ECONOMIC LIBERALIZATION AND ITS LINK TO CONVERGENCE: EMPIRICAL EVIDENCE FROM RCEP AND TPPA COUNTRIES

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ABSTRACT

Economic liberalization has been the emphasis of adjustment policies in developing countries; ASEAN countries jumped on the bandwagon and espoused economic reforms by liberalizing its international trade and financial policies. Through the development of free trade agreement policies such as AEC and RCEP, regional economic integration is accelerating in South East Asia; not leaving behind the less developed member countries such as Cambodia, Lao PDR, Myanmar and Vietnam (CLMV). Hence, the objectives of this paper are to examine the dynamic impact of economic liberalization (financial and trade liberalization) on ASEAN's economic growth and to assess the possibility of the existence of convergence club between ASEAN and its RCEP counterparts. Using the annual data covering the period of 1994 to 2014, the analysis is based on the Pooled Mean Group (PMG) estimations for liberalization analysis while the Phillips and Sul (2007) methodology is used to assess the economic convergence clubs. The empirical evidence suggests that both trade and financial liberalization play a significant role in ASEAN's economic growth. For convergence in RCEP, full sample find an absence of homogenous convergence; as a result, four club convergences are formed. The result highlights the importance of trade and financial liberalization in enhancing economic growth of ASEAN and implies that strong commitments in continuation of liberalization and integration policies are recommended to promote a sustained economic growth.

Keywords: Economic Liberalization; Convergence Club; TPPA, RCEP.

1. INTRODUCTION

In recent years, the Regional Comprehensive Economic Partnership (RCEP) is being negotiated to form a more comprehensive region-wide free trade arrangement (FTA) from current bilateral and smaller regional agreements. Many would argue that RCEP is implicitly assumed as China's attempt to counteroffer the US-led TPPA (Das, 2013; Hamanaka, 2014; Petri et al., 2014). The RCEP represents a unique regional economic cooperation among 10 ASEAN countries and has implications for regionalism and for the balance of economic power among the major trading blocs, namely Australia, Japan, New Zealand, Korea, China and India (Scollay, 2014; Das, 2015). This FTA aims to attain a comprehensive and mutually beneficial economic partnership agreement that will entail deeper engagement between ASEAN and its FTA partners[1]. The core of RCEP covers trade in goods and services, investment, economic cooperation and dispute settlement; this has sparked an interest among

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[1] ASEAN's FTA partners include China, India, Japan, South Korea, Australia and New Zealand.

smaller ASEAN economies as ASEAN is awarded the coordinating role of the RCEP process (Tang & Petri, 2014; Fukunaga, 2015; Ye, 2015).

Since the aftermath of Trump's victory in the United States (U.S.) presidential election, Asia Pacific countries are beginning to shift gear by focusing on RCEP, viewed as a rival deal to the Trans-Pacific Partnership Agreement (TPPA) (Harris & Bradsher, 2016; Miyazaki & Westbrook, 2016). This is an important step for Asia as the RCEP helps strengthen joint efforts of big economies such as China and India. Among Asian economies, both the expansion of RCEP and TPPA serves as a stepping stone to the creation of a region-wide free trade through a Free Trade Area of the Asia Pacific (FTAAP) (Petri et al., 2014; Das, 2015; Oba, 2016). RCEP, driven by ASEAN, is an FTA between ASEAN and ASEAN's FTA partners, namely Australia-New Zealand, China, South Korea, Japan and India. On the other hand, TPPA is a US-led process and consists of New Zealand, Singapore, Brunei, Chile, United States, Canada, Japan, Australia, Peru, Malaysia, Vietnam and Mexico. TPPA aims to liberalise trade and investments, promote innovation, economic growth and development as well as to support job creation and retention among its member countries[2] (Das, 2014, 2015). The negotiations of Regional Comprehensive Economic Partnership (RCEP) holds a promising prospect, but progress also appears to be slow, caused the geopolitical strains of members and the region's diversity (Petri et al., 2014; Majchrowska, 2016). Nevertheless, for ASEAN, RCEP shows larger benefits than the TPPA; this is mitigated by the fact that RCEP contains all ASEAN members as compared to TPPA[3] and the RCEP will help liberalize economic relations among China, India, Japan and Korea (Fukunaga & Isono, 2013; Kim, 2016).

Economic liberalization refers to government policies that promote free trade, deregulation, elimination of subsidies, price controls, and rationing systems, and often, the downsizing or privatization of public services (Woodward, 1992). As liberalization is a focus of adjustment policies in developing countries, it provides opportunities for low- and middle-income countries to economically catch up with high-income countries (Hakro & Fida, 2009; Chandra et al., 2013; Idris et al., 2016). Of late, the Asia-Pacific region is moving toward an open economy on the basis that liberalized trade and financial policies are beneficial to future economic growth and development (World Trade Organization, 2008; Aizenman & Ito, 2011). In this vein, many countries are lowering their tariffs and cutting exchange rate controls; local authorities are opening up their markets to foreign competition (Germain, 2009). Since 2000, the number of regional agreement participated by Asia Pacific countries has proliferated to forty deals in 2014; the region has earned the title as the most active area for FTA negotiations globally (Dent, 2010; World Trade Organization, 2014; Wilson, 2015). Through development of policies such as the ASEAN Economic Community (AEC), Asia-Pacific Trade Agreement (APTA), and Regional Comprehensive Economic Partnership (RCEP), economic integration is accelerating in South East Asia; not leaving behind the less-developed member countries such as Cambodia, Lao PDR, Myanmar and Vietnam (CLMV).

The Association of Southeast Asian Nations (ASEAN), consisting of 10 countries, plays a decisive role in the growth of global economies and has been the central of FTA movements in the Asia-Pacific region (World Trade Organization, 2014; Wilson, 2015). ASEAN's free-trade treaty continues to grow rapidly and since its establishment in 1967, ASEAN has always observed the progress of the European Union (EU) and viewed it as a role model even though always within the context of Southeast Asia's

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[2] TPPA may be halted due to the rocky stance of its effectiveness by the US political dynamics during the 2016 Presidential elections.
[3] ASEAN members participating in TPPA are Brunei Darussalam, Malaysia, Singapore and Vietnam.

development (Plummer, 2006; Urata, 2008). The formation of ASEAN Free Trade Area (AFTA) in 1992, complemented by the 1998 ASEAN Investment Area (AIA) and the recent ASEAN Economic Community (AEC), are integral efforts in the pursuit of creating a single market and production base within the Asian region. In late 2015, the ten Southeast Asian Leaders announced the AEC 2015 to be advanced to AEC 2025. Due to the inability to achieve some of the objectives in 2015, AEC 2015 is revamped; AEC 2025 includes a fifth pillars, which is to incorporate a highly integrated and cohesive economy.[4] The other four pillars are a competitive, innovative and dynamic ASEAN; enhanced connectivity and social cooperation; resilient, inclusive people-oriented and people-centered ASEAN; and a global ASEAN. Figure 1 shows a scatter plot of average trade over GDP and domestic private credit over GDP of ASEAN from 1992 to 2015. Clearly, there is an increasing trend of trade openness and financial development indicating that these countries are committed in liberalizing their economy, as a result of integration in terms of trade, outsourcing, and investment (Kawai & Naknoi, 2015).

