

Trade and Investment Convergence Clubs in East Asia Pacific

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Abstract: *East Asia Pacific has catapulted to be the most dynamic region in the world as a result of economic liberalisation and sustainable growth. This study seeks to investigate if selected East Asian countries are able to converge in terms of trade and investment openness. This paper uses the concept of Phillips and Sul to evaluate trade and investment convergence in East Asia Pacific region during the period 1990 to 2016. The overall results do not support the hypothesis that all countries converge on a single equilibrium in trade and investment liberalisation. However, findings point to the existence of club convergence.*

Keywords: Convergence Club, Catch-up Effect, East Asia Pacific, Trade Openness

JEL Classification: F13, O16, O53

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1. Introduction

The resilience of East Asia Pacific through its strong economic performance coupled with its increasing integration of trade and investment has resulted in the region emerging as an important player in the global arena. East Asia Pacific integrations differ from Europe and North America because the market is driven naturally in the absence of a formal institutional framework (Zhang, 2001). Zhang added there is an apparent trend that is created by international firms, paving the way for an outward trade and foreign direct investment (FDI) relationship in the region. China, Japan, South Korea and Indonesia are among the top 20 countries in terms of their Gross Domestic Product (GDP) growth (International Monetary Fund, 2014). The East Asia Pacific region generally adopts an export-oriented strategy, resulting in a progressive increase of foreign trade, from 6 percent in 1953 to 28 percent in 2006 (Kang, 2009). By 2005, share of its trade to GDP rose to 47% in East

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Asia and Asia Pacific, owing to the increase in trade agreements within and between regions (World Bank, 2008). Further integration, which promises free flow of goods and services across borders, is essential to maintain this growth rate (Asian Development Bank, 2013). The existence of trade agreements, such as the APT (ASEAN plus Three), ASEAN Free Trade Area (AFTA) and Asia-Pacific Trade Agreement (APTA), implies that East Asian Pacific countries are pursuing economic liberalisation (Wong, 2005; Soukhakian, 2007; Bashar et al., 2008).

The transition to a liberalised nation requires countries to adopt outward-oriented strategies alongside the need for financial and trade sector reform. The variances in development path of East Asia Pacific countries pose a key challenge – despite gap narrowing initiatives such as Initiative for ASEAN Integration (IAI). It is ambiguous if liberalisation would benefit all countries. Countries' stability is often put to the test with the sudden investment in the region. Furthermore, the “noodle bowl” problem, whereby bilateral trade agreements with diverse content complicates the East Asia Pacific trading system (Wilson, 2015; Selvarajan & Ab-Rahim, 2017). Despite these concerns, liberalisation provides impetus for countries to develop, as the process enables developing countries with low labour cost to attract FDI. This allows for developing economies to grow rapidly and catch up with high-income countries.

Through the effects of globalisation, the growth of low and middle-income countries has accelerated to the point that it is possible for them to converge with high-income countries (Barro & Sala-i-Martin, 1991). The neoclassical growth theory built on the foundational work of Solow (1956), Swan (1956), Cass (1965) and Koopmans (1965) implies that countries should eventually converge as it integrates economic structures, such as population growth rates, savings rates and depreciation rates. Past studies have pursued different methods to enhance the structure of the simple Solow-Swan model. Growth theories postulated by Azariadis and Drazen (1990) and Galor (1996) showed countries with similar features, such as trade strategies and government policies, might converge to diverse steady-state equilibrium even if conditions differ in the beginning. This phenomenon is widely referred to as the club convergence hypothesis (Quah, 1993; Galor, 1996). This stream of studies adopted an advanced approach and suggests countries or regions form sub-groups around poles of attraction in the long run (Ben-David, 1993; Bernard & Durlaud, 1995; Quah, 1996).

