Regional Integration of the Association of Southeast Asian Nations Economic Community: An Analysis of Malaysia - Association of Southeast Asian Nations Exports

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ABSTRACT

Malaysia is a rapid growing economy especially in the Association of Southeast Asian Nations (ASEAN) region. The exports with ASEAN countries plays vital role in economic growth and development of Malaysia. Additionally, current chairmanship of ASEAN makes Malaysia more prominent in the region. Consequently, exploring the determinants of Malaysia - ASEAN-5 countries, namely Singapore, Thailand, Indonesia, Philippine and Vietnam exports performance is a fundamental objective of this study. The panel data of Malaysia and other ASEAN-5 countries for the period 1990-2013 and renowned international trade model "gravity" has been applied to explore the determinants. The results of the study explore that distance, population size, economic size and exchange rate are the significant potential determinants of Malaysia – ASEAN exports during the period of study. The findings of this study provide lucid and wide range policies for Malaysian government to boost the economic growth and development through exports promotion with ASEAN countries.

Keywords: Malaysia, Association of Southeast Asian Nations, Association of Southeast Asian Nations Economic Community, Gravity, Exports
JEL Classifications: F13, F4, P45

1. INTRODUCTION

International trade has a fundamental role in the economic growth and development. Exports promotion policy is frequently in agreement with the principle of proportional advantage, when country concentrates in a product, which can produce competitively. The goods become available to the community of the world at cheaper prices, markets are expanded, internal as well as external economies are attained, employment and income levels increased. Therefore, boost economic growth and development of the host country (Chen et al., 2011). Furthermore, plenty of studies explore that exports have positive and significant impact on economic growth and development (Balassa, 1985; Chow, 1987; Feder, 1983; Krueger, 1990; Ram, 1987; Sengupta and Espana, 1994; Tyler, 1981; Ullah et al., 2009; Vohra, 2001; Ozturk and Acaravci, 2010a; Acaravci and Ozturk, 2012; Uddin et al., 2013). The Daraisami (2004) explore that, within the new

growth theories framework; exports can stimulate economic growth through various channels such as exports inflate the supply of raw material and capita equipment, which can expand the productivity in the economies. Exports allow developing countries access to better technology of developed countries in the form of personified capital goods. Furthermore, exports permit strengthening of capacity utilization that increases products produced and consumed (Muhammad and Mafizur, 2014).

In addition, Malaysia is rapid growing economy in the world. The Malaysian economy has grown rapidly over the past decades. From the period between 1990 and 2013, the real gross domestic product (GDP) has grown on an average of 6.32% per annum. Malaysian per capita income (current gross national product per capita) rose from US\$380 in 1970 to US\$10,304 in 2013 (World Bank, 2014). Malaysia is an open economy which depends on external trade to achieve its economic growth (Yusoff, 2005). International trade

Table 1: Malaysian exports with major partners (ASEAN-5 countries)