Figure 1: Trade and Domestic Private Credit (% of Gross Domestic Product)
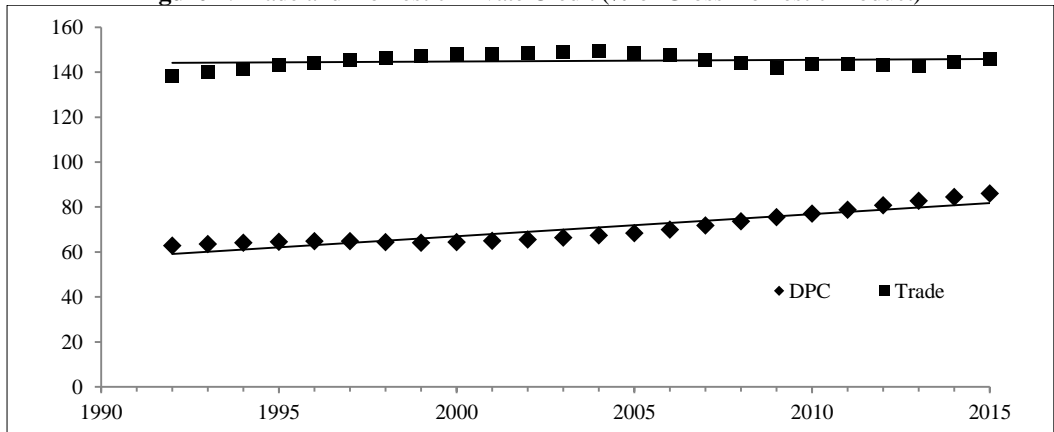
Note: data for Brunei Darussalam and Myanmar is unavailable.
Source: World Bank (2015).

Since the establishment of AEC 2015, ASEAN members attempt to improve the Common Effective Preferential Tariff (CEPT) and rules of origin (ROO), which include tariff reduction as well as making the ROO more transparent and standardized. With regard to financial liberalization, the ASEAN Comprehensive Investment Agreement (ACIA) was formed under the AEC. Although ASEAN integration has advanced from AEC 2015 to 2025, several tasks under the earlier blueprint have not been implemented (Das, 2013). AEC 2025 deepens the scope of AEC 2015 by aiming to create a deeply integrated and cohesive ASEAN with the objective of delivering inclusive growth. To ensure continued success of ASEAN's integration, member countries need to strengthen their domestic industries and policies, as well as allocate more resources to regional integration (Das, 2016). ASEAN is a key player in regional FTAs through the negotiations of plurilateral FTAs such as ASEAN Plus Three (APT), ASEAN-India FTA, as well as ASEAN-Australia-New Zealand FTA (AANZFTA).

Although ASEAN has been at the center of the FTA shifts, the inclinations of these FTAs have posed two main challenges for progress toward trade integration in the Asia-Pacific (Wilson, 2015). The first is closely related to the quality of the numerous agreements. A bulk of the FTAs in the region is between

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[4] For more information on these pillars, please refer to the AEC 2025 Blueprint.

countries with relatively low bilateral trade volumes with narrow coverage, i.e., many important sectors such as agriculture and financial services are excluded from the agreements (Ravenhill 2008; Dent 2010). A second challenge faced by regional FTAs is known as the 'noodle bowl' problem whereby unlike multilateral agreements which implement unified trade rules for all members, bilateral FTAs have diverse content (Wilson, 2015). These discrepancies immensely complicate the trading system, as each country differs in regulations and commitment levels for each of its FTA partners (Capling & Ravenhill 2011; Wilson 2015). As a result, researchers argue that FTAs in the Asia-Pacific failed to live up to their expectation of advancing in liberalization and regional economic cooperation (The Warwick Commission, 2007; Dent, 2010; Ravenhill, 2008; Wilson, 2012).

Liberalization is a popular step for countries to strengthen their economic growth, though the effects of openness on developing economies can be precarious due to weak governance and instability in global markets (Rodrik, 2011). Liberalization and its effects on growth are driven by three factors. Firstly, the path toward economic liberalization[5] which includes reduction in barriers to trade and investments implemented by the General Agreement on Tariffs and Trade (GATT), World Trade Organization (WTO), and International Monetary Fund (IMF). Next is the transformation of government role and global consensus on the use of market incentives to achieve a more efficient economic system (Rodrik, 2000). The third factor is innovations in information, communication technologies, and transportation (Baldwin & Martin, 1999). These factors play an impending role in promoting globalization of trade, financial and capital flows (Rajan, 2001).

As developing countries move toward an integrated world economy, liberalization and globalization have been extensively debated. Proponents of economic liberalization, such as Bilquess et al. (2011) and Awojobi (2013), claim that openness increases trade flows because producers are allowed access to international markets, thus profiting the economy of participating countries. The opponents of liberalization, such as Kose et al. (2003) and Seguino and Grown (2006), fear that liberalization policies cannot generate steady increases in income, hence dampening the economic environment. Rodrik (2011) emphasizes the importance of a strong government and stable domestic markets before opening up the economy. However, despite the varying views on openness and globalization, economic liberalization is likely to be implemented (Rivoli, 2005).

Through the effects of liberalization, the growth of low- and middle-income countries has accelerated to the point that it is possible for them to catch up with high-income countries (Barro & Sala-i-Martin, 1991), a phenomenon known as convergence. The neoclassical growth theory built on the foundational work of Solow (1956), Cass (1965) and Koopmans (1965) implies that over time, the per capita income should converge to the same steady state, incorporating differences in preferences such as population growth rate, savings rate, and depreciation rates. Recent theories of convergence suggest that the income per capita distribution of countries or regions forms sub-groups around poles of attraction in the long run (Ben-David, 1993; Quah, 1993; Bernard & Durlaud, 1995).[6] The growth theory techniques postulated by Azariadis and Drazen (1990) and Galor (1996) show that countries with similar features such as government policies and production technology might converge to diverse steady-state

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[5] Economic globalization is defined by the intensification of cross-border movement of goods, services, capital and technology via the increasing economic integration among countries (Al-Rodhan, 2006). The term of economic liberalization which refers to trade and financial liberalization is used throughout this research (Fujita and Hu, 2001; Wong, 2005; Sundaram and Arnim, 2008; Bashar et al., 2008).

