

## **An Interaction between 3A Approach of Entrepreneurship and International Trade: Evidence from Selected Asian Countries**

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### **Abstract**

In the relevant literature, there has been a lack of discussion to focus particularly on the relationship between entrepreneurship and international trade. It is more restricted when one intends to seek an interaction between international trade and the indexes of the 3A approach of entrepreneurship, including entrepreneurial attitude, activities and aspirations which are collected from Global Entrepreneurship Monitor (GEM). The implication is that a change in trade causes more entrepreneurial opportunity to firms, while an innovation by them should lead to comparative advantage of an activity, which can be a reason for trade promotion. This study thus aims to explore the effects of three key components of entrepreneurship arising from the 3A approach of entrepreneurship on trade flows in 10 Asian countries (Iran, China, South Korea, Pakistan, Malaysia, Turkey, Japan, Russia, United Arab Emirates and Thailand) that are members of the GEM. Employing econometric methods, we test a causality relation between trade and the indexes of entrepreneurship, and then estimate an augmented trade gravity model by using panel data and applying the GEM cross-national data during the period 2008- 2018. The empirical results have confirmed that there is an interacted causality between trade and entrepreneurship patterns in 10 selected Asian countries during the period.

**Keywords:** Entrepreneurship, 3A Approach, GEM, Trade Model, Asia

**JEL Classification:** L26, P33, P44, F10

## 1. Introduction

Considering the importance of entrepreneurship in developing process in international trade era and globalization we find the necessity of studying relative subjects to entrepreneurship. Recent Century which is called globalization century, world economy and the speed of economic growth is based on innovation. In this space we should provide essential framework for encouraging entrepreneurs who transform idea to product and knowledge and knowledge to industry. In this space we can identify the role of entrepreneurship and the need for entrepreneurs. Therefore, we can say entrepreneurs is a connector of industry and market.

Entrepreneurship is a concept which has been considered from different perspectives. Economists believe that the entrepreneurship is an engine of economic development in developing and developed countries. Countries consider entrepreneurship due to three main reasons including wealth making, technology development and productive employment.

In developed countries, the importance of entrepreneurship is not just due to jobs creation, while the main reason is that small economic activity can allocate major share of updated technology, wealth and income to themselves. Important effects of entrepreneurship are increasing innovation, improving technology, increasing number of patents and innovation, job creation and small and medium enterprises creation and income distribution in society which could cause an increase in national wealth.

The objective of this paper is to assess the effects of three key aspects of entrepreneurship arising from the 3A approach (including entrepreneurial attitude, activities and aspirations) on trade flows in 10 Asian countries (Iran, China, South Korea, Pakistan, Malaysia, Turkey, Japan, Russia, United Arab Emirates and Thailand) that are members of the GEM.

Employing econometric methods, we first estimate a causality relation between trade and the indexes of the 3A approach of entrepreneurship by using panel data and applying the GEM cross-national data during the period 2008- 2018. The results obtained by the causality investigation would lead the study to specify an innovative version of the gravity trade model where its estimation explore the aspects of entrepreneurship on the selected Asian countries

The remaining of this paper is classified into 7 sections. Sections 2 and 3 consist of theoretical discussion on the paper subject. Section 4 relies on methodology, and then a model specification is raised in Section 5. Section 6 will analyzes the empirical results obtained by the causality test. Finally, Section 7 concludes some remarks and raises relatively policy implications.

## 2. Theoretical Discussion

There are bilateral relations between the world trade and entrepreneurship. Since 1800, world trade grew about 13 times more than global output due to innovation. Entrepreneurs play major roles in ensuring effective use of these inventions. However, comparative advantage brought gains to all participating countries as a consequence of trade growth. Therefore, there is certainly a relationship between the volume and degree of trade and entrepreneurial incentives and activities (Baumol, 2007).