Year	Indonesia	Singapore	Thailand	Vietnam	Philippine	Malaysian total export	Export with 5-ASEAN	%
1990	316.06	6752.83	1032.75	6.35	393.74	57,896.12	8501.73	14.68
1991	505.72	8019.53	1097.50	23.22	300.61	60,321.21	9946.58	16.48
1992	635.84	9391.21	1490.25	50.00	476.52	63,213.12	12,043.82	19.05
1993	717.74	10,228.10	1694.97	137.04	480.27	66,021.13	13,258.12	20.08
1994	942.04	12,167.30	2217.69	159.49	610.96	69,001.13	16,097.48	23.32
1995	1212.62	14,960.40	2868.10	268.53	651.29	82,086.87	19,960.94	24.31
1996	1425.91	16,017.50	3207.47	322.96	938.80	89,661.8	21,912.64	24.43
1997	1464.09	15,869.10	2869.39	322.49	1148.18	94,584.81	21,673.25	22.91
1998	1477.14	12,444.20	2317.07	376.12	1156.56	95,049.37	17,771.09	18.69
1999	1756.64	13,974.20	2757.97	385.02	1297.08	107,561	20,170.91	18.75
2000	2268.77	18050.10	3550.29	475.34	1726.67	124,841.5	26,071.17	20.88
2001	2241.38	14,912.90	3359.95	473.85	1287.50	116,314.6	22,275.58	19.15
2002	2550.67	15,958.50	3972.22	664.40	1334.83	122,627.4	24,480.62	19.96
2003	2939.01	16,522.60	4615.31	827.15	1436.68	128,922.9	26,340.75	20.43
2004	4193.73	18,993.80	6040.49	1140.49	1937.46	149,625.7	32,305.97	21.59
2005	4375.26	22,009.60	7584.64	1159.93	1974.18	162,047.5	37,103.61	22.89
2006	4951.79	24,743.90	8501.78	1758.00	2173.39	172,875.7	42,128.86	24.35
2007	6233.28	25,771.50	8729.71	2329.47	2548.42	179,399.4	45,612.38	25.42
2008	7269.47	29,416.20	9571.26	2437.50	2931.68	182,221.6	51,626.11	28.33
2009	6559.3	21,934.20	8491.42	2359.06	1980.74	162,398.6	41,324.72	25.44
2010	9151.26	26,544.20	10587.20	3548.08	3105.98	180,451.1	52,936.72	29.33
2011	11,486.4	28,841.00	11710.90	3827.43	3580.77	188,742.9	59,446.5	31.49
2012	10,088.1	30,966.80	12208.00	3826.80	3396.51	188,552	60,486.21	32.03
2013	10,499.70	31,912.40	12673.80	4227.02	2966.65	190,432.1	62,279.57	32.70
Total	95,261.92	446,402.1	133150.1	31105.74	39835.47	3,034,850	745,755.3	24.57

All the values are calculated in Millions of USD. Source: CD-ROM International Financial Statistics, IMF, 2014. ASEAN: Association of Southeast Asian Nations

has been a catalyst in the economic growth and development of Malaysian economy and significantly contributing to the GDP.

Similarly, exports have significant contribution in the Malaysian economy since last three decades. In Malaysia GDP to export ratio 74.4% was reported for the year 2013 (World Bank, 2014), which is quit high as compare to other countries in the region. The rapid expansion have been observed particularly initial years of 1990's, as it observed 57,898.12 million USD in 1990 and 124,841.5 million USD in 2000 with 215% increased during a decade. Furthermore, Malaysian total export 116314.6 million USD in 2001 and 190432.1 million USD in 2013 with 163.12% was recorded. During the period of study 1990-2013 total exports 3,034,850 million USD with the 328.92 % increase was observed. The Malaysian total exports, exports with Association of Southeast Asian Nations (ASEAN-5) countries namely, Indonesia, Singapore, Thailand and Vietnam during 1990-2013 presented in Table 1.

In addition, Japan, USA and ASEAN and the European Union (EU) WERE Malaysia's major trading partners which accounted for more than 70% of Malaysia's total trade flow during the 1990-2013. Besides, other partners ASEAN countries specially Singapore, Thailand, Indonesia, Philippine and Vietnam are the most important countries for the Malaysian exports. According to above reported Table 1, Singapore is a major export partner in the ASEAN region with 446,402.1 billion USD, Thailand ranked 2nd with 133150.1 billion USD, Indonesia at 3rd with 95,261.92 billion UDS, Philippine was at 4th with 39835.47 billion USD and Vietnam ranked 5th with 31,105.74 billion USD exports during 1990-2013. From the total Malaysian exports 14.70%, 4.38%, 3.13%, 1.31% and 1.02% are recorded with Singapore, Thailand, Indonesia, Philippine and Vietnam, respectively. Overall,

24.57% Malaysian exports were recorded with ASEAN-5 countries during 1990-2013.

Last year Myanmar handovers the ASEAN chairmanship to Malaysia for the next chairmanship for the year 2015. Recently, Malaysia will be tasked with leading the organization in a year filled with the significant developments in the areas of community-building, economic integration, and regional architecture (The Diplomat)[1]. Economic incorporation will also be the head of Malaysia's chairmanship in 2015. Besides, the agenda will center on the future of the Association of Southeast Asian Nations Economic Community (AEC), one of three pillars of ASEAN community which plan to create a single market and production base. The chairmanship of ASEAN for the year 2015 will make Malaysia more important in the region. However, by utilizing this opportunity Malaysia can expand their exports and boost the economic development.