Durlauf and Johnson (1995) and Phillips and Sul (2007), support the theories of convergence clubs, that is, there is no global convergence, but countries may converge to a similar group or pattern (Galor, 1996). Although limited, recent studies offer evidence of trade and investment convergence. Investment convergence establishes cohesion in the region for future collaboration and policy making. Ballinger et al. (2016) showed investment

convergence among 18 United State (US) regions, while Choi (2004) postulated that FDI is a driving force of convergence in the Organisation for Economic Co-operation and Development (OECD). Ibrahim and Habibullah (2013) showed Malaysia to be financially converging towards its richer counterparts in Asia Pacific Economic Cooperation (APEC). Regional trade integration allows its members to benefit in terms of market exposure while improving their efficiency. Several studies found evidence of convergence of trade, where lower income countries were able to catch-up with richer members (Belshaw, 2005; Cyrus, 2004; Apergis & Cooray, 2016). For instance, Belshaw (2005) reported that trade activities promote convergence in Africa, while Cyrus (2004) asserted that trade openness contributes to narrowing the income gap among.

Phillips and Sul (2009) added that while some regions have similar structures over time, others may diverge for certain periods and converge in others. Nevertheless, Bandyopadhyay (2011) suggested caution; the persistent disparities in income across countries may lead to widespread disparities in welfare and are often the cause of social and political tension. In line with the rapid pace of economic growth that developing countries have experienced in the past 10 years, the investigation on convergence is continuously increasing (Rodrik, 2011). As far as this study is concerned, it is the first to investigate trade and investment convergence clubs in East Asia Pacific region. The remainder of this study is organised as follows. The next section offers the theoretical motivation as well as empirical evidence concerning the issues of convergence, followed by a discussion on data and methodology. The subsequent section presents the empirical results, while the last section concludes the paper and presents directions for future research.

2. Literature Review

The neoclassical model by Solow (1956) and Swan (1956) incorporated economic growth theories based on endogenous growth models in the mid-1980s. By adopting various equations, the model is able to capture the dynamic impact of capital accumulation. The Solow-Swan model can be used to indicate if the gap between economic growth rates in countries is moving closer, i.e., converging or diverging. The findings of the model indicated that economies of countries converge to a steady state.

Over the past few decades, theoretical insights on the topic of convergence have caused a debate over the mixed results obtained in previous literature. The Solow model predicts conditional convergence whereby poorer countries would grow faster than richer countries if these countries can control the determinants of their income level. On the other

hand, Romer (1986) argued a theoretical growth model with increasing returns to scale, production technology may result in a propensity for rich countries to increase their dominance over poorer countries. Convergence is defined as the catching up of relatively low-income countries with high-income countries (Barro & Sala-i-Martin, 1991).

Past studies found sub-groups of countries show similar GDP patterns in the long run (Ben-David, 1993; Quah, 1997; Durlauf & Johnson, 1995) and offer support for the theory of convergence clubs (Baumol, 1986; Galor, 1996). Although there is no global convergence, countries with similar GDP patterns form a group. Club convergence is defined when income per capita of countries is identical in structural characteristics (technologies, rates of population growth, preferences, government policies, among others) converge to one another in the long run given their identical initial conditions (Galor, 1996). Baumol et al. (1994) suggested that a convergence club consists of countries to which convergence applies, while countries outside this club will not necessarily experience convergence. While some countries or regions are found to have similar GDP structures across time, others point to a diverging GDP level for a certain period and show convergence for other time periods (Phillips & Sul, 2009).

Phillips and Sul (2007) proposed a new econometric approach for testing the convergence hypothesis and the identification of convergence clubs. They extended the neoclassical growth models to allow for heterogeneity in the growth rate of technological progress across countries and over time. Econometric problems with the broadly used Solow regression relate to endogeneity and omitted variable bias, a result of transitional heterogeneity (Phillips & Sul, 2009). Therefore, Phillips and Sul adopted a nonlinear time-varying factor model which encompasses of a framework for modelling transitional dynamics and long run behavior. This method has been widely used in recent studies (Apergis, Christou & Miller, 2012; Bartkowska & Riedl, 2012; Cuestas et al., 2013) as it allows a broad spectrum of transitional behaviour to be endogenously revealed among economies, such as convergence to a common steady state, divergence and club convergence.