Trade affects economic growth positively by improving productivity, increasing competitiveness and accessing new or larger markets. Economic growth is an important factor for improving competitive abilities, which provide sustainable improvement in living standards of citizens based on real incomes and job opportunities (OECD, 1990). Nations are able to achieve more economic growth and competitiveness by producing more goods and services for responding domestic demand and international markets.

Therefore, to achieve these goals, entrepreneurship plays an important role since it is a mechanism to transfer the unused knowledge to the market in form of new goods and services (Gonzalez-Pernía and Peña-Legazkue, 2011).

Entrepreneurs create new businesses, and new businesses in turn create jobs, intensify competition, and may even increase productivity through technological change. Hence, high levels of entrepreneurship will translate directly into high levels of trade and economic growth (Acs, 2006). The key point is that one of the key forces that have caused the volume of trade to exceed by far the world GDP growth is not the process of invention itself, but the diffusion of improved technology, particularly transport and communication technology. Then, the entrepreneur plays the leading role in this regard and transferring profitable technology (Baumol, 2007). Essentially, trade growth is largely built on entrepreneurship.

In developed countries a high volume of trade in final goods is based on the intra-industry trade (trade in distinctive homogeneous products). Since intra-industry trade happens as a result of product diversification in incomplete markets (exclusive competition) and scale profit therefore every country tries to use developed technology and increase quality of its product for diversifying its product, increasing sale and exports. Therefore, this path creates spillovers that cause higher entrepreneurship (Yarborough and Yarborough, 2006). Murphy et al. (1991) discuss that lower transportation costs and so on which facilitate trade, promote productive entrepreneurial activities. They mention that a large proportion of the expansion in existing firms comes from introducing new goods to current trade partners (Fabling and Sanderson, 2009).

Trade helps to provide international facilities and increase competitive characteristics. Trade causes accessibility to

wide markets therefore changes the situation for creating new entrepreneurship enterprises. Entrepreneurs do their jobs by using new technologies and make value added. These evolutions have been generated by technology growth and trade. Since countries' economic openness causes increasing in entrepreneurs' export activities, trade has positive effect on creating new jobs and entrepreneurship by producing information spillovers, technical knowledge and R&D.

Moreover, entrepreneurial activity, makes wealth in an economy by introducing new mixture of knowledge (Schumpeter, 1934), which generates demand for new products. In addition, entrepreneurial activity which creates new business increases competition and improves productivity between existing industries (Gonzalez-Pernía and Peña-Legazkue, 2011).

Therefore, any relationship between trade and entrepreneurship is determined in several aspects of exports and imports. Export production capacity increases are identified whenever foreign demand for domestic goods increase. These capacity increases need using skilled and productive labor forces and resources. These factors cause innovation, creating new enterprises and activities. From import aspect, capital and intermediate goods which transfer technology to domestic enterprises, increase domestic production enterprises' capacity. In addition, trade spillovers help other companies to create new approach toward production procedures. Then, this procedures cause various incentives in domestic enterprises.

Entrepreneurs have some important characteristics including entrepreneurial vision, personal need for achievement, and attitudes towards risk and self-confidence

(Djankov et al., 2006) which recognized as 3A including aspiration, activity and attitude. Entrepreneurial aspiration levels are explained by means of motives (Clercq et al, 2008) and regarding to GEM, it has two dimensions including international orientation and new product early-stage entrepreneurial activity. However, two main elements of entrepreneurial attitude are recognizing business opportunities and the ability to take a calculated risk (Lunnan et al. 2006, Zali et al, 2013). In addition, percentage of adult population (18–64 years old) that is either actively involved in starting a new venture or is the owner/manager of a business that is less than 42 months old is defined as the total entrepreneurial activity, tea, (Reynolds et al., 2002).