The high proportion of Malaysian exports with ASEAN-5 countries and current chairmanship of AEC for the year 2015 motivation behind this research. The core objective of this study to explore the determinants of Malaysia – ASEAN exports during 1990-2013 by utilizing the gravity model. The gravity model measure the expected level of trade in the region. Although gravity model have been extensively utilized to measure the bilateral trade among countries, but to the best of our knowledge it never been applied to measure the Malaysia – ASEAN exports.

The rest of the paper is planned as follows: Section 2 provides critically review the previous studies. Section 3 reports the

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1   http://thediplomat.com/2014/11/malaysia-as-asean-chair-in-2015-what-to-expect/

methodology, model specification and the estimation techniques of the research. The results are presented in Section 4. Finally, Section 5 concludes the research.

2. LITERATURE REVIEW

The numerous studies (Al-Atrash and Yousef, 2000; Baier and Bergstrand, 2007; Carrère, 2004; Cernat, 2001; Ghani, 2007; Hassan, 2001; Rault et al., 2009; Rojid, 2006; Simwaka, 2007; Vancauteren and Weiserbs, 2005;, Ozturk and Acaravci, 2010b; Tang et al., 2015) explore the determinates of intra-trade in different regions. The previous studies explore determinates in OIC, EU, SAARC, South-Asia though none of the study explore determinants of Malaysia – ASEAN exports. The results of these studies are complex and inconsistent. The traditional growth theories explore different determinates of intra-trade. According to Heckscher-Ohlin model, natural resources, factor of production and skills explain the pattern of trade between two countries or regions. It is implied that trade gets place in an absolutely competitive and resistance less world without distance or geographical features. Nevertheless, traditional theories are therefore unable to define the diverse pattern of exports across the borders (Matthee and Naudé, 2008).

In addition, new international trade theories have included the distance to clarify the determinants of international trade flow among different countries. Evidently, empirical studies argue that distance have significant effect on cross border trade (Clark et al., 2004; Harrigan, 1993; Himarios, 1989; Hoffmann, 2002; Krugman, 1991). The study of Harrigan (1993) explores the role of distance between two countries or regions to be a significant determinant of geographical pattern of international trade. Further, Krugman (1991) argue that more distance between two trading partners increase the cost of transportation in their bilateral trade, which difficult to gains from trade and hence dampen trade.

Furthermore, numerous studies namely, Filippini and Molini (2003) and Loungani et al. (2002) explore that distance is more significant as compare to geography. According to these studies distance can characterize the culture, history, language, social relation and several others features. Additionally, the study of Blum and Goldfarb (2006) investigate that distance is a good proxy for difference in taste and preference. The findings of the study give a new justification for the perseverance effect in gravity regression. This recommended that the distance effect in gravity will persevere for a number of products even if transportation cost, search cost and other type of trade barriers associate with the distance are become zero.

The study of Ahmad and Harnhirun (1996) investigates that country with big population is more important that country with small population because they are superfluous capable to obtain benefits of size economies in their huge local market. This result support the argument that why trade flow usually have an opposite effect on population size.

Moreover, numbers of studies such as (Bahmani-Oskooee, 1986; Chua and Sharma, 1998; Himarios, 1989; Warner and Kreinin, 1983; Wilson and Takacs, 1979) investigates the relationship between exchange rate and international trade flow. The change in the exchange rate will impact on international trade under the Marshall and Lerner approach. According to different theories, if the relative prices of host and partner country remain constant, devaluation of currency can improve the trade flow.