A number of studies have studied trade convergence (Cyrus, 2004; Liu, 2009; Cristobal-Campoamor & Parcerro, 2013). However, the results are mixed. Ben-David (1993; 1996) showed liberalisation creates convergence among countries through the elimination of trade barriers and increased trade volumes. Based on a bilateral trade panel data analysis, Cyrus (2004) found evidence of trade-induced convergence, while Liu (2009) examined the relationship between trade and income convergence in 165 countries and found reverse causality from income convergence to trade. Cristobal-Campoamor and Parcerro (2013) analysed trade liberalisation and convergence in Eastern Europe from 1990-2005 and their findings showed during the first half of the period, liberalisation led to divergence of GDP per

capita. However, the process reversed during the second half of the period. Slaughter (2001) found no relationship between trade liberalisation and convergence. In the Asian region, a growing number of studies has analysed convergence (Liew & Lim, 2005; Liew & Ahmad, 2006; Wang, 2012; Song et al. 2013). Parikh and Shibata (2003) examined impacts of trade liberalisation on convergence in income per capita of the African, Asian and Latin American regions and concluded that there is no evidence of beta-convergence in Asian countries; however, sigma convergence is found in the region. Islam and Chowdhury (1997) were among the first scholars to examine convergence in the Asia-Pacific region and their findings showed a significant rise in the intra-regional trade among East Asian countries after 1985, stressing that integration should be market driven and not politically influenced.

Most studies have focused on the link of convergence and trade liberalisation and studies of convergence and investment liberalisation appear to be limited (Escot & Galindo, 2000; Eicher & Hull, 2010). Escot and Galindo (2000) found due to free capital mobility, there is an appearance of convergence in interest rates indicating convergence in income level among countries of the same degree. Eicher and Hull (2010) investigated capital flow reversals caused by investment liberalisation and their effects on the convergence speed of OECD countries. Their findings suggested that investment liberalisation reduces short run convergence speed, indicating a more open economy experiences less output volatility. On the contrary, Oman (2000) observed that countries are racing to the bottom rather than the top, as there are growing concerns about protectionism, environmental and labour standards, due to the increase in FDI which could result in market distortions. Behrens and Murata (2012) and Abd-Karim (2005) urged the government to enhance coordination between trade and FDI policy, as convergence in openness allows for countries with different sectoral compositions to benefit from positive spill overs of international trade. Apergis and Cooray (2015) showed the formation of convergence clubs based on the stages of development and policies to promote trade and FDI convergence allow countries to benefit from mutual interactions. Hence, the authors added through an effective trade regime, countries are permitted to benefit from openness, thus leading to a race to the top rather than the bottom.

This study is different from previous ones in that it adopts the methodology of Phillips and Sul (2007) to study East Asia Pacific countries from 1990 to 2016, aiming to explore the possibility of trade and FDI convergence in club formation.

3. Data and Methodology

3.1 Description of data

The balanced panel dataset of 16 East Asia Pacific countries for the period 1990-2016 was used in the present study. The countries are listed according to United Nations Conference on Trade and Development definition of East Asia Pacific, comprising of China, Hong Kong, Macau, Taiwan, South Korea, Mongolia, Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. The dataset is extracted from the World Development Indicator by the World Bank and United Nations Conference on Trade and Development. The effect of investment openness, denoted by FDI inflow over GDP ratio is utilised in this study. As for the trade openness index, the most commonly used measurement for trade openness is trade shares (TO) – the sum of import and exports over GDP. This measures the disclosure to trade interactions, clearly indicating the level of integration. The above-mentioned variables are most commonly used to measure trade and investment liberalisation in past studies (Bilquess, Mukhtar & Sohail, 2011; Falvey, Foster & Greenaway, 2012; Gehringer, 2012; Kiyota, 2012; Apergis & Cooray, 2015).