[6] According to Canova (2004), countries will form clubs around several poles of attractions including the endowment factors of productions, similarities in technologies and preference as well as government policies.

equilibrium even if conditions differ in the beginning, a phenomenon widely referred to as the club convergence hypothesis (Galor, 1996).

Through the removal of economic barriers, liberalization allows these countries the opportunity to develop, provided they have a strong legal and regulatory framework within their economic system (International Monetary Fund [IMF], 2008). In particular, the openness process enables developing countries that have low-cost labour to attract foreign direct investment (FDI). This makes it possible for developing economies to grow rapidly and catch up with developed countries. Although most developing countries were hit by the global financial crisis in 2008–2009, the recovery was swift. By 2010, developing countries had grown to constitute half of the world's economy and were responsible for the bulk of global growth, thus providing evidence that developing countries are catching up with developed nations (Rodrik, 2011). According to the World Bank (2011), the gross domestic products (GDP) of developing countries has increased to 7 percent, while the GDP growth rate of high-income countries is only 2.8 percent and the largest contribution is from countries in East Asia and Asia Pacific.

In the lifespan of 50 years, ASEAN has come a long way in accelerating economic growth, promoting harmony, and cultivating a shared vision in the region. From the reduction of poverty and the increment of GDP per capita, ASEAN is currently the 3rd largest economy in Asia and 7th in the world (Limaye, 2014). Through ASEAN, new trade networks were established within the framework of regional trade blocs using the ASEAN Free Trade Area (AFTA), followed in 1998 by the ASEAN Investment Area (AIA) and ASEAN Economic Community (AEC) (Asirvatham et al., 2017). On this note, member countries have achieved an admirable level of globalization; the KOF Globalization Index shows that Singapore ranked 6th, Malaysia and Thailand ranked 25th and 42nd respectively in 2016. Though the progress of integration has been uneven in recent decades, progress has been very impressive for a number of developing countries in ASEAN, such as Singapore, Malaysia and Vietnam (IMF, 2001). These countries have become successful because they chose to participate in global trade such as RCEP and TPPA, helping them to attract the bulk of foreign direct investments in developing countries.

The objective of this paper is to examine the relationship between economic liberalization and economic growth in RCEP, TPPA and ASEAN as well as to determine which FTA benefits the ASEAN region. Economic liberalization also provides opportunities for developing countries to economically catch up with high-income countries (Hakro & Fida, 2009). On this note, the development of AEC, RCEP, and TPPA has triggered regional economic integration in South East Asia, without leaving behind the less-developed member countries: Cambodia, Lao PDR, Myanmar, and Vietnam (CLMV) (Thanh & Bartlett, 2006). It would also be interesting to examine where ASEAN stands amongst other RCEP and TPPA counterparts. Hence, the second objective of this paper is to assess the possibility of the existence of income convergence clubs between TPPA and RCEP.

2. LITERATURE REVIEW

Since the foundational contribution of Rajan and Zingales (2003), the role of trade openness and its link to financial development has received growing attention among researchers . According to Kletzer and Bardhan (1987), countries with a well-established financial system are likely to have comparative advantage in industries that are more reliant on external finance. Beck (2002) adds that the level of financial development plays a crucial role in determining the structure of trade balance, thus, financial sector reform fosters the trade balance. The interest group theory postulates that a country that is more

open to trade and capital flows is more likely to develop its financial system, thus leading to higher economic growth (Rajan & Zingales, 2003).

The bulk of studies examining the relationship between trade liberalization and economic growth shows mixed findings (Wacziarg & Welch, 2008; Nannicini & Billmeier, 2011; Falvey, Foster & Greenaway, 2012; Kiyota, 2012; Bas & Strauss-Khan, 2015).[7] Studies such as Wacziarg and Welch (2008) and Nannicini and Billmeier (2011) advocate positive trade liberalization and growth nexus while Yanikkaya (2003), Lee, Ricci and Rigobon (2004), Bashar et al. (2008), and Chandran and Munusamy (2009) find there is no robust effect on growth. In recent times, considerable number of studies examine the relationship between trade liberalization and growth in developing countries, particularly Asian countries (Parikh & Shibata, 2004; Hassan, 2005; Chandran & Munusamy, 2009). Nevertheless, the results of these studies appear to be ambiguous. To add, Lee and Shin (2006) show that international trade works more effectively in developing countries that do not have large internal markets and an abundance of resources because it enables the countries to specialize and produce goods more efficiently.

In a similar vein, results of past studies on financial liberalization also offer mixed evidence (Braun & Raddatz, 2008; Dal Colle, 2010; Bilquess, Mukhtar & Sohail, 2011; Gehringer, 2013; Almekinders et al., 2015). Dal Colle (2010) examines the finance-growth relationship and concludes that a positive long-run relationship exists between financial development and growth. On the contrary, some past studies report pessimistic findings on financial openness (Alessandria & Jun, 2005; Ang & McKibbin, 2005). In the Asian context, some studies believe financial liberalization causes the currency to devalue and even financial crisis (Jomo, 1998; Goh et al., 2003). Others conclude that financial liberalization helps the financial system but has no long-term effect (Ang & McKibbin, 2005; Ito, 2006).

The above discussed studies focus on trade openness or financial liberalization. Little attention has been given to the analysis of the relationship between economic liberalization and economic growth (Wong, 2005; Soukhakian, 2007; Ahmed & Suardi, 2009; Kim et al., 2010; Awojobi, 2013). Studies by Ahmed and Suardi (2009), Kim et al. (2010) and Awojobi (2013) offer optimistic findings on the liberalization-growth nexus; while Yanikkaya (2003) and Bashar et al. (2008) find that economic liberalization does not have a positive effect on economic growth. In view of this, this research attempts to fill the gap in the existing literature by examining the effects of economic liberalization on economic growth in ASEAN.