3. METHODOLOGY

The study will apply the gravity model which gives a simple but stout approach to categorize the main factors influencing trade among two countries (Greenaway and Milner, 2002). This model is, indeed one of the most successful models in empirical economics so far (Frankel and Rose, 2002). The basic derivation and brief history of the gravity model is mentioned below:

3.1. The Gravity Model
The gravity model initiate with setting out the traditional gravity model and nothing clues to uniting it with economic theory. The gravity model of international trade illustrate on parallel with Newton's Law of Universal Gravitation. The Newton's gravity model is stated that the magnetism between two objects in the universe is directly proportional to the product of their size and inversely proportional to the distance between them. By analogy, gravity model explained that a mass production supplied at one origin is attracted to a mass of demand from the other origin, but the high flow is reduced by distance between them. Strictly applying the analogy,

$$N_{ij} = C \frac{M_i M_j}{D_{ij}} \tag{1}$$

Where, N_{ij} is imports of country i from country j, C is gravitational constant, M_i is economic mass of country i and M_j is economic mass of country j. D_{ij} is the distance between capital of country i to capital of country j. The natural- log form of the above model is stated in Equation 2.

$$\ln N_{ij} = \phi + \alpha \ln M_i + \beta \ln M_j - \lambda \ln D_{ij} + \varepsilon_{ij} \tag{2}$$

The current form of model countenance extreme criticism from Anderson and Van Wincoop (2003), in this case we have to develop an alternative form of model that they favor in firm microeconomic foundation.

There are some assumptions which we have follow before derive alternative model.
1. There is no interference in trade
2. The worldwide households do have homothetic and identical utility functions
3. All the countries concentrate in the production of possible and different varieties of goods. Everywhere the required basket of goods must be same. Small economy produces smaller quantity of goods. For example country i produce J_i different varieties in over the world composed of N countries so that $J = \sum_{i=1}^{N} J_i$. Furthermore, P is price and V is variety in term the numeraire and $T_{i,v}$ is a production of country i of variety v. It can be express below;

$$M_i = \sum_{v=1}^{J_i} P_v . T_{i,v}$$

Further,
$$M_w = \sum_{v=1}^{J} P_v . T_{i,v} = \sum_{I=1}^{N} M_i \qquad (3)$$

Note: i is a country index, while v is a variety index.

The CES case:

$$F_i = \sum_{j=1}^{N} \beta_j^{1/\theta} G_{ij}^{\theta-1/\theta} \qquad (4)$$

Where, G_{ij} is consumption of country i and β_j world output percentage produced by country j:

$$\beta_j = M_j/M_w \qquad (5)$$

There is a balance trade among all countries in the aggregate.

There is an additional assumption showing that country j sell all variety at equal price: $P_{v,ij} = P_{v,j} = P_{ij}$. It is assumed that there is no price difference or price discrimination, as buyer shows $(P_{v',ij}) = (P_{v,j})$ and furthermore, there is no difference exists in home price in case of variety as well $(P_{v,ij}) = (P_{ij})$. Given M_i, the solution is:

$$G_{ij} = \beta_j \left(P_{ij} / P_i \right)^{-\theta} \frac{M_i}{P_i}$$

Where,
$$P_i = \left(\sum_{j=1}^{J} \left(\beta_j P_{ij}^{1-\theta} \right) \right)^{1/1-\theta} \qquad (6)$$

This shows that i's preferred consumption of all variety produced by country j. Imports N_{ij} of country i from country j equal $P_{ij} G_{ij}$. Thus,

$$N_{ij} = \beta_j \left(\frac{P_{ij}}{P_i} \right)^{1-\theta} \quad \text{and} \quad M_i = \left(\frac{P_{ij}}{P_i} \right)^{1-\theta} \frac{M_i M_j}{M_w} \qquad (7)$$

By the same interpretation,

$$N_{ji} = \beta_j \left(\frac{P_{ji}}{P_j} \right)^{1-\theta} \quad \text{and} \quad M_j = \left(\frac{P_{ji}}{P_j} \right)^{1-\theta} \frac{M_j M_i}{M_w} \qquad (8)$$

It is noted that study not assumed that $N_{ij} = N_{ji}$, meaning that there is balance bilateral trade. The balance bilateral trade possible if and only if $1 = \theta$ than study would have

$$\left(\frac{P_{ij}}{P_i} \right)^{1-\theta} = \left(\frac{P_{ji}}{P_j} \right)^{1-\theta} = 1 \qquad (9)$$

But such balanced trade will follow independently under subsequent assumptions (AvW).