3.2 Economic specification

In order to analyse if the pool of countries form clubs of convergence, the Phillips and Sul (2007; 2009) methodology was employed. Based on the method, groups of countries may converge to a steady state which is common to all the countries of the group but different in other groups. This approach is based on a nonlinear and time varying factor model that incorporates the possibility of transitory heterogeneity and transitory divergence. This methodology adopts the time-varying common-factor representation for X_{it} of country i

$$X_{it} = \delta_{it}\mu_t \quad (1)$$

where δ_{it} measures time-varying idiosyncratic distance between common factor μ_t and the systematic parameter of X_{it} . Using this framework, all N economies will convergence at any given point, irrespective of 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 & Sul, 2007):

$$h_{it} = \frac{X_{it}}{\frac{1}{N} \sum_{i=1}^N X_{it}} = \frac{\delta_{it}}{\frac{1}{N} \sum_{i=1}^N \delta_{it}} \quad (2)$$

Variable h_{it} is known as the relative transition path and traces 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 . An existence of a common limiting transition behaviour across regions, then $h_{it} = h_t$ across i and when there is growth convergence, then $h_{it} \rightarrow 1$ for all i as $t \rightarrow \infty$. Over time, the path of transition is formed, whereby every i can be traced by variable h_{it} . According to Phillips and Sul (2007), in order to evade the initial effort of the base year initialisation, the first eight years of observation are rejected, henceforth, 18 filtered observations are used in the analysis. The Whittaker -Hodrick-Prescott (WHP) smoothing filter is used to smoothen the relative transition parameters for this period. This technical tool is frequently used to separate the cyclical component of a time series from raw data. Using the WHP filter, the cross-sectional averages shown in (2) are computed as:

$$\hat{h}_{it} = \frac{\hat{x}_{it}}{\frac{1}{N} \sum_{i=1}^N \hat{x}_{it}} \quad (3)$$

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} .

$$\delta_{it} = \delta_i + \sigma_i \xi_{it} L(t)^{-1} t^{-\alpha} \quad (4)$$

where δ_i is fixed $\sigma_i > 0$, ξ_{it} is i.i.d (0,1) across i , but weakly dependent on t 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} . This formula ensures convergence of the parameter of interest for all $\alpha \geq 0$, which is the null hypothesis since $\delta_{it} = \delta_i$ as $t \rightarrow \infty$. If this hypothesis holds and $\delta_i = \delta_j$ for $i \neq j$, the model specified in (3) allows for transitional period for which $\delta_{it} \neq \delta_{jt}$, thus incorporation of the possibility of transitional heterogeneity or even transitional divergence across i .

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

$$\log\left(\frac{H_t}{H_t}\right) - 2 \log(\log(t)) = a + b \log t + u_t \quad (5)$$

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. Within the method, the rejection of null hypothesis for the whole panel does not mean that there is no convergence, since it is possible to test for club of convergence. Thus, the investigation for convergence for different group of countries and identification commonalities within a panel of countries is possible.

The regression model (5) has three stages. Firstly, cross-sectional variance ratio H_1/H_t is constructed, followed by the conventional robust t statistic $t_{\hat{b}}$ for the coefficient \hat{b} . Next, autocorrelation and heteroscedasticity robustness one side t test of the inequality null hypothesis $\alpha \geq 0$ is applied with the estimated coefficient \hat{b} . The null hypothesis is rejected if the statistic has a value below -1.65 at 5 %. The existence of club convergence can be observed by assessing the patterns using the log t regressions. This is due to the notion that the rejection of the null of convergence does not imply divergence, as different scenarios can be met, such as separate points of equilibrium or steady-state growth paths, as well as convergence clusters in the full panel.

4. Results and Discussion

Prior to examining the convergence club, establishing series stationary is important. The Augmented Dickey-Fuller (ADF) (1979) unit root test was used for this purpose. Table 1 shows the results of the unit root test indicating that all variables are $I(1)$. Table 2 and Table 3 report the results of the panel convergence for the FDI inflow and trade shares series filtered with the Hodrick-Prescott filter for 16 East Asian Pacific countries.