On another note, over the past few decades, theoretical insights on the topic of convergence have caused a debate over the mixed results obtained in previous literature. Romer (1986) argues this by introducing a theoretical growth model with increasing returns to scale production technology, resulting in a tendency for rich countries to increase their lead over poorer countries. Convergence is defined as the catching up of relatively low-income countries to high-income countries (Barro & Sala-i-Martin, 1991). Baumol et al. (1994) suggests the existing of a "convergence club" consists of countries to which convergence applies, while countries outside this club will not necessarily experience convergence. Club convergence is defined as income per capita of countries identical in structural characteristics (e.g., technologies, rates of population growth, preferences, government policies) converging to one another in the long run given that their initial conditions are identical (Galor, 1996). Although some countries or regions have similar GDP structures across time, others show diverging GDP levels in some periods

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[7] Please refer to Goldberg and Pavcnik (2004) and Santos-Paulino (2005) for a comprehensive review of trade liberalization and economic growth.

and convergence in others (Phillips & Sul, 2009; Apergis & Cooray, 2015). While past studies have tended to investigate the mechanism of convergence club, little studies have linked economic liberalization and convergence. Thus, this study is the first to assess the possibility of the existence of convergence clubs among ASEAN, TPPA and RCEP counterparts.

3.   METHODOLOGY AND DATA

3.1.   Description of Data

The dataset of RCEP, TPPA and ASEAN over the period of 1994–2014 extracted from World Development Indicators (2015) is used in this study. To capture the effects of financial liberalization, the KAOPEN indicator developed by Chinn and Ito (2008) and the ratio of private credit and GDP (DPC) are utilized in this study. Financial liberalization is identified because of the deregulation of the domestic financial sector and the opening of the capital account (Farhani et al., 2015; Jayaraman et al., 2017). Chinn and Ito's (2008) KAOPEN indicator uses the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) table to classify an expansive indicator of financial liberalization. This indicator uses the analysis of three categorical indicators; current account restrictions, export proceeds 'surrender' requirements and multiple exchange rates. The higher the KAOPEN value, the greater the country's financial system is liberalized. The last update made in 2015 provides an indicator for more than 180 countries over the period of 1970–2014. To measure the degree of domestic financial development indicator which is closely linked to financial liberalization, DPC is employed as it indicates that a high flow of credit from into the private sector of a country represents a more liberalized financial policy. As for the trade openness index, the trade shares (TO) which measures the disclosure to trade interactions. The variables are most commonly used to measure trade and financial liberalization in past studies (Bilquess, Mukhtar & Sohail, 2011; Falvey, Foster & Greenaway, 2012; Gehringer, 2013; Kiyota, 2012; Farhani et al., 2015).

Several control variables such as population rate (POP), government expenditure (GOV) and investment measured by the gross fixed capital formation as a share of GDP (GFCF) are also employed. These control variables are commonly used in past studies (Bekaert et al., 2005; Blanco, 2011; Kim, Lin & Suen, 2014; Modak & Mukherjee, 2014). GFCF includes the expenditure on fixed assets as it is a major part of GDP expenditure and is found to be an important determinant of growth (Shaheen et al., 2013). A higher GFCF rate portrays a more liberalized economy and vice versa. A rise in population increases the market size and demand in the economy which in turn enhances investment and hence, growth (Asiedu, 2013). Government expenditure measures the government's role in the economy.

3.2.   Econometric Specification

Econometric assessments of economic liberalization should ideally be capable of uncovering the relevant long-run parameters as well as short-run link between liberalization and growth (Cheng et al., 2014; Kim, Lim & Suen, 2014). To assess the relationship between economic growth and financial liberalization, the panel technique explicitly separates trend effects of financial liberalization from short-run impact that is employed. The autoregressive distributed lag (ARDL) model is specified for each country, pooling them together in a panel, and testing the cross-equation restriction of a common long-run relationship between the two variables using the pooled mean group (PMG) estimator of Pesaran,

Shin and Smith (1999).[8] The country-specific ARDL approach enables the adjustments of cross-country heterogeneity[9], as well as to capture both time-series and cross-section relations analysis.[10] Liberalization-growth model can be specified as:

$$GDPpc = \alpha_0 + \alpha_1 KAOPEN + \alpha_2 InTO_t + \alpha_3 InDPC_t + \alpha_4 InGFCF_t + \alpha_5 POP_t + \alpha_6 InGOV_t + \varepsilon_t \quad (1)$$

where GDPpc is the annual growth of real GDP per capita and it is the dependent variable of this model. KAOPEN denotes financial liberalization index and InDPC is the natural log of domestic private credit over GDP. InTO is the natural log of trade shares over GDP. The control variable are InGFCF which is the natural log of gross fixed capital formation over GDP, POP is the inflation rate and InGOV is the natural log of government consumption over GDP.

An autoregressive distributive lag (ARDL (p,q,q,…,q)) dynamic panel specification is applied for this estimator. Additionally, vector error correction model (VECM) is employed, whereby the short run dynamics of the variables in the system are subjective to the deviation from equilibrium. To allow for dynamic heterogeneity over time, the ARDL (p,q,q,…,q) used for the PMG estimator is specified as follows

$$y_{it} = \sum_{j=1}^{m} \emptyset_{ij} \Delta y_{it-j} + \sum_{j=0}^{n} \partial'_{ij} \Delta x_{it-j} + \mu_i + u_{it} \quad (2)$$

where y_{it} is growth $_{it}$, it x_{it} is the $k \, x1$ vector of explanatory variables for group i and μ_i is the fixed effects. The coefficient lagged dependent variables $\emptyset_{ij}$ are scalars and ∂'_{ij} are $k \, x \, 1$ coefficient vectors. This panel is balanced and m and n can differ across countries. The re-parameterized version of this model as a vector error correction model (VECM) is then presented as

$$\Delta y_{it} = \varphi_i y_{it-1} + \beta'_i x_{it} + \sum_{j=1}^{m-1} \emptyset^*_{ij} \Delta y_{it-j} + \sum_{j=0}^{n-1} \partial'^*_{ij} \Delta x_{it-j} + \mu_i + u_{it} \quad (3)$$

where $\varphi_i = - (1 - \sum_{j=1}^{m} \emptyset_{ij}); \beta_i = \sum_{j=0}^{n} \partial_{ij};$
$\emptyset^*_{ij} = - \sum_{p=j+1}^{m} \emptyset_{ip}, j = 1,2,…,m-1$ and
$\partial^*_{ij} = \sum_{p=j+1}^{n} \partial_{ip}, j = 1,2,…,n-1$.