It is assumed that there are frictions of all sorts in foreign trade. From P_{ij} and P_i, P_{ij} is higher and $P_{ij} = t_{ij} P_j$ where, $t_{ij} = 1 + C$ (C = trade cost). From $P_{ij} = t_{ij} P_j$ study can explain that:

$$N_{ij} = \left(\frac{t_{ij} P_j}{P_i} \right)^{1-\theta} \frac{M_i M_j}{M_w} \qquad (10)$$

This is the basic gravity equation. Further, if we talk about Anderson–Van Wincoop specification, it is start from:

$$F_i = \sum_{j=1}^{N} N_j G_{ij}^{\theta-1/\theta} \qquad (11)$$

Where, N_j is the different varieties produced by country j and for single variety:

$$G_{ij} = \left(\frac{P_{ij}}{P_i} \right)^{-\theta} \frac{M_i}{P_i} \qquad (12)$$

Where,

$$P_i = \left(\sum_{j=1}^{J} \left(N_j P_{ij}^{1-\theta} \right) \right)^{1-\theta} \qquad (13)$$

So, total import from country j, N_{ij} is equal

$N_{ij} = N^j P_{ij} G_{ij}$. Thus,

$$N_{ij} = N_J \left(\frac{P_{ij}}{P_i} \right) \quad \text{and} \quad M_i = N_J \left(\frac{t_{ij} P_j}{P_i} \right)^{1-\theta} M_i \qquad (14)$$

From the starting it is assumed that P_j is the same despite of variety v and it is also assumed that the balance trade of each country in the aggregate. Let $t_{ij} = t_{ji}$ than we can prove that P_j simply as:

$$P_j = \left(\frac{M_j}{M_w N_j} \right)^{\frac{1}{1-\theta}} \frac{1}{P_j} \quad \text{or} \quad P_j^{1-\theta} = \left(\frac{M_j}{M_w N_j} \right) \left(\frac{1}{P_j} \right)^{1-\theta} \qquad (15)$$

It is proof that if there is available country j general utility-maximizing price index P_j, quantity and variety of different goods produced N_j and its relative world size then it is likely to drive price of per unit output P_i. As following:

$$N_{ij} = \left(\frac{t_{ij}}{P_i P_j} \right)^{1-\theta} \frac{M_i M_j}{M_w} \quad \text{likewise} \quad N_{ji} = \left(\frac{t_{ij}}{P_i P_j} \right)^{1-\theta} \frac{M_i M_j}{M_w} \qquad (16)$$

Given that $t_{ij} = t_{ji} = N_{ij} = N_{ji}$ it means it is also equal to T_{ij} and $T_{ij} = $ bilateral trade follow. As last equation showing that, the impact of trade depend on θ, which is representing the elasticity of intra temporal substitution.

3.2. Model Specification
The gravity model of trade depends on the balance of the forces in between the trading economies. Its stochastic specification is mentioned as following:

$$\ln(Export_{ijt}) = \alpha_0 + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jt}) + \beta_3 \ln(DIST_{ij}) + \beta_4 \ln(POP_{it}) + \beta_5 \ln(POP_{jt}) + \beta_6 \ln(INS_{it}) + \beta_7 \ln(INS_{jt}) + \beta_8 \ln(ER_{it}) + \beta_9 \ln(ER_{jt}) + \varepsilon_{ijt} \qquad (17)$$

Where the variables are as below:

$Export_{ijt}$ = Total exports between Malaysia (country i) and ASEAN (country j) (in million USD),

GDP_{it} = GDP growth of Malaysia,

GDP_{jt} = GDP growth of ASEAN country j,

$DIST_{ij}$ = Distance between from Malaysia capital to ASEAN country j capital,

ER_i = Real exchange rate of Malaysia,

ER_j = Real exchange rate of ASEAN countries,

INS_{it} = Corruption perception index of Malaysia,

INS_{jt} = Corruption perception index of ASEAN countries,

POP_{it} = Population growth of Malaysia,

POP_{jt} = Population growth of ASEAN countries.

3.3. Data Source

The study efforts to analyze the determinants of bilateral exports among Malaysia and ASEAN-5 countries based on traditional gravity model and panel data cover the time period 1990-2013.