Table 1: Unit Root Test

Countries	FDI Inflow Ratio	Trade Share
Brunei	-6.92	-5.08
Cambodia	-5.94	-4.95
China	-3.54	-3.55
Hong Kong	-6.57	-3.82
Indonesia	-3.95	-7.77
Lao PDR	-3.98	-4.04
Macau	-8.07	-2.92
Malaysia	-5.86	-4.30
Mongolia	-4.81	-5.09
Myanmar	-5.77	-3.99
Philippines	-9.31	-4.59

Table 1: (Continue)

Countries	FDI Inflow Ratio	Trade Share
Singapore	-6.64	-6.38
South Korea	-5.57	-4.81
Taiwan	-4.71	-
Thailand	-4.26	-5.08
Vietnam	-4.82	-5.38

Note: The analysis uses intercept and linear trend. Critical values are at 1% at -4.37, 5% at -3.6 and 10% at -3.24. Data for Taiwan is not included in the results of trade shares due to data unavailability.

Table 2 shows that the log t regression for the full sample gives a t statistic of -8.38, rejects the null hypotheses of any investment convergence. It implies that there is no convergence in the full sample, requiring further investigation for evidence of convergence in the subgroup of the panel. Subsequently, there is a formation of four club convergences. The first club, represented by Hong Kong and Singapore is characterised by strong investment openness levels. It is not surprising that Hong Kong and Singapore belong in the first club. In 2016, both Hong Kong and Singapore were ranked top five in the World Bank Ease of Doing Business Index, raking in FDI inflows to GDP of 33.7% and 20.9%, respectively (World Bank, 2017). Deemed as the heavyweights of foreign investment of Asia, the sharp increases in mergers and acquisition in the two countries contributed to the upsurge in FDI inflows (Ming, 2018). The second is the integration of Cambodia, Macao, Lao PDR and Vietnam, while the third group comprises of Malaysia, Myanmar, Philippines and Taiwan. Interestingly, of late, there is an apparent shift in investment trend in Cambodia, Lao PDR and Vietnam from other countries. Leveraging on its central position, paired with low production cost and export-oriented strategy, these countries are increasingly becoming a hub for foreign investment and international business linkages. The fourth group encompasses China, South Korea, Thailand, Indonesia, Brunei Darussalam and Mongolia.

Table 2: Foreign Direct Investment Inflows (1990 to 2016)

Group	Countries	t -stat
Full Sample	Brunei Darussalam, Cambodia, China, Hong Kong, Indonesia, Lao PDR, Macau, Malaysia, Mongolia, Myanmar, Philippines, Singapore, South Korea, Taiwan, Thailand, Vietnam	-8.38
1 st group	Hong Kong, Singapore	-1.51
2 nd group	Cambodia, Macao, Lao PDR, Vietnam	-1.09
3 rd group	Malaysia, Myanmar, Philippines, Taiwan	-0.15
4 th group	China, South Korea, Thailand, Indonesia, Brunei Darussalam, Mongolia	-0.59

Figure 1 shows the FDI inflows to GDP relative transition trend of 16 East Asia Pacific countries during the sample period, as suggested by Phillips and Sul (2007). Over time, there is an absence of full convergence but countries tend to polarise based on their investment performances. In recent years, although the FDI inflows trend of some countries are moderating, the decline is not as sharp as Mongolia’s investment receipt. Of significance, since 2011, the Mongolian FDI fell by 85% (U.S. Department of State, 2015). This is primarily compounded by the weakening of key commodity exports value of coal and copper. Furthermore, investors’ confidence grew warily due to policy missteps by the Mongolian government (World Bank, 2013). Although there has been a change of government in 2016, the effects on Mongolia’s FDI remains unclear. As it stands, Table 2 shows Mongolia to be converging in the fourth group. However, further dissipation of their FDI inflow may result in the country diverging with its counterparts in the region, thus the possibility of Mongolia being an outlier.