### 3. Literature Review

The Global Entrepreneurship Monitor (GEM) model, first published in Reynolds et al. (1999), has suggested relationships between established and new business activity and economic growth at the national level (Levie and Autio, 2008). However, the idea that entrepreneurship and economic growth have very closely and positively link together have been created since the early works of Schumpeter (1911). Studies such as Zali et al. (2013) and Aghion (2017) focused on the effect of entrepreneurship on economic growth. Zali et al. (2013) explained the impact of three major elements of entrepreneurship on economic growth in 11 Asian countries that are the members of the GEM during 2008-2012. In the conceptual framework of GEM, the 3A model<sup>1</sup> of entrepreneurship includes entrepreneurial attitude, activities, and aspirations. In this study they apply the econometric model in the framework of panel data approach. The empirical results

confirm that among the entrepreneurship variables, aspiration has more effect on economic growth.

Dejardin et al. (2000) investigate the relation between entrepreneurship and economic growth. They find bilateral relation between them and mention that, while more entrepreneurship increase economic growth, it in turn affects the individual arbitrage between different professional occupations (including entrepreneurship) and expected payoffs.

Stel et al. (2005) consider the effect of total entrepreneurial activity on GDP growth for a sample of 36 countries. They tested whether this influence depends on the level of economic development measured as GDP per capita. They found that entrepreneurial activity affects economic growth through nascent entrepreneurs and owner/managers of young businesses, while such impact depends upon the level of per capita income. This suggests that entrepreneurship plays a different role in countries in different stages of economic development.

In addition, some studies compare the effect of internal and external entrepreneurship on growth and mention that external entrepreneurship affects growth. Hoa (2012) studied the role of international trade and openness in support of local entrepreneurship in high growth enterprises in Vietnam in the past two decades. His findings indicate that financing and domestic regulatory support internal entrepreneurship. In addition, globalization in terms of liberalized trade and especially as a result of increased foreign direct investment, technology transfer, and also “good” policy reform have positive effects on entrepreneurship.

Fabling and Sanderson (2009) study the role of entrepreneurial exporting behavior in firm-level merchandise trade in New Zealand. They consider two aspects of the dynamics of trade through contribution of novel export activity to aggregate trade

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<sup>1</sup> See Zali et al. (2013) for further information.

growth and the substantial exit rates of new trade relationships. They show that there are significant relationship between growth in the share of employing firms and exports, and a steady increase in the real value of merchandise trade. They explained that much of trade growth is due to innovation.

Fernandes et al. (2013) assess the extent of “export entrepreneurship” during 2005-2007 and depressed external demand during 2008-2009 for Latin American and Caribbean countries. Their main findings refer to annual exporter entry, exit, and survival rates in Latin America and the Caribbean are quite similar to what is observed in other countries. Their findings indicate that the Latin American and Caribbean region appears to be no less entrepreneurial in terms of the extensive margins of exports than comparator countries.

Tayebi and Fakhri (2011) examined the impacts of international trade and economic globalization on entrepreneurship development. The core of their study relied on the OECD countries, which played a dominant role in the world trade relations. They have specified an econometric regression model, and then they have estimated the model by panel data using cross – sectional data of the selected OECD countries over the period 2000-2005. The results showed that both international trade and globalization affected significantly and positively entrepreneurship in the countries, implying that spillovers and technology transfer through international trade play significant role in the process of entrepreneurship development.

Holmes and Schmitz (2001) develop the technology-ladder model of Grossman and Helpman and introduce the conditions under which lowering of tariffs leads to improve productivity in entrepreneurial activities.

Gonzalez-Pernía and Peña-Legazkue (2011) investigate the effect of export-

oriented entrepreneurship on GDP growth for the 17 Spanish. They find evidence that regions with a higher percentage of adult population involved in export-oriented entrepreneurship achieves a higher economic growth. The relationship between export-oriented entrepreneurs and GDP growth has been greater as the intensity of foreign customers served by the entrepreneurial initiatives is higher.

Sekreter and Dilanchiev (2015) investigated the role of trade openness on entrepreneurship in Georgia during 2000-2013. They confirmed that trade openness positively affects entrepreneurship development in Georgia, while this effect statistically was weakly significant due to incomplete liberalization in this country.

Lungu (2019) extrapolated the Austrians’ approach to international trade by analyzing the entrepreneurial action. He concluded that the entrepreneur has a fundamental role in an economy and economic development concentrated around the economic actor, i.e. the entrepreneurs.

