Xia-Ming (2005) studied the effect of FDI on economic growth and found consistent findings in this regard. However, it is not only human capital but also political stability and liberalization of market environments that are necessary for FDI to have an effect economic growth.

Accordingly, FDI and international trade are expected to be interrelated with economic growth in Myanmar. One study found that FDI did not realize a significant relationship on when measuring the output growth in Myanmar (Takhun, 2013). Therefore, the effects of FDI on economic growth are expected to be either negative or positive, since most FDI inflows into Myanmar are based on firms seeking natural resources and cheap labor above other factors. Conversely, the association of capital formation with economic growth can be argued from the fact that capital accumulation is a fundamental element in both classical and neo-classical growth. As a basic, capital formation enhances different levels of production capacity and the increased numbers of firms in the market, which lead to higher productivity and efficiency. It also lowers the cost of production through economies of scales. Higher productivity and efficiency, and lower costs of production would attract the inflows of foreign direct investments, which ultimately creates jobs, according to the entry mode. More jobs will increase the purchasing power of customers, which leads to more imports of consumer goods while increased foreign investment is expected to increase the imports of foreign equipment and the exports of finished products. Therefore, capital formation is expected to be associated with other macroeconomic variables such as FDI, trade and economic growth as well as inflation rates (Adhikary, 2011). Labor force is considered as the most important aspect to bring about FDI, export and import, and capital formation. Since the variables included in the model are treated as endogenous model, the basic equations are as follow.

$$\text{GDP} = \beta_1 FDI + \beta_2\, CP + \beta_3 EX + \beta_4 IM + \beta_5 LF + \beta_6 IR + \varepsilon_t \quad (1)$$

$$\text{FDI} = \beta_1 GDP + \beta_2\, CP + \beta_3 EX + \beta_4 IM + \beta_5 LF + \beta_6 IR + \varepsilon_t \quad (2)$$

$$\text{CP} = \beta_1 GDP + \beta_2\, FDI + \beta_3 EX + \beta_4 IM + \beta_5 LF + \beta_6 IR + \varepsilon_t \quad (3)$$

$$\text{EX} = \beta_1 GDP + \beta_2 FDI + \beta_3 CP + \beta_4 IM + \beta_5 LF + \beta_6 IR + \varepsilon_t \quad (4)$$

$$\text{IM} = \beta_1 GDP + \beta_2\, FDI + \beta_3 CP + \beta_4 EX + \beta_5 LF + \beta_6 IR + \varepsilon_t \quad (5)$$

$$\text{LF} = \beta_1 GDP + \beta_2\, FDI + \beta_3 CP + \beta_4 EM + \beta_5 IM + \beta_6 IR + \varepsilon_t \quad (6)$$

$$\text{IR} = \beta_1 GDP + \beta_2\, FDI + \beta_3 CP + \beta_4 EX + \beta_5 IM + \beta_6 LF + \varepsilon_t \quad (7)$$

4.1. Data and Methodology

For all literature related to Myanmar, researchers tend to face a lack of data sets, especially secondary economic data due to the countries past closed economy and lack of reported data for time series data from international organization such as the World Data Bank or the United Nations. Therefore, most researchers have constructed their econometric model within an available data. Authors also limited the research model to trustworthy data sets which are available for time series data from 1970 to 2016 in order to explore the inter-relationships between variables in the long and short run. Most data were collected from the World Data Atlas through Konema which recently launched a time series data set for countries. GDP was measured with gross domestic production at constant price of 2005, international trade was measured with the volume of export and import, and inflation rate

was a proxy for macroeconomic instability. Labor force was measured by the number of labors available, foreign direct investment measured by comparing the share of the net inflows of foreign direct investment to GDP. All variables were changed into the logarithmic form to achieve linear functions, except for inflation rate, and an auto regression method for econometric regression was utilized. Thus, the study employed ordinary least square method to explore the long-term relationship between GDP, export and import, FDI, capital formation, and labor force.

For econometric analysis, there are a few preliminary inspections on certain requirements including stationarity of variables. Stationarity in general becomes problematic when it comes to analyzing relationships between economic variables especially for time series as well as regression models, since it is assumed that the underlying time series were stationary or at least stationary around a deterministic trend and as such exhibit a long run relationship. Time series that diverge from their mean over time are said to be non-stationary, which gives us misleading inferences or spurious regressions (Nkoro and Uko, 2016). As a solution, the presence of cointegration between variables proves the presence of steady state equilibrium between variables for any economic model using non-stationary time series data. Therefore, ahead of a long-run relationship between variables, the presence of cointegration between variables need to be tested. In applied econometrics, there are some popular cointegration techniques. ARDL (Autoregressive Distributed Lag Cointegration Techniques or bound test of cointegration) and the Johensen and Juselius Cointegration techniques become very useful to determine the long run relationship between series that are non-stationary as well as reparametrizing them to the Error Correction Model (ECM) (Nkoro and Uko, 2016). ECM results produce the short-run dynamics and long-run relationship of the variables. When the underlying variables in the model are non-stationary and integrated at I(1), Vector error correction model are appropriate along with Johanson Approach which allows for running cointegration and causality. Then again, when the underlying variables of your model are mixed with I(0) and I(1), ARDL approach is suggested for use to incorporate them in the same estimation. Even though OLS estimation would be appropriate for the variables I(0), OLS estimation for one of them or all of them are I(1) leads to spurious results such as showing high t-values and significant results but in reality it would be inflated due to common time component (Anwar, Arshed and Anwar, 2017). In order to test for the stationarity of the variables in this paper, the Augmented Dickey-Fuller (ADF) test was used to investigate whether the variables had a unit root or not (Isola and Alani, 2007). After testing stationarity of the series, we can conclude which approaches are considered the most appropriate to measure the interrelationship between the economic variables.

