East Asia Regional Integration: A Concern on Economics and Human Development

Jarita Duasa

Abstract—The current study attempts to dwell on the issue whether the East Asian countries should adopt a more structured or institutionalized approach in their efforts toward greater regional economic integration, that is, through ‘human development’ which covers economic, social, health and environmental conditions. The analysis is done by testing the level of convergence or divergence of human development components (economic, social, health and environmental conditions) within members of ASEAN(6+CMLV), Japan, Korea and China. The tests of convergence or divergence determine suitable countries to form the proposed integration base on the human development indicators. A common method used is augmented Dickey-Fuller (ADF) linear test of stationarity. The second method adopted is the Kapetanios et al. (2003), KSS, non-linear stationary test which enables to detect the presence of non-stationarity against non-linearity. The study finds possible integration among the countries in studies based on the human development indicators.

Keywords—ASEAN; ADF stationary test; KSS non-linear stationary test; convergence.

I. INTRODUCTION

In the aftermath of the 1997 financial crisis, the recent global crisis and the escalation of international terrorism, many scholars and political leaders, alike, propose for the formation of regional economic integration among East Asia countries. Some studies have shown empirically that the benefits of regional economic integration in East Asia will outweigh any cost [1]. However, several studies have pointed to the reasons why ASEAN member states were reluctant to proceed with regional economic integration [2]. One is the wide differences in levels of economic development, industrial competence and commitment to free trade made among the nations. Second is limited complimentary among the economies, except perhaps between Brunei and Singapore. And three, ASEAN was and remains too small economically crucial for individual member countries. Intra-ASEAN trade is still relatively small and sources of investment are largely extra-ASEAN [3]. One suggestion to overcome these limitations is to expand the regional integration agreement to encompass Japan, Korea and China. In fact, such arrangement actually has been existence but again the arrangement addresses the problem of lack of complimentary.

The crucial issue is whether the East Asian countries should adopt a more structured or institutionalized approach in their efforts toward greater regional economic integration. The reasons for a more structured approach to regional economic integration and regional cooperation can be extended beyond the political and economic considerations, that is, through ‘human development’ which covers economic, social, health and environmental conditions. The disparity, particularly between the middle-to-low income countries of East Asia and the other countries, echoes the concern expressed in the 1999 UNDP Human Development Report. Inequality had been rising within and between countries and as a result the income gap widened. It can be argued that the gap could be narrowed by assuring convergence in human development at regional level. Developing economies need the capability in terms of infrastructure, technology, and human resource development to maintain a competitive business environment and economic and social stability in order to capitalize on the benefits of liberalization [4]. Developing countries have to achieve a minimum threshold level of economic and social development to participate effectively in both regional integration and globalization.

Motivated by this issue of regional integration, the study aims to analyze the possibility of more structured or institutionalized regional cooperation in the East Asia be formed by looking seriously on human development within the region. The analysis will be done by testing the level of convergence or divergence of human development components (economic, social, health and environmental conditions) within members of ASEAN(6+CMLV), Japan, Korea and China. The tests of convergence or divergence will determine suitable countries to form the proposed integration base on the human development indicators.

II. LITERATURE REVIEW

Most previous studies were mainly analyzing the possibility of financial integration among the East Asian countries, such as [5], [6], [7], [8] and [9]. There are several studies attempted to analyze further on the possibility of economic integration in the region. Among those studies are [10] and [11]. The later demonstrates that the East Asian economies have achieved strong economic interdependence, particularly through external liberalization, domestic structural reforms and market-driven integration with the global and regional economies. Expansion of foreign trade, direct investment and financial
flows has created a “naturally” integrated economic zone in East Asia. Yet, these studies are not exploring the possibility of regional integration beyond economic and financial consideration. Thus, the present study would attempt to fill this gap.

Besides, several studies were mainly analyzing country level of economic integration. In other words, the studies were focus on a specific country only. Those are studies by [12] on Estonia for integration with EU, [13] on China and [14] on Cambodia. Very few attempts made in the past to look at the integration of the countries base on human development as the present study attempts to do. One study by [15], which limited to Soviet Union countries, had looked at both trade integration (in grain and electricity) and labour migration integration (using mobility of students-education) to examine the dynamics of regional integration and economic convergence in the post-Soviet world during the period 1999-2008. The findings were, first, in the trade sphere the post-Soviet world continued its trend towards disintegration. Second, the degree of integration of migration and educational mobility in the post-Soviet space increased significantly and third, it discovered varying evidence of economic convergence: while post-Soviet countries seem to diverge when it comes to economic growth, the trend is the reverse for monetary and financial activity. Extensive studies using human development indicators particularly for ASEAN countries are yet to be done to enable us to analyze regional economic integration and regional cooperation which are extended beyond the political and economic considerations, that is, through ‘human development’ covers economic, social, health and environmental conditions.