Neumann (2020) investigated the effect of entrepreneurship on economic, social and environmental welfare. This study shows that entrepreneurship can be one of economic development determinants.

Stoica et al. (2020) investigated the impact of different types of entrepreneurship on economic growth in 22 European countries during 2002–2018. Their findings indicate that all of entrepreneurship proxies affect economic growth positively.

From collected literature we can conclude that entrepreneurship affect growth positively. In short, entrepreneurship is widely recognized as being a fundamental driver of innovation, economic growth and job creation (Colantone and Sleuwaegen, 2007) and trade can encourage entrepreneurship through improving new technology, FDI spillovers and new idea from foreign entrepreneurs. In the literature, some of

studies show that trade has positive effect on entrepreneurship and some of them show entrepreneurship can motivate international trade. For identifying the relationship between entrepreneurship and international trade, we use causality test and then estimate a panel regression model of gravity framework. Then, by using gravity approach we try to study whether entrepreneurship can affect trade in the selected Asian countries during 2008-2018. Such effort looks new as there is a lack in the literature.

#### 4. The Methodology

##### 4.1. A Causality Relationship between Trade and Entrepreneurship

Granger testing is a common method of evaluating causal relationships (Granger, 1969). To investigate the null hypothesis that  $x$  does *not have* Granger causality relation with  $y$ , an equation should be applied in which  $y$  is regressed on lagged values of  $y$  and the lagged values of variable  $x$ . If one or more of the lagged values of  $x$  is significant, the null hypothesis will be *rejected* which indicate that  $x$  does not Granger cause  $y$ . This test is a standard and useful tool for investigating the causal relationship between two variables. This test statistic is based on the Wald statistics of Granger causality test (Dumitrescu and Hurlin, 2012). To test the hypotheses on the relationship between trade and entrepreneurship, we use the Granger-causality approach. The hypothesis is controversial as one is not sure which aspect of entrepreneurship causes an expansion in trade relations between trading partners. Thus, let us consider two covariance stationary variables, denoted by  $x$  and  $y$ ; observed on  $T$  periods and on  $N$  individuals. For each individual  $i = 1, \dots, N$ ; at time  $t = 1, \dots, T$ ; we consider the following linear model:

$$y_{i,t} = \alpha_i + \sum_{k=1}^K \gamma_i^{(k)} y_{i,t-k} + \sum_{k=1}^K \beta_i^{(k)} x_{i,t-k} + \varepsilon_{i,t} \quad (1)$$

where  $\beta_i = (\beta_i^{(1)}, \dots, \beta_i^{(k)})'$ . In order to simplicity, individual effects  $\alpha_i$  are supposed to be fixed. In addition, initial conditions  $(y_{i-k}, \dots, y_{i-0})$  and  $(x_{i-k}, \dots, x_{i-0})$  are given and observable. We assume that the panel is balanced and lag orders  $K$  are identical for all cross-section units of the panel. In a first part, we allow for autoregressive parameters  $(\gamma_i^{(k)})$  and regression coefficient slopes  $(\beta_i^{(k)})$  to differ across groups. The null hypothesis is as:

$$H_0: \beta_i = 0 \quad \forall i = 1, \dots, N \quad (2)$$

If a test confirms  $H_0$  hypothesis, one can conclude that there is not causality relationship. Otherwise a causality relationship between variables can be observed (Hurlin, 2007).