4.2. Empirical Analysis

This session conducts the unit root test as a method of testing for stationarity of the variables. If variables do not reject the null hypotheses that means the time series is non-stationary, differences will be added to data of the variables.

4.2.1. Unit Root Test and Optimal Lag Length

All variables of the entire time series were tested for their stationary by using the Augmented Diceky-Fuller (ADF) test. Although the pre-testing for unit root problem in the ARDL procedure, it is suitable to make sure that none of them are integrated of orders greater than one (Tahir, Khan and Shah, 2015) in order to avoid spurious results (Belloumi, 2014). The ADF test results presented in Table 2 show that all the variables are non-stationary in their levels except labor force, which are stationary at their 5% level since the ADF value of

each of these variables are greater than the 5% critical value. However, GDP, export and human capital became stationary at first difference. None of them are integrated of order higher than 1, which is required for the co-integration test (Tahir, Khan and Shah, 2015). Therefore, the variables of our model are I(0) or I(1), which satisfies the basic consumptions of ARDL bound tests (Belloumi, 2014).

Table 2. Unit Root Test Result

Unit Root Tests	Augmented Diceky-Fuller (ADF) Test		Diceky-Fuller GLS Test		Phillips-Perron Unit Root Test		Order of Integration I(0) or I(1)
Variables	t-Stat (Level)	t-Stat (1st Diff)	t-Stat (Level)	t-Stat (1st Diff)	t-Stat (Level)	t-Stat (1st Diff)	
ln (GDP)	-0.70	-5.33***	-1.18	-5.44	-1.07	-5.42	I(1)
In (EX)	-1.42	-5.46***	-1.43	-5.55	-1.77	-5.53	I(1)
In (IM)	-1.69	-6.15***	-1.81	-6.29	-2.21	-6.21	I(1)
In (FDI)	-3.06	-6.43***	-3.07	-6.34***	-2.96	-7.17***	I(1)
ln (CP)	-3.50	-6.75***	-1.84	-7.38***	-3.41	-8.81***	I(1)
In (LF)	-6.08***	-	-6.20***	-	-6.08***	-	I(0)
In (IR)	-1.51	-7.75***	-1.48	-7.50***	-3.83	-10.20***	I(1)
Critical Value	1%	5%	1%	5%	1%	5%	No I(2)

Note: *, **, *** denote significance at the 10, 5, 1% level, respectively.

Table 2 shows that under the ADF test, all variables are non-stationary at level but become stationery after first differencing, expect labor force. It indicates that all tests except labor force do not reject the null hypothesis that the series are non-stationary, and in the case of first differences of the variables, all tests reject the null hypothesis of non-stationary. Therefore, this shows that five variables in our model are integrated of order at I(0) and I(1). ARDL (Auto Regressive Distributed Lag) method is recommended for the mixed integration of time series. Therefore, the ARDL model is utilized to understand the interrelationships and causality between our variables in the short and long run. Before building the model, the proper lags order should be selected, for which we calculated the most appropriate lags orders for our variables as shown in Table 3. Both of Akaike information criteria (AIC) and Hann-Quinn information criterion indicate that lag 4 is the most appropriate. Therefore, we calculated the bound tests for the presence of cointegration at lags 4.

Table 3. Lag Selection Criteria

Lag	LogL	AIC	SC	HQ
0	-360.1021	17.07452	17.36122	17.18024
1	-129.1969	8.613810	10.90747*	9.459639
2	-43.79838	6.920855	11.22146	8.506785
3	-12.10456	6.599788	12.90734	8.925819
4	-92.65765	5.132202*	13.44671	8.198334*

Note: AIC: Akaike Information Criteria, SC: Schwarz Information Criteria, HQ: Hann-Quinn information criterion.

Corresponding to the above, for the analysis of the long and short-run interrelationships among variables (GDP, export and import, Labor force, FDI, capital formation and inflation rate), we apply the autoregressive distributed lag (ARDL) cointegration techniques or bound tests, which was developed by Pesaran and Shin (1999) and Pesaran, Shin and Smith (2001). The bound tests hypothesize no cointegration between variables, which needs to be rejected in order to explore the long and short run interrelationships. The results shown in Table 4 provide support that there are seven cointegration since the F-statistics for all equations are higher than the upper-bound critical value (4.15) at the 1% level. This implies that the null hypothesis of no cointegration among the variables in all equations are rejected. Now, the interrelationships between variables need to be checked through long and short run analysis and diagnostic tests for model stability and reliability by using Breusch-Godfrey serial correlation tests, white heteroscedasticity test, Jarque-Bera test and Ramesy RESET test.