III. DATA AND METHODOLOGY

The study adopts few indicators for each human development component to be adopted in the models developed. Table 1 provides the list of indicators for each component, the description of each indicator and the sources of data. All data are annually spanned, in general, from year 1970 to 2011. The data are collected for all countries in study, namely Brunei, Cambodia, China, Indonesia, Japan, Republic of Korea, Laos PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. In methodology, the study will trace the divergence or convergence of human development components by conducting stationary tests. A common method used is augmented Dickey-Fuller (ADF) linear test of stationarity. The equation could be specified as:

$$\Delta(\ln Y_{it} - \ln Y_{At}) = \delta(\ln Y_{it-1} - \ln Y_{At-1})^3 + \mu_t$$

(2)

where $\mu_t$ is stochastic error term with zero mean and constant variance assumption. Equation (2) is correspond to the conventional Dickey-Fuller (DF) in non-linear framework. The divergence or convergence could be tested on $\delta$ using the t-statistics with the null hypothesis of $H_0: \delta = 0$ (divergence) against the alternative of $H_1: \delta > 0$ (convergence). The KSS test statistics are to be compared with the same set of critical values simulated by [17]. Using stochastic simulations with 5000 replications and 1000 observations, the authors obtained the 1, 5 and 10% asymptotic null critical values of the t-statistic as $-2.82, -2.22$ and $-1.92$ respectively. This is because the conventional t critical values are no more applicable in this non-linear framework due to the asymptotically distribution of $\delta$ which has been proven non-normal.

IV. FINDINGS

Having taken into consideration both the ADF and KSS, the current study combines both results to basically obtain robust results due to the fact that both tests are having their own strengths. Table 2 summarizes the results obtained from both tests. Basically, combination of favorable results in both tests is considered in our analyses and shortly stated in the last column of the table.
The selection of the countries in both ADF and KSS tests is based on the t-statistics of the test that reject the null hypotheses of both tests.

### A. Economic Indicator

Using GDP growth, the results from the tests suggested that each country’s GDP growth converges to GDP growth of Japan except for China. The results also imply that all countries in study can be integrated with Singapore base on GDP growth as an economic indicator. Since GDP growth simply represents the standard of living of the countries, as a foundation of economic integration, all countries in study are strongly recommended to form economic integration with Singapore’s GDP growth is used as a benchmark and target level of each country to be at par to remain in the pack.

### B. Environmental Indicator

Using CO2 Emission as environmental indicator in the study, the convergence is existed between China, Thailand, Indonesia, Korea to the benchmark country of Japan. No convergence existed between any country and Singapore. Thus, in summary, the integration is possible using Japan as a benchmark country rather than Singapore. Those countries proposed as members of the pack are China, Vietnam, Indonesia, Korea, Thailand, Laos, Malaysia, Myanmar and the Philippines.

### C. Social indicator

Based on mobile phone subscription as a social indicator, the convergence of the variable is among the countries of Cambodia, Philippines, Korea, China, Thailand, Vietnam with Japan as the benchmark country. Thus, the integration is possible among all these countries. On the other hand, the results suggest only 3 countries to be integrated with Singapore using similar indicator. Those are Myanmar, Vietnam and Cambodia. To sum, integration with Japan is again strongly supported based on social consideration.

### D. Health Indicator

The results, using death rate in the models, suggest that the convergence of the variable of Laos, Philippines, Indonesia and Myanmar with variable of Japan. This implies that the integration is possible among all these countries. The convergence is also existed using similar variable between China, Indonesia, Vietnam, Myanmar and Korea with Singapore. Thus, an alternative integration is also possible among this pack of countries.

### V. CONCLUSION

The current study does find possible integration among the countries in studies, not only focusing on single economic integration but also in other aspects of cooperation and integration, namely, social, health and environment which seem very important for the countries sustainable development. Economically, all countries in study are strongly recommended to form economic integration base on their economic growth. Environmentally, the integration is possible among several countries using Japan as a benchmark country rather than Singapore. Looking at social consideration, integration with Japan or Singapore is strongly supported. Similarly, integration of several countries with Japan or

<table>
<thead>
<tr>
<th>Indicators</th>
<th>GDP growth</th>
<th>CO2 Emission</th>
<th>Mobile Phone Subscription</th>
<th>Death Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>Brunei, Indonesia, Myanmar, Thailand</td>
<td>Nil</td>
<td>Cambodia, Myanmar</td>
<td>Laos, Philippines</td>
</tr>
<tr>
<td>Singapore</td>
<td>Brunei, Cambodia, Japan</td>
<td>Nil</td>
<td>Cambodia, Myanmar</td>
<td>Vietnam, China</td>
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Singapore is also recommended from the results using health indicator. Among all countries, both Korea and China are found to have the convergence of all indicators in study which implies that they should be the selected countries in priority for any form of integration. Indonesia, Thailand, the Philippines and Vietnam have the convergence of three indicators out of four indicators. This suggests other possible countries should be considered for the members of any possible regional integration based on human development.

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Jarita Duasa obtained her B. Soc. Sc in Economics in 1990 from University of Waikato, New Zealand and M.Econ (Master in Economics) in 2000 from International Islamic University Malaysia. Her PhD in Economics was conferred by the University of Sheffield, United Kingdom in 2005.

She is serving the Department of Economics at Faculty of Economics and Management Sciences, International Islamic University Malaysia in teaching and research activities from year 2000. Her research niche areas are International Economics, International Finance and Applied Economics. She was promoted to Associate Professor in 2008 and to Professor in 2012. She served as the Post-graduate Coordinator for Department of Economic from 2005 until 2010.

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