By grouping the variables in levels, equation (2) can be rewritten as

$$\Delta y_{it} = \varphi_i(y_{i.t-1} - \theta'_i x_{it}) + \sum_{j=1}^{m-1} \emptyset^*_{ij} \Delta y_{it-j} + \sum_{j=0}^{n-1} \partial'^*_{ij} \Delta x_{it-j} + \mu_i + u_{it} \quad (4)$$

where $\theta_i = - \frac{\beta_i}{\varphi_i}$ represents the long run parameters between y_{it} and x_{it}. $\emptyset^*_{ij}$ and ∂'^*_{ij} are short run coefficients relating growth to its past values and determinants x_{it} while φ_i is the speed of adjustment coefficient that measures the speed of which y_{it} and x_{it} towards long-run equilibrium. Following a change in $x_{it}; \varphi_i < 0$ to confirm that there is a presence of long-run relationship. Resultantly, a significant negative value of φ_i is evidence in support of co- integration between y_{it} and x_{it}. The long-

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[8] Please refer to Kim, Lin, and Suen (2010) for an explanation of appropriateness of the PMG estimator when disentangling the liberalization-growth nexus and the description of this methodology.

[9] Countries in the dataset differ in terms of country-specific factors such as different policy regimes and degree of factor mobility between sectors. Therefore, the effect of liberalization on growth must be heterogeneous (Pesaran, Shin and Smith, 1999).

[10] PMG can be applied to either stationary or nonstationary variables and does not necessitate for pretesting of unit roots. This solves some of the problems with cointegration analysis that emphases on the estimation of long-run relationship of variables. Moreover, instead of averaging the data per country to isolate trend effects, long and short-run relationships are estimated using a panel of data combining time-series and cross-section effects.

run coefficients on x_{it} is restricted to be homogenous across countries and can be tested using the Hausman statistic. This paper presents the results the PMG method for countries of RCEP, TPPA and ASEAN.

According to Catao and Terrones (2005), the ARDL approach shown in equation 2 assumes all explanatory variables enter the regression with lags. This approach also allows for estimation for long and short-run effects of economic liberalization with a data field composing of a large sample of country and annual observations. There are a few methods to estimate this model. On one hand, the mean group (MG) estimator by Pesaran, Shin and Smith (1995) assumes a fully heterogeneous coefficient model, with no cross-country coefficient constraints and can estimate on a country by country basis. On the other hand, there is also the dynamic fixed-effect (DFE) procedure, which allows the intercepts to differ in countries, but this method enforces homogeneity of slope coefficient and error variances. Pesaran, Shin and Smith (1995) introduced the pooled mean group (PMG) estimators that restricts long-run parameters to be identical but allows short-run coefficient and error variances to vary across groups on the cross section. This paper presents the results of all the above mentioned methods to ensure the robustness of the PMG method.

3.3. Convergence

Phillips and Sul (2007; 2009) methodology is based on a nonlinear and time-varying factor model that incorporates the possibility of transitory heterogeneity and transitory divergence; adopting the time-varying common factor representation for X_{it} of country i

$$X_{it} = \delta_{it}\mu_t \tag{5}$$

where δ_{it} measures time-varying idiosyncratic distance between common factor μ_t and the systematic parameter of X_{it}. Within this framework, all N economies will convergence at some point in the future, irrespective whether the countries are near the steady state.

By modelling the transition parameter δ_{it}, relative measure of the transition coefficient is constructed and shown below (Phillip and Sul, 2007):

$$h_{it} = \frac{X_{it}}{\frac{1}{N}\sum_{i=1}^{N} X_{it}} = \frac{\delta_{it}}{\frac{1}{N}\sum_{i=1}^{N} \delta_{it}} \tag{6}$$

Variable h_{it} is known as the relative transition path and traces out the individual trajectory for each i relative to the panel average. h_{it} measures region i's relative departure from the common steady growth μ_t. Defining a formal econometric test of convergence as well as an empirical algorithm of defining club convergence requires the following assumption for the semi-parametric form for the time-varying coefficients δ_{it}.

$$\delta_{it} = \delta_i + \sigma_i\xi_{it}L(t)^{-1}t^{-\alpha} \tag{7}$$

where δ_i is fixed $\sigma_i > 0$, ξ_{it} is i.i.d (0,1) across i, but weakly dependent on t^l, and L(t) is a slow varying function for which L(t) tends to infinity as t also goes to infinity. L(t) is assumed to be log t. ξ_{it} denotes the time-varying and region-specific components to the model. Size of α determines convergence of divergence of δ_{it}.

Phillip and Sul show that the hypothesis can be tested by following the 'log t' regression model:

$$\log\left(\frac{H_1}{H_t}\right) - 2\log(\log(t)) = a + b\log_t + u_t \tag{8}$$

where t=[rT], [rT]+1,…, T with r >0. Based on simulation experiments, Phillips and Sul (2007) suggest r = 0.3.

The parameter b is related with α. The fitted value of log t is $\hat{b} = 2\hat{\alpha}$ where $\hat{\alpha}$ is the estimated value of α under the null hypothesis. The regression model (6) has three stages. Firstly, H_1/H_t cross-sectional variance ratio is constructed and the next step is the conventional robust t statistic $t_{\hat{b}}$ for the coefficient $\hat{b}$. In the third step, the autocorrelation and heteroscedasticity robust one side t test of the inequality null hypothesis α ≥ 0 is applied with the estimated coefficient $\hat{b}$. At 5 percent, the null hypothesis is rejected if the statistic has a value below -1.65. Patterns of convergence can be assessed using the log t regressions, i.e. the existence of club convergence. This is relevant since the rejection of the null of convergence does not necessarily imply divergence, since different scenarios can be met, such as separate points of equilibrium or steady state growth paths, as well as convergence clusters and divergent regions in the full panel.