Table 4. ARDL-Bound Testing for Cointegration

Model for Estimation	Lags	Optimal Lag Lengths	F-Statistics
GDP (FDI, CP, EX, IM, LF, IR)	4	(1,0,1,3,1,4,2)	6.38
FDI (GDP, CP, EX, IM, LF, IR)	4	(3,1,0,0,1,0,3)	6.86
CP (GDP, FDI, EX, IM, LF, IR)	4	(4,2,2,3,4,2,4)	10.44
LF (GDP, FDI, CP, EX, IM, IR)	4	(2,2,2,0,4,2,4)	7.46
EX (GDP, FDI, CP, IM, LF, IR)	4	(4,2,3,0,1,2,4)	6.16
IM (GDP, FDI, CP, EX, LF, IR)	4	(3,4,3,4,4,3,1)	7.62
IR (GDP, FDI, CP, EX, IM, LF)	4	(4,2,3,1,1,4,2)	7.49
Lower-bound critical value at 1%	3.06		
Upper-bound critical value at 1%	4.15		

Table 5 shows the diagnostic tests for seven equations and indicates that the equations in which capital formation, export and import are dependent variables are considered fitting very well for the regression when it passes all diagnostic tests against serial correlation (Breusch-Godfrey test), heteroscedasticity (White Heteroscedasticity test and ARCH test), and normality of errors (Jarque-Bera Test), and F-Statistics. The Ramsey RESET test also suggests that three models are well specified as shown in Table 5. GDP model shows the non-normality, which is considered unproblematic since the time series data used in the regression is stationary. Therefore, the models of exports as dependent variables shows the highest F-statistics above those of the equations of capital formation, and trade including export and import which can be considered as the most appropriate model with the highest F-Statistics without the problems of serial correlation, heteroscedasticity and non-normality to explore the long-run interrelationships between variables. The results obtained by normalizing trade in the long run are reported in Table 8. The estimated coefficients of the long-run relationship are significant for all variables except GDP at 1% level. The results showed that import and inflation give a negative significant impact on export growth while foreign direct investment, capital formation, and labor force have a positive significant impact on export growth. In detail, a 1% increase in FDI and capital formation cause improvement in export by 0.5% and 0.2% respectively in long run while 1% increase in labor force gives 10% improvement in export, which definitely reflects the notion that Myanmar exports highly rely on labor-intensive export products. In contrast, a 1% increase in import gives a negative significant impact on export by 1% while unstable inflation rate brings about a significant negative impact by 0.1% on export in the long run. In general, the negative impact of inflation on

export reflects the traditional beliefs of the fact that high inflation rates definitely harm the investment decisions that might affect export volume (Ebadi and Ebadi, 2015). The findings demand the government of Myanmar to manage higher inflation rate to increase the export competitiveness.

In addition to the diagnostic tests discussed above, the mode of export as dependent variable has significant value of F-statistics at 1% level, which shows that overall model is significant. The value of D-W statistics (1.87) has confirmed the absence of autocorrelation. The value of R-square shows that 99% of dependent variable is explaining by independent variables such as GDP, labor force, import, inflation, FDI and capital formation. Moreover, we have conducted cumulative sum and cumulative sum of square tests to inspect the stability of long run parameters. The plot of CUSUM and CUSUM of square lie within critical bounds at 5% significant level, which leads to acknowledge that our model specification of regression is correct as shown in Fig. 1 and Fig. 2.

Table 5. Results of Diagnostic Tests

Dependent Variables	B-G Test	ARCH	White	Normality	Ramsey	F-Statistics	Model Selection
GDP	1.44 (0.19)	1.41 (0.25)	1.61 (0.13)	**5.88** **(0.05)**	2.08 (0.14)	190.172***	Not Normal
FDI	1.86 (0.07)	1.21 (0.32)	1.18 (0.33)	0.83 (0.66)	**6.89** **(0.00)**	21.408***	Not Well Specified
CP	0.71 (0.78)	0.25 (0.90)	0.63 (0.85)	0.34 (0.84)	1.00 (0.39)	13.348***	Good Fitness
LF	1.56 (0.15)	**2.25** **(0.08)**	1.56 (0.15)	0.36 (0.83)	0.91 (0.37)	148.809***	Heteroscedasticity
EX	0.54 (0.91)	0.99 (0.42)	0.58 (0.88)	2.26 (0.32)	0.87 (0.43)	**334.772*** **	**Good Fitness**
IM	0.63 (0.95)	0.36 (0.83)	0.58 (0.88)	3.19 (0.20)	0.99 (0.39)	201.977***	Good Fitness
IR	0.83 (0.66)	1.07 (0.38)	1.05 (0.45)	0.82 (0.66)	**5.15** **(0.01)**	10.211***	Not Well Specified

Table 6. Estimated Long-Run Coefficients using the ARDL Approach: Export as Dependent Variable

Variables	Coefficient	Std. Error	t-Statistics	Probability
C	-110.8262	19.80077	-5.597064	0.0000
ln (GDP)	-0.788727	0.417351	-1.889843	0.0734
ln (FDI)	0.563532	0.146036	3.858854	0.0010
ln (CP)	0.289855	0.085194	3.402318	0.0028
ln (IM)	-1.172923	0.370850	-3.162796	0.0049
ln (LF)	10.43386	1.981042	5.266854	0.0000
ln (IR)	-0.144583	0.035482	-4.074849	0.0006
R-Squared	0.99	-	-	-
F-Statistics	334.77	-	-	0.00000
DW-statistics	1.87	-	-	-