Having considered a causality relationship between trade and 3 aspects of entrepreneurship, we estimate Equation (3) and (4) as defined in the following. Equation (3) has been used to determine a causality relationship between trade and entrepreneurship in such a way trade causes entrepreneurship, while Equation (4) explains a relationship in which entrepreneurship causes trade.

$$y_{i,t} = \alpha_i + \sum_{k=1}^K \gamma_i^{(k)} y_{i,t-k} + \sum_{k=1}^K \beta_i^{(k)} x_{i,t-k} + \varepsilon_{i,t} \quad (3)$$

$$x_{i,t} = \sigma_i + \sum_{k=1}^K \varphi_i^{(k)} x_{i,t-k} + \sum_{k=1}^K \delta_i^{(k)} y_{i,t-k} + v_{i,t} \quad (4)$$

where  $y_{i,t}$  and  $x_{i,t}$  show entrepreneurship and trade in country  $i$  in time  $t$ .  $\varepsilon_{i,t}$  and  $v_{i,t}$  are disturbing terms.

The results for 10 selected Asian countries<sup>1</sup> are summarized in Tables 1-3, indicating that there are causalities between three aspects of entrepreneurship (entrepreneurial attitude, entrepreneurial activities and entrepreneurial aspiration)

<sup>1</sup>Our sample includes Iran, China, South Korea, Pakistan, Malaysia, Turkey, Japan, Russia, United Arab Emirates and Thailand

and international trade. The results confirms all aspects of entrepreneurship cause international trade in the selected Asian countries.

Causality relationships from trade toward entrepreneurship are summarized in Tables 4-6. Except for entrepreneurial activities, the results obtained show that

there are causality relationships between trade and other two aspects of entrepreneurship (entrepreneurial attitude and aspiration). Hence, international trade cause significantly entrepreneurial attitude and entrepreneurial aspiration in the selected Asian countries.

**Table (1): Panel Causality Estimation Results for the Selected Countries: Case A1\***

<b>Wald Test</b>			
Null Hypothesis:	$\beta(1)+\beta(2)+\beta(3)=0$		
Chi-square	15.63	Probability	0.0001

\*Case A1 considers causality between entrepreneurial attitude and international trade.

Source: Author

**Table (2): Panel Causality Estimation Results for the Selected Countries: Case A2\***

<b>Wald Test</b>			
Null Hypothesis:	$\beta(1)+\beta(2)+\beta(3)=0$		
Chi-square	4.68	Probability	0.0305

\*Case A2 considers causality between entrepreneurial activities and international trade.

Source: Author

**Table (3): Panel Causality Estimation Results for the Selected Countries: Case A3\***

<b>Wald Test</b>			
Null Hypothesis:	$\beta(1)+\beta(2)+\beta(3)=0$		
Chi-square	6.88	Probability	0.0087

\*Case A3 considers causality between entrepreneurial aspiration and international trade.

Source: Author

**Table (4): Panel Causality Estimation Results for the Selected Countries: Case A4\***

<b>Wald Test</b>			
Null Hypothesis:	$\delta(1)+\delta(2)+\delta(3)=0$		
Chi-square	18.62	Probability	0.0000

\*Case A4 considers causality between entrepreneurial attitude and international trade.

Source: Author

**Table (5): Panel Causality Estimation Results for the Selected Countries: Case A5\***

<b>Wald Test</b>			
Null Hypothesis:	$\delta(1)+\delta(2)+\delta(3)=0$		
Chi-square	2.40	Probability	0.1210

\*Case A5 considers causality between entrepreneurial activities and international trade.

Source: Author

**Table (6): Panel Causality Estimation Results for the Selected Countries: Case A6\***

<b>Wald Test</b>			
Null Hypothesis:	$\delta(1)+\delta(2)+\delta(3)=0$		
Chi-square	4.93	Probability	0.0263

\*Case A6 considers causality between entrepreneurial aspiration and international trade.

Source: Author

According to the causality results reported in Tables 1-6, three aspects of

entrepreneurship can be considered the determinants of international trade, so that

we can explore statistically their empirical effects on bilateral trade flows of the Asian countries.