All the data convert into natural lag. The data has been taken from the difference sources, data on GDP, real exchange rates and population growth of Malaysia and ASEAN-5 countries were obtained from the World Development Indicators database of the World Bank and also from the International Financial Statistics, CD-ROM database and website of International Monetary Fund (IMF). Data on Malaysia's exports (country i export) to all other ASEAN countries (country j's) were obtained from the Direction of Trade Statistics, CD-ROM database and website of IMF.

Data on the distance (in kilometer) between Kuala Lumpur (capital of Malaysia) and other capital cities of ASEAN countries j are obtained from website: www.indo.com/distance. For the measurement of the level of institutional quality, that is measured by the corruption index is obtained from the Corruption Perceptions Index from Transparency International (TI) and retrieved from TI database at www.transparency.org/cpi.

4. RESULTS

The estimated results of gravity model reported in Table 2.

The coefficient of GDP for the Malaysia takes the value of higher than 1 and it about 1.312; indicating that if the GDP goes up by 1%, the amount of exports will go up 1.312%. The GDP for ASEAN countries takes significant positive elasticity value about 0.31%; suggesting that exports will increase by 0.31% if the ASEAN country's economic size will increase by 1%. Nevertheless, Malaysia exports could boost significantly if the ASEAN countries sustain high economic growth. The export elasticity of Malaysia GDP is higher than the export elasticity of ASEAN GDP. This means that the existence of stronger home market effects. The coefficient of exchange rate for the Malaysia have negative whereas ASEAN exchange rate have significant positive effects on the exports of Malaysia. The results explore that 1% increase in exchange rate of Malaysia will decrease exports by 0.12% where 1% increase in exchange rate of ASEAN countries will increase exports by 0.128%. These results are

Table 2: Regression results

ln$Export_{ij}$	Coefficient	Het-corrected standard error
lnGDP_i	1.312*	0.108
lnGDP_j	0.302*	0.081
lnER_i	−0.120*	0.099
lnER_j	0.128**	0.324
lnINS_i	0.321	0.077
lnINS_j	0.124	0.144
lnDIS_{ij}	−0.520*	0.131
lnPOP_i	0.124**	0.034
lnPOP_j	0.213*	0.166
Constant	15.34*	
Number of observation	1440	
Number of country pairs	36	
R^2 value	0.431	
F	412	

*,**Significant at 1% and 5% level. GDP: Gross domestic product

similar with the studies (Bahmani-Oskooee, 1986; Chua and Sharma, 1998; Himarios, 1989; Warner and Kreinin, 1983; Wilson and Takacs, 1979).

Furthermore, the results suggested that distance between two countries or region is still important determinant of international trade. The coefficient of distance is negative and significant, argue that 1% increase in the distance between Malaysia and ASEAN countries will decrease exports by 0.52%. The result line with Filippini and Molini (2003) and Loungani et al. (2002). Additionally, institutional have positive but insignificant effect on exports in ASEAN region. Finally, population size of both side have positive and significant effect on the exports, leading that 1% increase in the population of Malaysia and ASEAN countries will increase exports by 0.124% and 0.213% respectively.

5. CONCLUSION

International trade plays vital role in economic growth and development of the world. The proportion international trade in the economic growth has been growing hastily. In this regard, explore the determinants of exports between two countries or region got considerable attention from the researchers. The developing country like Malaysia is a rapid growing economy especially in ASEAN region. The exports with ASEAN countries plays vital role in economic growth and development of Malaysia. Additionally, current chairmanship of AEC makes Malaysia more prominent in the region. Consequently, explore the determinants of Malaysia – ASEAN-5 countries, namely Singapore, Thailand, Indonesia, Philippine and Vietnam exports performance is a fundamental objective of this study. The panel data of Malaysia and other ASEAN-5 countries for the period 1990-2013 and renowned international trade model 'Gravity' has been applied to explore the determinants.

The results of the study explore that distance, population size, economic size and exchange rate are the significant potential determinants of Malaysia – ASEAN exports during the period of study. The Results are inline with Abidin, et al. (2014) in case of TPP members countries. The findings of this study provide lucid

and wide range policies for Malaysian government to boost the economic growth and development through exports promotion with ASEAN countries.

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