Fig. 1. Plot of Cumulative Sum of Recursive Residuals

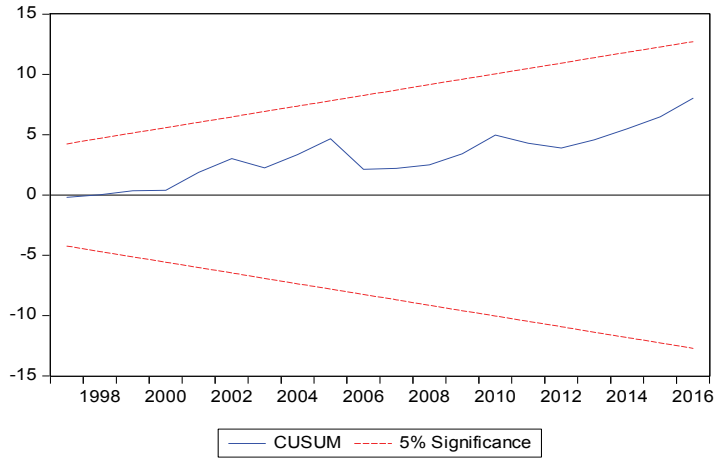
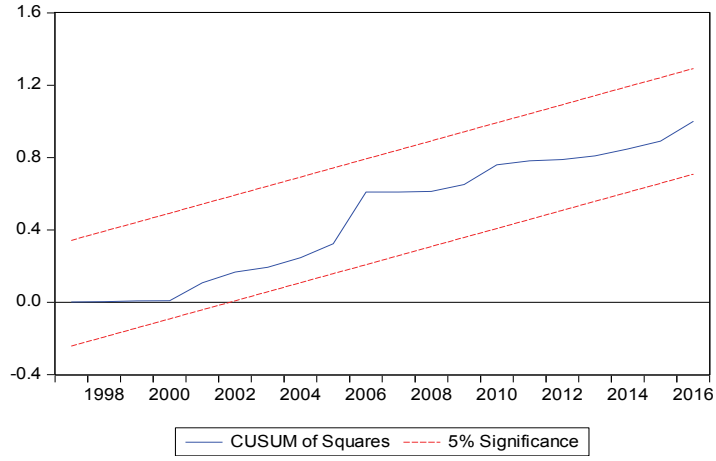


Fig. 2. Plot of Cumulative Sum of Squares of Recursive Residuals



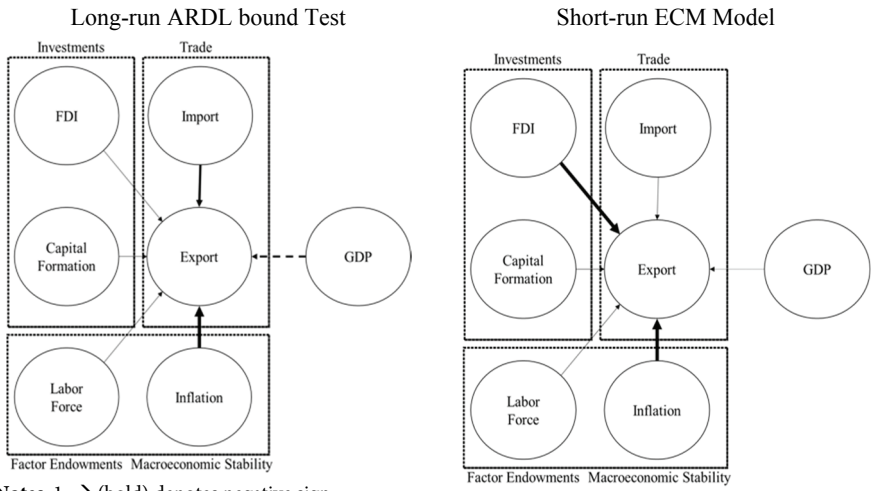
The result of short run analysis is reported in Table 6. In short run, GDP, capital formation, labor force, and import significantly contribute to the increase in exports while foreign direct investment and inflation rate have a negative significant impact on export growth. Among them, 3.4% increases in labor force is linked with 1% improvements in export growth while 0.05% increases in FDI and 0.01% increases in inflation rate are linked with a 1% decrease in export volume in the short run. Notably, GDP and import show positive significant impacts on export growth in short run while showing negative significant impacts in long run. In order to confirm the result of the bound tests for cointegration we conducted for long-run analysis, the coefficient of the lagged error-correction term needs to be significant and show negative signs. Table 7 provides the short-run analysis under the Vector Error Correction Terms (VECM). Our error correction terms (ECM) shows the expected sign and its coefficient is significant at the 1% level. The value is estimated at -0.40, which indicates that

the speed of adjustment from disequilibrium to equilibrium from short run to long run and the speed is considered high. The presences of cointegration between GDP, trade, labor force, FDI, capital formation and inflation require us to confirm the causalities between variables, for which the Granger Causality test is used.