4. RESULTS AND DISCUSSION

4.1. *Economic Liberalization*

Table 1 presents the descriptive statistics of the model consisting of the minimum values, maximum values, mean values, and the values of standard deviations of all seven variables. The mean value provides an idea about the central tendency of the values of a variable. The number of observations of each variable is 168. Standard deviations and the extreme values (minimum in comparison to maximum value) give an idea about the dispersion of the values of a variable from its mean value. The preliminary results of correlation reveal that gross fixed capital formation is positively correlated to annual GDP per capita with 0.14. Population and government expenditure are negatively correlated to annual GDP per

Table 1: Descriptive statistics of variables

N = 210	GDP	KAOPEN	TO	DPC	GFCF	GOV	POP
Panel A: Summary Statistics							
Mean	3.95	0.103	4.77	3.73	3.19	2.15	1.67
Standard Deviation	3.46	1.23	0.57	1.03	0.29	0.32	0.78
Minimum	-14.35	-1.89	3.81	1.21	2.43	1.24	-1.47
Maximum	13.21	2.38	6.08	5.11	3.78	2.67	5.32
Panel B: Correlation							
GDP	1						
KAOPEN	-0.102	1					
TO	-0.06	0.47	1				
DPC	-0.24	0.36	0.61	1			
GFCF	0.14	0.18	0.24	0.54	1		
GOV	-0.22	0.08	0.24	0.58	0.33	1	
POP	-0.13	0.23	0.22	-0.18	-0.12	-0.09	1

Note: GDP = the annual growth rate of GDP per capita; KAOPEN = financial liberalization index, DPC = the ratio of domestic private credit divided by GDP; TO the ratio of of exports and imports and GDP; GOV = the ratio of government expenditure and GDP; GFCF = the ratio of gross fixed capital formation and GDP; and POP = population growth.

capita with -0.13 and -0.22 respectively. It is also noteworthy to mention that trade shares and domestic private credit are highly positively correlated to financial liberalization indicator (KAOPEN) with 0.61 and 0.25 respectively.

Next, Table 2 reports the empirical results obtained using PMG, MG and DFE estimator to determine the short and long run effect of economic liberalization and its link to economic growth for the sample of the countries in ASEAN[11]. To determine lag, this research imputes the values of Akaike Information Criterion (AIC) and the specification of ARDL (3,1,1,1,1,1,1) achieves the best balance between efficiency gain and parametric parsimony.

Table 2: Economic Liberalization and Economic Growth in ASEAN

	PMG	MG	DFE
Long-Run Coefficients			
KAOPEN	1.182***	-4.881	1.828
Trade Openness	10.118***	-8.58	-8.139
Domestic Private Credit	4.924***	-18.052	1.188
Investment	5.647***	0.317	8.263**
Government Expenditure	10.004***	13.853	-1.745
Population	-3.471***	39.844	3.011
Error-Correction Coefficient (ϕ)	-0.223**	0.338	0.209**
Short-Run Coefficients			
d(GDPCA)$_{t-1}$	-0.463*	1.00***	1.042***
d(GDPCA)$_{t-2}$	-0.311**	-0.267***	-0.305***
d(KAOPEN)$_t$	-1.258*	0.119	0.594*
d(TO)$_t$	1.839	-3.69***	-0.414
d(DPC)$_t$	-5.891	-0.807	0.277
d(GFCF)$_t$	7.373**	5.356	5.298***
d(GOV)$_t$	-13.133*	-16.989	-0.903
d(POP)$_t$	22.518	-0.742	0.224
Hausman Test	1.38(0.96)		
No. of Countries	8	8	8
No. of Observations	144	144	144

Note: GDP = the annual growth rate of GDP per capita; KAOPEN = financial liberalization index, DPC = the ratio of domestic private credit divided by GDP; TO the ratio of of exports and imports and GDP; GOV = the ratio of government expenditure and GDP; GFCF = the ratio of gross fixed capital formation and GDP; and POP = population growth. ARDL (3,1,1,1,1,1,1) on ASEAN for PMG, MG and DFE. *, ** and *** indicate significance at 10, 5 and 1 percent respectively.

As shown in the results of the ASEAN, the error correction term falls into the dynamically stable range as it has a significantly negative sign and not lower than -2. This proves the existence of strong evidence of co-integration between the explanatory variable and GDP per capita growth. With regards to the long-run openness coefficients, the PMG estimates are somewhat similar to the DFE results, but vary from the MG estimates. Furthermore, the long-run homogeneity restrictions shown by the Hausman (1978) test statistics cannot be rejected, indicating that PMG estimation is more desirable compared to the MG estimation.

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[11] The estimator excludes Brunei Darussalam and Myanmar due to data unavailability.

Table 3 reports the findings of economic liberalization in RCEP using the PMG, MG and DFE estimator. This research imputes the values of Akaike Information Criterion (AIC) and the specification of ARDL (3,1,1,1,1,1,1) achieves the best balance between efficiency gain and parametric parsimony to determine lag. Similar to the findings of ASEAN, the error correction pf RCEP it has a significantly negative sign and not lower than -2, thus proving the existence of co-integration between variable and GDP per capita growth. With regards to the long-run openness coefficients, the PMG estimates are somewhat similar to the DFE results, but vary from the MG estimates. The long-run homogeneity restrictions shown by the Hausman (1978) test statistics cannot be rejected, indicating that PMG estimation is more desirable compared to the MG estimation.

Table 3: Economic liberalization and Economic Growth in RCEP

	PMG	**MG**	**DFE**
Long-Run Coefficients			
KAOPEN	2.273***	-0.513	0.892
Trade Openness	4.023***	-1.464	-3.493
Domestic Private Credit	9.383***	-7.237	0.331
Investment	11.516***	13.40	8.514
Government Expenditure	0.627	16.526	-3.371
Population	2.769***	28.645	2.508
Error-Correction Coefficient (ϕ)	-0.269**	0.786	0.226***
Short-Run Coefficients			
$d(GDPCA)_{t-1}$	0.96***	1.173***	1.037***
$d(GDPCA)_{t-2}$	-0.245***	-0.291***	-0.297***
$d(KAOPEN)_t$	0.021	0.637	0.612**
$d(TO)_t$	3.206**	-2.443*	0.445
$d(DPC)_t$	-3.822**	-0.898	0.027
$d(GFCF)_t$	6.929***	6.396**	5.895***
$d(GOV)_t$	0.194	-7.161	-1.122
$d(POP)_t$	-12.13	-42.222	0.163
Hausman Test	0.23(0.98)		
No. of Countries	14	14	14
No. of Observations	252	225	252

Note: GDP = the annual growth rate of GDP per capita; KAOPEN = financial liberalization index, DPC = the ratio of domestic private credit divided by GDP; TO the ratio of of exports and imports and GDP; GOV = the ratio of government expenditure and GDP; GFCF = the ratio of gross fixed capital formation and GDP; and POP = population growth. ARDL (3,1,1,1,1,1,1) on ASEAN for PMG, MG and DFE. *, ** and *** indicate significance at 10, 5 and 1 percent respectively.