Figure 1: Transition Path of 16 Countries of East Asia Pacific

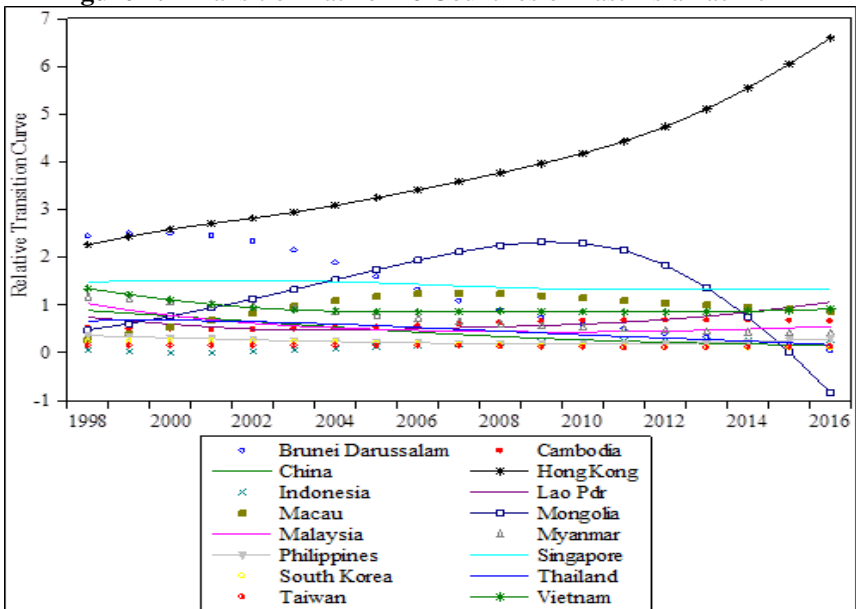


Table 3 shows the findings of trade convergence club formation using trade share over GDP as the proxy. The results, for full sample, reject the null hypotheses of trade convergence with a log (t) statistic of -2.63 (with the critical value at -1.67). Greater diversity in trade across countries warrants searching for trade convergence clubs within East Asia Pacific. The first club consists of Hong Kong, Singapore as well as Vietnam and they are

characterised by greater trade openness, with representing the highest value of trade shares in the region, 371.7%, 310.3% and 184.7% respectively. Hong Kong and Singapore has a longstanding history of free trade, whereby both countries practice almost complete free of trade barrier policies (Panagariya, 2003). This free trade status provided opportunity for these economies, particularly to expand their re-exporting trade activities. It is also worth mentioning Vietnam's remarkable placing in the leading group of trade openness of East Asia Pacific. The country's implementation of the open-door policy on trade reforms alongside its undeterred commitment to trade integration has proved to be fruitful. Since its 2007 World Trade Organization (WTO) membership acquisition, Vietnam's trade activity has been progressing steadily, primarily due to trade openness policies such as the removal or tariff and non-tariff barriers (Thach & Supinit, 2016). The second club includes Malaysia, Thailand, Cambodia, Macau, Mongolia, Brunei Darussalam, South Korea, Lao PDR, Philippines and Myanmar, while the third club comprises Indonesia and China. The reasoning to China's unprecedented placing in the third club could be conjectured by the deceleration in imports over the several years. China's rebalancing policy focuses on transitioning its economy away from exports and investment, towards domestic consumption (Lardy, 2007; Kang & Liao, 2016). This rebalancing act has led to weaker investments largely stemming from market uncertainties and China's import substitution strategies. As a result, the country faces sharp import slowdown, thus, leading to sluggish trade growth.