Table 7. Results of Short-run Analysis

Variables	Coefficient	Stand. Error	t-Statistics	Probability
C	-44.61172	8.659133	-5.151984	0.0000
D(ln(GDP)	0.324504	0.146121	2.220790	0.0381
D(ln(FDI))	-0.057879	0.013328	-4.342734	0.0003
D(ln(CP))	0.116678	0.037053	3.148912	0.0051
D(ln(LF))	3.477756	0.724518	4.800096	0.0001
D(ln(IM))	0.356152	0.106707	3.337675	0.0033
D(ln(IR))	-0.011893	0.002899	-4.101819	0.0006
ECM_{t-1}	-0.402538	0.049322	-8.161474	0.0000
R-Squared	0.865666	-	-	-
F-Statistics	52.05724	-	-	0.0000
D-W Statistics	1.876761	-	-	-

Fig. 3. Long-run ARDL Bound Test and Short-run ECM Model



Notes: 1. → (bold) denotes negative sign
2. → (thin) denotes positive sign
3. --> denotes significant at 10% level.

Notes: 1. → (bold) denotes negative sign
2. → (thin) denotes positive sign.

Granger causality was introduced by Granger, and provides a way to investigate causality between two variables in a time series. The prerequisite of the Granger causality test is that two series are stationary or co-integrated; otherwise the problem of "spurious regression" might occur (Xing Wang, 2019). Granger test is used to see if a variable X Granger cause another variable Y. Leamer (1985) stated that precedence is a more appropriate word rather

than "Granger-cause", since it is used to ascertain if X comes before Y in a time series.

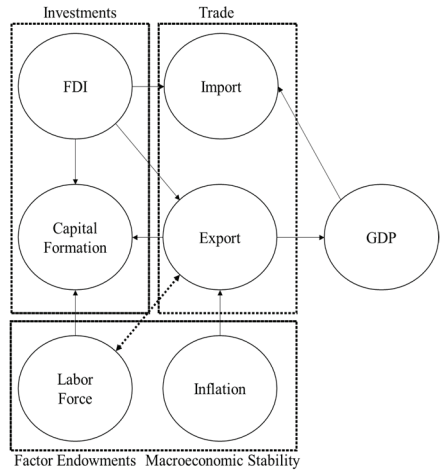
The Granger causality test in the short run was reported in Table 8 and Fig. 4. The findings indicate that there is one bidirectional Granger causality between export and labor force. The existence of bidirectional Granger causality may indicate that there could be any exogenous variables influencing on the causality.

Table 8. Granger Causality Results

Dependent Variables	Δln (GDP)	Δln (FDI)	Δln (CP)	Δln (Export)	Δln (Import)	Δln (LF)	Δln (IR)
Δln(GDP)	-	1.35231	1.18867	1.14611	2.69081**	0.74091	1.17745
Δln(FDI)	0.46061	-	2.52057*	2.54583*	3.77841**	11.0602	0.09681
Δln(CP)	0.78559	1.17451	-	1.97091	1.36886	1.54748	1.63392
Δln(Export)	2.88012**	0.51214	3.91177**	-	6.47062***	3.31859**	0.33606
Δln(Import)	0.09885	0.51388	0.65265	0.35013	-	1.38619	1.75326
Δln(LF)	1.25324	0.45880	5.39936***	4.70310***	10.7693	-	0.97741
Δln(IR)	1.01776	0.44778	2.03962	2.35789*	1.05804	0.43319	-

Notes: 1. *, **, *** denote significance at the 10, 5, 1% level, respectively.
2. Causality: Bidirectional: Export ←→ Labor force; Unidirectional: GDP → Import; FDI → Capital formation, Export, Import; Export → GDP, Capital formation, Import; Labor force → Capital formation; Inflation rate → Export.

Fig. 4. Granger Causality Diagram



Notes: 1. A→B denotes A Granger Cause B (unidirectional causality).
2. A<-- -->B denotes bidirectional Causality between A and B.

According to the Granger causalities between variables, FDI and export are considered important factors Granger causing other variables. There is unidirectional Granger Causalities running from FDI and inflation to export, from export to import and GDP, and from GDP to import. Moreover, FDI, export and labor force also Granger cause capital formation. Thus, there is a high chance that FDI, export and labor force would be precedence of capital for-

mation in Myanmar. Moreover, FDI is more likely to Granger cause import and export, which can be interpreted that the inflows of FDI in Myanmar can come before the growth of export and import. It is consistent with our findings indicating that FDI and Import influences export in the model. Accordingly, FDI turned out important precedence in trade and domestic sector. It can be concluded that foreign direct investment in Myanmar successfully creates a crowding-in effects by influencing domestic investments. However, there is no Granger causality from capital formation to GDP, from FDI to GDP, and from labor force to GDP which are consistent with the findings of Belloumi (2014).

4.3. Implications on Empirical Findings

This paper is conducted to explore the interrelationship between investments, trade, labor force, inflation and economic growth in Myanmar in the long and short run by using ARDL approach and Granger causality tests. FDI and capital formation for investments, export and import for trade are chosen for analysis during the period of 1970-2016. ARDL bound tests was used to identify the presence of a long-run and short-run relationships in a chosen model, and the Granger Causality Tests to explore the direction of causality among variables included in the model. The results show that there are three cointegrations which passed all diagnostic tests in which the model of export as a dependent variable shows the highest F-statistics was chosen as the most appropriate to explore a long-run relationship between variables. Therefore, export turned out an important economic outcome in FDI-Trade-Growth model in Myanmar rather than GDP growth in the long run.