Table 4 reports the findings of economic liberalization in TPPA using the PMG, MG and DFE estimator. The Akaike Information Criterion (AIC) and the specification of ARDL (3,1,1,1,1,1,1) achieves the best balance between efficiency gain and parametric parsimony to determine lag. Similar to the findings of ASEAN and RCEP, the error correction of TPPA has a significantly negative sign and not lower than -2, thus proving the existence of co-integration between variable and GDP per capita growth. With regards to the long-run openness coefficients, the PMG estimates are somewhat similar to the DFE results, but vary from the MG estimates. The long-run homogeneity restrictions shown by the Hausman (1978) test statistics cannot be rejected, indicating that PMG estimation is more desirable compared to the MG estimation.

Table 4: Economic liberalization and Economic Growth in TPPA

	PMG	MG	DFE
Long-Run Coefficients			
KAOPEN	-26.652	4.025	-1.293
Trade Openness	52.011*	1.111	5.657
Domestic Private Credit	0.567	0.366	-3.856*
Investment	30.607	-5.813	10.566**
Government Expenditure	-36.671**	16.533	-4.257
Population	32.078	-1.269	4.652*
Error-Correction Coefficient (ϕ)	-0.208**	0.309	0.172**
Short-Run Coefficients			
d(GDPCA)$_{t-1}$	0.795***	0.867***	0.958***
d(GDPCA)$_{t-2}$	-0.222***	-0.225***	-0.28***
d(KAOPEN)$_t$	0.181	1.234**	0.265
d(TO)$_t$	7.288**	1.911	2.677**
d(DPC)$_t$	-1.727	0.927	-1.642**
d(GFCF)$_t$	5.983***	9.109**	7.117***
d(GOV)$_t$	-5.457	-10.622*	-2.805
d(POP)$_t$	4.192	29.329	0.109
Hausman Test	1.53(0.92)		
No. of Countries	11	11	11
No. of Observations	198	198	198

Note: GDP = the annual growth rate of GDP per capita; KAOPEN = financial liberalization index, DPC = the ratio of domestic private credit divided by GDP; TO the ratio of of exports and imports and GDP; GOV = the ratio of government expenditure and GDP; GFCF = the ratio of gross fixed capital formation and GDP; and POP = population growth. ARDL (3,1,1,1,1,1,1) on ASEAN for PMG, MG and DFE. *, ** and *** indicate significance at 10, 5 and 1 percent respectively.

Based on the results of Tables 2, 3 and 4 above, the PMG estimator is the most preferable results among the three estimators. Therefore, Table 5 below summarizes the results of PMG estimator for ASEAN, RCEP and TPPA.

Table 5: Summary of Findings for Economic liberalization and Economic Growth in ASEAN, RCEP and TPPA

	ASEAN	RCEP	TPPA
Long-run			
Financial Liberalization	Positive and significant to economic growth	Positive and significant to economic growth	Insignificant to economic growth
Financial Development	Positive and significant to economic growth	Positive and significant to economic growth	Insignificant to economic growth
Trade Openness	Positive and significant to economic growth	Positive and significant to economic growth	Positive and significant to economic growth
Short-run			
Financial Liberalization	Negative and significant to economic growth	Insignificant to economic growth	Insignificant to economic growth
Financial Development	Insignificant to economic growth	Negative and significant to economic growth	Insignificant to economic growth
Trade Openness	Insignificant to economic growth	Positive and significant to economic growth	Positive and significant to economic growth

Table 5 above shows ASEAN and RCEP obtain similar results; the long run-estimation of KAOPEN and TO are positively significant to economic growth with the coefficient of 1.18 and 2.73 for KAOPEN and 10.11 and 4.02 for trade shares. This results imply that trade and financial openness policies has a positive and significant effect on growth and it is coherent with the findings of Hsinrong (2014), Mujahid and Alam (2014) and Dritsaki and Dritsaki (2013). Moreover, domestic financial development indicator (DPC) displays a positive and significant link to growth with the coefficient of 4.92 and 9.39 respectively. This suggests that a developing country with a well-developed financial system is necessary in accelerating growth rate of ASEAN and RCEP. In ASEAN, control variables, investment (denoted by GFCF) and government expenditure are positively significant to economic growth while population has a negative and significant effect on growth. However, in the case of RCEP, although there is a positive investment-growth and population-growth nexus, government expenditure does not affect economic growth.

In the short run, although the PMG estimation for long-run coefficients shows that liberalization significantly affects economic growth, the short run estimates tell a different story in the case of ASEAN. As seen on Table 2 and Table 5 above, the coefficient of KAOPEN shows that in the short-run, financial liberalization negatively impacts GDP per capita growth. While trade openness and financial development show a positive and significant relationship in the long-run, in the short-run, the indicators do not affect growth. These results imply that the liberalization process affects the growth in the long-run rather than in the short-run. The findings of Loayza and Ranciera's (2006), and Blanco (2011) explain that countries opening up their financial and trade markets may not experience an investment boom and higher growth in the short run, but could experience accelerated growth in the long run. According to Aizenman (2008) and Tornell, and Westermann and Martinez (2004), fragility caused by financial opening often leads to financial crises in the short run, but if these crises push a country to handle its structural deficiencies, financial openings could induce a higher growth rate in the long run. A slightly more optimistic view is shown under the RCEP environment. Although financial liberalization does not affect short run growth, trade openness and investment show positive link with growth.

The results of liberalization in ASEAN and RCEP are comparable to TPPA. In the case of TPPA, KAOPEN as the indicator of financial liberalization as well as financial development indicator, DPC, shows no effect on economic growth in long-run and short-run. There is however, positive trade-growth nexus. The overall results somewhat implies that ASEAN member countries would benefit more from RCEP comparatively to TPPA. This could be due to the challenging ongoing TPPA negotiations because of its inability to achieve a common concession that is pertinent to all TPP partners; TPPA will possibly be a bundle of bilateral agreements rather than a plurilateral agreement (Bauer et al., 2014; Hamanaka, 2014). According to Bauer et al. (2014), the TPPA bilateral negotiations has been experiencing difficulties pertaining to priorities given to countries like Canada, Japan, Malaysia and Vietnam. Furthermore, the ambitious policies set by TPPA lacks developmental considerations which make it tough for other developing economies to join (Hamanaka, 2014). Although both TPPA and RCEP share the common goal of firing-up a new cycle of Asia's liberalization, many analysts argue that RCEP is capable of replacing TPPA as an approach of achieving FTAAP in the region (Wilson, 2015; 2017).

4.2.   Convergence

Table 6 reports the results of the panel convergence for the GDP per capita series filtered with the Hodrick-Prescott filter for the countries of RCEP and TPPA. The first row reports the findings of testing

full convergence (i.e., convergence among all countries). The result of the full sample rejects the null hypotheses of income convergence with a point estimate of the log (t) statistic of -5.97 (with the critical value at -1.67). The subsequent rows display the results of the club clustering procedure. Subsequently, four club convergences are formed.