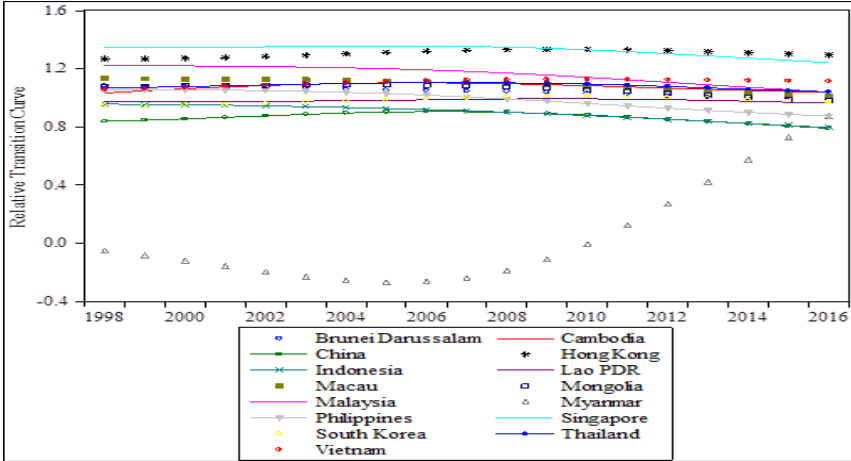
Table 3: Trade Shares over GDP (1990 to 2016)

Group	Countries	t-stat
Full Sample	Brunei Darussalam, Cambodia, China, Hong Kong, Indonesia, Lao PDR, Macau, Malaysia, Mongolia, Myanmar, Philippines, Singapore, South Korea, Thailand, Vietnam	-2.63
1 st Group	Hong Kong, Singapore and Vietnam	1.56
2 nd Group	Malaysia, Thailand, Cambodia, Macau, Mongolia, Brunei Darussalam, South Korea, Lao PDR, Philippines, Myanmar	0.52
3 rd Group	China, Indonesia	6.33

Figure 2 shows the transition path of each nation's trade shares over the sample period. The overall panel appears to be diverging across the participating countries, however, there is opportunity for clustering as shown in Table 3. Interestingly, Myanmar's trade is growing exceptionally, in line with the country's policy in liberalising trade and investment activities. Since coming out from isolation in 2011, there is an upsurge in trade activities, particularly on commodities (Naing, 2014). Myanmar's trade promotion policy as envisaged in the Framework for Economic and Social Reforms

(FESR) utilises its export strategy to expand and diversify foreign markets by using natural and human resources (Oo, 2013). These radical reforms have proven to be successful and if this continues, the country stands a chance in converging with countries in the first club as seen in Table 3.

Figure 2: Transition Path of 15 Countries of East Asia Pacific



5. Conclusion

This paper employs the Phillips and Sul's (2007) methodology that uses a nonlinear factor model with a common and idiosyncratic component, both time-varying, which allows for heterogeneity across the countries to evaluate trade and investment convergence clubs among 16 East Asia-Pacific countries for the period 1990 to 2016. In terms of trade and investment openness, the empirical findings suggest that countries did not form a homogenous convergence club. Consistent with convergence club theory, the results show a clustering of countries with similar stages of development; three and four clubs appear to be formed, based on trade and investment openness levels.

As East Asia Pacific countries continue their efforts to enhance their regional partnership, the results indicate the need for a functional integration system, one where trade and investment policy should be developed in tandem. Despite different level of catch-up processes, the results demonstrate possibilities of convergence amongst countries of the same group. Therefore, implementing more unified policies with greater consistency and efficiency will promote convergence, leading to a race to the top rather than the bottom (Apergis & Cooray, 2015).

East Asia Pacific countries are experiencing profound transformation and have grown rapidly comparatively to other regions in the last several decades. Nevertheless, as shown, convergence is only evident for a subset of groups within East Asia Pacific. It may also indicate that benefits of openness to trade and FDI that acts as two major contributing factors to swift growth (Lim & McAleer, 2004) cannot be enjoyed by all. Indeed, outward oriented strategy that brings about new technologies and diffusion of new products, allowing low and middle-income countries to catch-up with high-income nations could be limited due to lack of trade and investment convergence as a whole. For the sub-group of countries that presents weak convergence, further effectiveness of trade and financial policies are required to encourage stronger integration with other participating nations.

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