In the long run, labor force, FDI and domestic investment gives positive significant impact on export while import and inflation gives negative impact on export. Firstly, labor force has the strongest positive association with export growth in the long run. This indicates that exports excessively rely on labor intensive commodities and growth in labor force is likely to give strong effects on export growth in Myanmar. The finding can provide an implication on how careful labor policy in the export industry in Myanmar should be handled under the current economic model.

Secondly, it is found that the inflows of FDI and capital formation enhance the growth in export in the long run. It may reflect the garment sector based on CMP (Cutting, Making and Packing) contract to re-export to the 3rd countries. Capital formation also turned out positively associated with the export growth. Moreover, as domestic investment is a significant determinant for export growth in Myanmar, Myanmar government must install a system to assist in supporting domestic firms with their further overseas expansion.

Thirdly, the inflation rate gives a negative effect on the export in the long run, which is consistent with the statement that macroeconomic stability is a fundamental condition for export growth. This means that Myanmar's government needs to have more insight in managing the inflation rate under a careful consideration of export market. Current management of the inflation rate by the Central bank in Myanmar is considered insufficient according to our findings.

Lastly, an increase in import volume turned out giving negative effects on export growth. When the imported products are able to be utilized in the production of export goods and the management and procedure of importation are not efficient, the growth in imports may hinder the export growth. Hayakawa and Laksanapanyakul (2019) also studied the effect of import processing time on export patterns in Thailand from 2007 and 2011 and found that the longer import processing times reduce total exports as a result of decreasing export frequency (Hayakawa and Laksanapanyakul, 2019). Thus, the Myanmar government must

investigate the imported goods which will be re-used in the export industry and enhance import processing times of those goods. It can also be linked with the poor quality of logistic performance in the import industry.

In the short run, firstly, GDP has a positive effect on the export which is consistent with Findlay (1984) who explained that output growth can be associated with the increased production of goods sold in domestic and overseas markets. Secondly, FDI has a negative effect on the export. Zhang (2005) argued that negative effect of inward FDI on export could be expected due to possible creation of harsh competition, removal of potential but weak exporters from the competition, and then hindrance of domestic investment expansion (Zhang, 2005). Notably, import can increase export volume, which can be explained by the fact that many manufactured export products in Myanmar contain a high share of import materials. Future study will need to be conducted on the deep analysis of the relationships between inflation rate and export market in Myanmar.

The Granger Causality test indicates that there is a high chance that FDI can be precedence of international trade and domestic investment in Myanmar while growth in export may expect income growth per capita in Myanmar. Income growth per capita could also be precedence of growth in import in Myanmar. Therefore, Myanmar can be considered as an FDI-Trade led growth economy in which export growth is positively influenced by FDI and domestic investment; labor force as proxy for factor endowments while being negatively influenced by inflation rate as proxy for macroeconomic stability in the long run.

5. South Korea's Experiences

South Korea is academically well known as a state of a growth model with a competent and relatively uncorrupt bureaucracy (Haggard and Moon Chung-In, 1990**;** Johnson, 1989). South Korea maintained a lower level of corruption than other Asian countries in the process of industrialization, which would have put less pressure on policymakers to make inefficient choices for policies (Thunt Htut Oo, 2018). There were many works of literature exploring the successful industrialization of Korea and most findings indicate that export promotion and the successful development of Heavy and Chemistry Industry (HCI) as an infant industry, human capital accumulation (Maksymenko and Rabbani, 2011) and the government's successful intervention for removing coordination failures in terms of the savings and investment rates are the most fundamental elements for Korea's successful industrialization (Rodrik, 1995). Our findings indicate that there are some sectors Myanmar's government needs to base their policy implications on by considering South Korea's past and current experiences, such as in training labor force in export industries, entering into value-added industries, competitive export promotion policy; and FDI policy.

Regarding competitive export promotion policy, Korea adopted an aggressive export-oriented strategy for its economic growth unlike other developing nations. Export promotion programs provided exporting firms with a variety of incentives including taxation and credits, which were essential for exporting. Additionally, divergent from Thailand and Malaysia, Korea tried to remove tariffs on imported inputs and capital goods as long as they were used to produce goods for export (Connolly and Yi, 2015). This is also consistent with our findings in the model in which import gives a negative effect on export growth.

Thus, Myanmar's government can adopt "Re-export Tax Benefit Policy" removing tariffs on imported inputs and capital or technology goods used in producing goods for exports. In fact, rather than tariffs on certain goods in today's trade environment, Myanmar needs to

improve many other non-tariff barriers such as administrative procedures, and lengthy paperwork for issuing certain certifications.

In the 1960s, South Korea exported non-fuel primary products including hair wigs, which accounted more than half of their exports. In the 1970s, they began to export manufactured products ranging from light industries including textiles and electronics to heavy industries including iron and steel. From the 1980s, South Korea focused on exporting motor vehicles and telecommunications equipment as well as service exports including entertainment content (Noland, 2012). Aggressive export policies were encouraged until the trade balance turned into a surplus.