Table 6: Convergence Clubs in RCEP and TPPA

	RCEP			TPPA	
Group	**Countries**	**t-stat**		**Countries**	**t-stat**
Full sample	Australia, Brunei Darussalam, Cambodia, China, India Indonesia, Japan, Korea, Lao PDR, Malaysia, Myanmar, New Zealand, Philippines, Singapore, Thailand, Vietnam	-5.97		Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, United States, Vietnam	-10.23
1st Club	Australia, Singapore and Japan	4.66		Australia, Singapore, United States, Canada and Japan	5.99
2nd Club	New Zealand, Brunei Darussalam and Korea	4.30		New Zealand and Brunei Darussalam	2.57
Outlier	-	-		Chile	-
3rd Club	Malaysia, China, Thailand and Indonesia	0.12		Malaysia, Mexico and Peru	1.08
4th Club	Philippines, India, Vietnam, Lao PDR, Myanmar and Cambodia	6.38		-	-
Outlier	-	-		Vietnam	-

Figure 2 below illustrates the formation of convergence club among RCEP member countries. Based on Figure 2, four different clubs are formed. The first club consists of three countries while the second, third and fourth clubs comprises three countries, four countries and six countries respectively. Australia is the base country as it has the highest ranking in the group. The first club consists of Australia, Singapore and Japan while the second club comprises New Zealand, Brunei Darussalam and Korea. Malaysia, China, Thailand and Indonesia created the third club while the fourth club consists of the Philippines, India, Vietnam, Lao PDR, Myanmar and Cambodia.

The income convergence clubs of TPPA paint a slightly different picture. The first club that consists of Australia, Singapore, United States, Canada and Japan represents high-income countries of the free trade agreement. The second club comprises New Zealand and Brunei Darussalam and the third club encompasses Malaysia, Mexico and Peru. Interestingly, in TPPA, Chile and Vietnam are outlier countries while Vietnam belongs to the fourth group of RCEP alongside other countries of ASEAN. Chief Vietnam representative for the US-ASEAN Business Council, Vu Tu Thanh, views the TPPA's collapse as extra time for Asian nations to prepare since most Vietnamese businesses are small- and medium–sized, while other countries of TPPA are relatively bigger players (Nguyen, 2016).

It is important to point out that the first club represented by Australia, Singapore and Japan is characterized by strong income levels compared to other countries of RCEP that belong in the second, third and fourth clubs. Based on Table 6 and Figure 2 above, it is noteworthy to mention that ASEAN nations made a wise decision to embark on the Regional Comprehensive Economic Partnership agreement, as it is potentially able to emphasize ASEAN's position with a greater regional integration environment (Das, 2015). Furthermore, ASEAN's commitment in the RCEP serves as an opportunity for member countries to play a key role in forming a Free Trade Agreement of the Asia-Pacific (FTAAP) in the future. This is due to the fact that RCEP has the ability to allow multiple economies to catch-up with higher-income countries, through their multilateral trading system. The results shown in
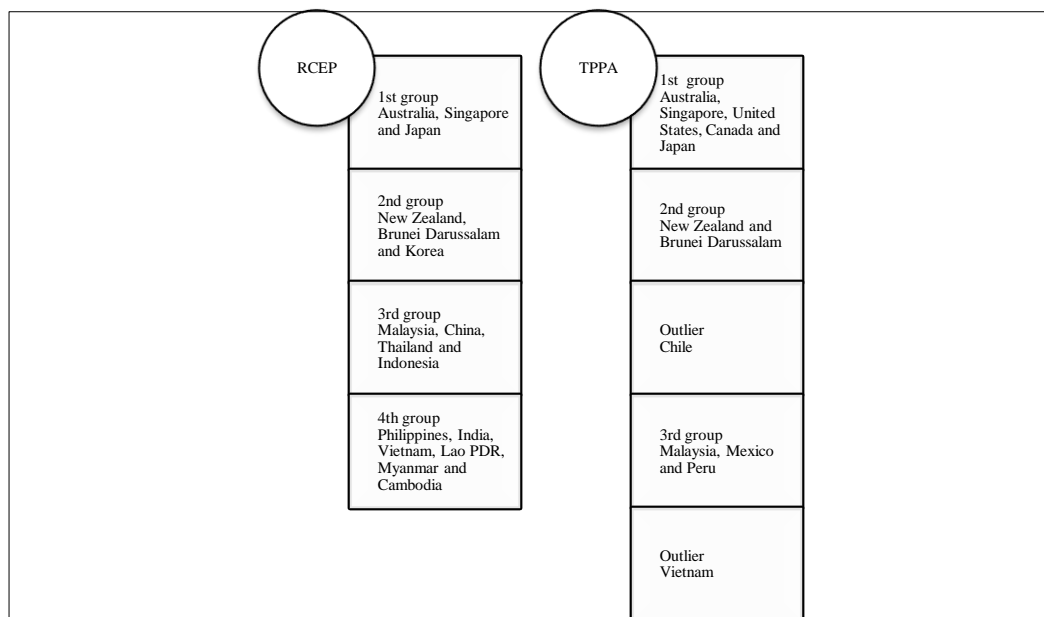
Figure 2: Convergence Club for Income per Capita

Table 6 and Figure 2 summarize the above-mentioned statements; two of ASEAN member countries (Singapore and Brunei Darussalam) belong in the same clubs as high-income members of the RCEP, namely Australia, Japan, New Zealand and South Korea.

5.   CONCLUSION

This paper concludes that trade and financial liberalization affects economic growth in ASEAN. Additionally, the convergence club findings shown in this paper further support the notion that economic liberalization promotes economic growth. Based on the results of this paper, ASEAN members should continue to show their full-fledged commitment as the RCEP has positive economic effects for most countries in Asia compared to TPPA due to the latter's instability after the exit of the US, under Trump's administration. Although free trade agreements such as the RCEP and TPPA are ultimately negotiated to achieve an FTAAP, numerous challenges persist such as diversified interests of member countries and this scenario is intensified in the TPPA environment. Therefore, strong commitment to integration should be considered when designing policies that promote growth among individual countries of RCEP. The stable relationship between the variables is considered a necessary condition for the formulation of trade and monetary policy strategies. Implementing more unified policies with greater consistency and efficiency will promote convergence, leading to a race to the top rather than the bottom for ASEAN and its RCEP counterparts.

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