Myanmar also needs to improve their widening trade deficit by adopting aggressive export policies to reduce the trade deficits such as Export Insurance and restrictions on imports to protect certain domestic industries. In the same vein, imports show a negative effect on export in Myanmar, which indicate that Myanmar government should release lists of imported goods which are re-used in the export industry in order to exempt tariff and to remove non-tariff barriers. On the other hand, Myanmar is now a member of WTO and also a member of ASEAN. Thus, protecting certain industries through tariff or adopting export-first policy would be limited in the future. Moreover, export-first policy provides the sole authority of trade institutions to restrict and issue import license and it can cause corruption and firms to find rent seeking. Instead, utilizing the FTA agreements with certain countries for technology related import goods should be considered. Another mechanism Korea used for export promotion was export credits. It was managed by K-Sure that were established especially for exporter loans to buy raw materials or domestic contents, which were used in producing export products. For instance, export loans at a lower rate were popular for exporters ranging from an average ratio of 79.4% to 90.1% between 1966 and 1981 (Kim Joon-Kyung, Shim Sang-Dal and Kim Jun-Ill, 1995). The exemption of tariffs imposing import contents for exports, tax investigations and business and corporate taxes on export incomes were promoted through the closed and tied consultation. Moreover, the export trends and performance were monitored through monthly export expansion meetings for which Korea Trade Association and the Korea Trade Promotion Agency were also established. Accordingly, Myanmar's government could introduce the legislative foundation of supporting export industry through "Export Insurance". More incentives in the export industry can encourage local and foreign businesses to compete for better performance, which needs to be set up by the government. Since our findings revealed that labor force, FDI and capital formation attract export growth whereas import discourages the export in the long run, export incentives such as tax benefit systems, export credit such as loans, and export insurance should be provided in FDI and export businesses through the establishment or existing trade associations while removing tariffs on capital and technology goods used in re-export production or reducing lengthy importing procedures in import industry.

As a result, exporting firms had to compete with other local and foreign businesses for better performance to gain more incentives for future exports, which created intensive competition and enabled exporters to allocate resources more efficiently. Thus, Myanmar's government should investigate the tax benefit system of the export industry in Myanmar and adopt a K-insurance system in the export industry to facilitate export competitiveness. Moreover, export credit systems, and a tax benefit system, which should be managed through tied consultation and control such as monthly export expansion meetings. Myanmar should learn from the way the Korean government encouraged targeted industries in the 1960s. Korea made a series of laws including the Machine Industry Promotion Act (1967), the Shipbuilding Industry Promotion Act (1967), the Textile Industry Modernization Act (1967),

the Petrochemical Industry Promotion Act (1970) and the Nonferrous Metal Producing Business Act (1971) reflecting how government aggressively targeted certain industries (Park Jong-Dae, 2019).

Regarding the role of FDI in Korea's industrialization, Korea's FDI can be described as comprising of three phases: Korea perceived the inflow of FDI as easy import-substitution of non-durable goods and intermediates from 1961 to 1971. FDI became important especially for export growth from 1972 to 1981 and more liberalized from 1981. However, there are empirical findings that FDI did not play a significant role in economic growth in South Korea (Kim June-Dong and Hwang Sang-In, 2000). They discovered from data between 1974 and 1989 that FDI's role in economic growth in Korea was minimal and negligible. The FDI contribution to the total domestic fixed capital formation in Korea was less than that in other Asian countries. However, another study using data from 1980 to 2009 discovered that there was a strong and positive impact of FDI on South Korean economic growth. After the liberalization of FDI industries, FDI along with human capital become important factors for technology and knowledge transfer in the economic growth in South Korea (Koojaroenprasit, 2012). The skilled workers for HCI were trained through education and vocational programs, and skills licensing systems. In fact, human capital takes roughly 12 years to produce but will last more than 40 years once it gets in the labor force (Noland, 2012). Interestingly, countries realizing the role of human capital in the early process of industrialization tend to grow at a faster rate than the countries with a later investment in the accumulation of human capital according to our case study (Thunt Htut Oo, 2018).

Without investment in training the labor force to develop further human capital in export and FDI sectors, it is less likely for Myanmar to move up to the value-added manufacturing economy. As Myanmar's government has liberalized FDI industries, human capital will be the next important factors for long-term economic development in Myanmar.

On the other hand, the Korean government shared risks with private enterprises, which turned out very important implications for developing nations in industrialization. Risk sharing is said to promote the rapid industrialization and product diversification. Credit is very important for foreign borrowing, for which the Korean government provides guarantees for repayment. Presidential Emergency Decree in August 1972 was a typical example and enabled all corporate loans to be converted into long-term loans on an installment basis over five years. President Park himself provided an implicit guarantee that the state would be bailed out if those entrepreneurs investing in desirable activities if circumstances later threatened the profitability of these investments (Rodrik, 1995). This helped decrease the shares of expenses on interest in sales volume from 9.9 % in 1971 to 4.6%. Moreover, due to the easy access to bank lending and credit, it is possible for successful entrepreneurs to expand several subsidiaries at the same time. Larger firms are also able to cost-efficiency to get involvement in HCI, and to compete with multinationals in the international markets. Without this protective mechanism, Hyundai would not have become one of the world's best shipyards. In Myanmar, risk sharing system should be improved in private sector. Especially, Myanmar's government should introduce guarantee means designed to increase the export competitiveness of private enterprises in export industries.

There are negative arguments on relying too much on government protection and make unrealistic or careless investments. However, the government-protected firms are mainly exporting firms, which in nature need to compete not only with local businesses but also with international competitors in terms of price and quality competitiveness. Without the capability to survive in the international markets, it would not be able to get government incentives. Therefore, this kind of attempt helped to reduce the opportunistic behaviors of

winners. When an exporting firm is confirmed qualified and well-trained for international competition, the export incentives switched to other necessary areas.

Moreover, there are some advanced findings that collectivistic culture gave positive influences toward Korean firms and the growth through the sacrificed individual labor, welfare rights and freedoms, which again fostered cost and price competitiveness. The government adopted national motivation campaign to create collectivist spirits such as loyalty, family, Samael sprits, seniority-based reward systems, and obedience to authority (Kee Tan-Soo, 2015). In addition, like Thailand's case where land reform is linked with economic outcomes, the literature argued that Korea's case provides the additional evidence that land reform is not only linked with agricultural productivity but also with the reduced income inequality (You Jong-Sung, 2014). Land reform in Korea was designed to achieve socio-economic equity in rural communities and to create new incentives for higher agricultural productivity. Agricultural productivity was important in terms of import perspectives, rather than export perspectives because Korea used to be a larger net importer of food products and agricultural imports. With the increased agricultural productivity, Korea's import of agricultural products dropped to 4% in 2005 from 18% in 1970 (OECD, 1999).

First of all, through the case study of South Korea's economic experiences, the role of government and human capital in the process of industrialization should be complementary and not be discussed which roles are more crucial, and we can conclude that a combination of the role of government including their act of removing coordination failures and human capital is one of the most crucial factor for rapid industrialization in Korea.

Secondly, according to our case study, human capital was one of the most fundamental areas Korea has pursued to contribute to the rapid economic growth through the export growth of manufactured products, and closely linked with the rapid economic growth through technology transfer from developed nations. The human capital development was mainly conducted by the government's policy rather than by the foreign direct investment. Myanmar's government should notice that human development should be initiated by the government, not by the domestic and foreign firms.

Thirdly, export promotion was aggressively encouraged through credit and tax systems which enabled the government to monitor the export performance, to distribute the resources efficiently, to protect rent-seeking behaviors, and finally to improve the international competitiveness of exporting firms. Accordingly, the government's action towards economic growth was stronger than other developing nations and became one of the determinants in rapid industrialization.

Fourth, the government put all their efforts into bringing the financial resources needed to build up HCI through FDI, savings rate of public enterprises as well as commercial and public loans rather than the foreign direct investment. The financial resources were effectively distributed across the industries and sectors through the utilization of credit and tax systems to remove the coordination problems and through the development of human capital.

Eventually, therefore, in certain areas, Korea and Myanmar can promote collectively for further economic expansion today. Firstly, Myanmar government should introduce industrial acts and risk-sharing policy based on legislative foundation for Trade and FDI industries, regulate competition policy for export incentives. South Korea government can contribute to the foundation of Myanmar Trade Promotion Agency and Trade Association so as to investigate the current tax benefit systems and credit system especially for domestic investment in Export-led FDI industries and adopt better tax and credit system for their export competitiveness. For example, K-insurance system, and guidelines for the utilization of FTA agreements also should be localized in Myanmar for local business export promotion. Korea

can also gain benefits from installing cooperative units in Myanmar to encourage the joint ventures between Korean investors and local businesses in Export-led FDI industries.

Secondly, a series of export promotion acts at the industry level should be prepared for the improvement in value-added manufacturing export. The Korean government can promote their presence in Myanmar as pre-legislative consultant for Myanmar's industry promotion acts, which will gain better access to industry information for further economic partnership and Korean investors as well.

Thirdly, Korean FDI can initiate their investments as a channel not only for productivity and efficiency but also in skills and know-how transfer to local businesses and workers. Thus, Korean education and the vocational sector can enter into Myanmar's education sectors through the linkage with Korean businesses in Myanmar and Korea. Korea-Myanmar Industry-led Education Policy should be encouraged to transfer Korean technology including idea and know-how and train using Korea's guidelines for value-added manufacturing industry growth. This policy also will be able to help Korean University and education sectors to attract more international students from Myanmar in the future.

Eventually, this study poses some limitations. This study selectively analyzed South Korea's experiences with an aim to provide insightful implications based on the findings in our model, since the research objectives mainly aimed to investigate the interrelationships among FDI-Trade-Growth relationships in Myanmar. Policy recommendations of the study on cooperative FDI-Trade strategy between South Korea and Myanmar also must be empirically analyzed using FDI firm level data in the future. Moreover, there are other determinants affecting export growth. For instance, exchange rate, political instability, financial development, and human capital were not treated in the export growth model. A study to explore the determinants of export price or volumes will be insightful for export industry in Myanmar.

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