#### 4.2. Empirical Model: An Application of the Gravity Approach

It is important to explore how extent to which entrepreneurship affects trade flows between selected Asian countries. To this end, we specify an augmented trade gravity including a set of gravity variables (GDP, distance, etc.) and, as discussed in Section 4.1, entrepreneurship variable proxied by 3 indicators: entrepreneurial attitude, activities and aspirations

The simplest case for considering gravity approach according to Anderson (1979) and Deardorff (1998) can be defined by Equation (5). In gravity model the economic size of the two countries (GDPs) and their geographical distance have positive and negative effects on bilateral trade, respectively. The bilateral trade gravity model is thus specified initially as follows:

$$\text{Trade}_{ijt} = f(\text{GDP}_{it}, \text{GDP}_{jt}, d_{ij}) \quad (5)$$

where  $\text{Trade}_{ijt}$  is the exchange of goods from country  $i$  to country  $j$  at time  $t$ , and  $\text{GDP}_i$  and  $\text{GDP}_j$  are incomes of countries  $i$  and  $j$  at time  $t$ , respectively.  $d_{ij}$  is geographical distance between trading partners  $i$  and  $j$ . As already discussed, entrepreneurship patterns can affect bilateral trade flows expectedly as an indicator of innovation. Hence the gravity model can be considered by including an indicator of entrepreneurship aspects shown namely in the 3A approach. A new gravity function is thus redefined as follows:

$$\text{Trade}_{ijt} = f(\text{GDP}_{it}, \text{GDP}_{jt}, d_{ij}, \text{Ent}_{it}) \quad (6)$$

where  $\text{Ent}_{it}$  denotes entrepreneurship patterns in exporter (country  $i$ ) at time  $t$ .

First, these models have been used for cross-country or multi-country time series data. This type of model estimation has been stipulated by many implicit and

explicit limits on model estimation such as biased relation. This is because there are some omitted variables in such estimates or some of the variables are not considered actually. Hence the heterogeneity could not be considered between countries. In recent years in order to solve these problems, economists used group data estimating for estimating the gravity model. This method considers heterogeneity and individual effects of countries and time effects can be studied in the context of it. In the group data method, the explanatory power of the model and efficiency increases (Deardorff, 1998). We use logarithmic form of variables as follow:

$$\begin{aligned} \text{LTrade}_{ijt} = & \theta_0 + \theta_{ij} + \theta_1 \text{LGDP}_{it} \\ & + \theta_2 \text{LGDP}_{jt} + \theta_3 \text{LDis}_{ij} \\ & + \theta_4 \text{Ent}_{kit} + U_{kijt} \end{aligned} \quad (7)$$

$$\theta_1, \theta_2, \theta_4 > 0, \theta_3 < 0, (k = 1, 2, 3)$$

where,  $\text{Ltrade}_{ijt}$  denotes the log value of trade from country  $i$  to country  $j$  in year  $t$ .  $\text{LGDP}_{it}$  and  $\text{LGDP}_{jt}$  are the log value of exporting country  $i$ 's and  $j$ 's GDPs in year  $t$ , respectively.  $\text{LDis}_{ij}$  is the log value of geographical distance between the capital cities of country  $i$  and  $j$ .  $\text{Ent}_{kit}$  shows country  $i$ 's entrepreneurship in year  $t$  and  $k=1, 2, 3$ .  $U_{ijt}$  denotes the error terms in time  $t$ .  $\theta_0$  denotes the intercept and  $\theta_{ij}$  stands for individual effects of a country pair between  $i$  and  $j$ .

Equation (7) has been estimated by the panel Generalized Least Squares (GLS) applying the cross-section data of 10 Asian countries during 2008-2018. We have used the GLS method to control for heteroskedasticity across panels (Greene, 2003). We use 3 proxies for entrepreneurship aspects including entrepreneurial attitude, activities and aspiration ( $\text{Ent}_{1it}$ ,  $\text{Ent}_{2it}$  and  $\text{Ent}_{3it}$ , respectively).

#### 5. Empirical Results

We summarize the results of the estimated trade gravity model in Tables (7), (8) and



(9). The empirical results are namely consistent with theoretical expectations. GDP's for both partners  $i$  and  $j$  have significantly positive effect on the selected Asian bilateral trade, indicating that wealthier countries trade more. However, geographic distance affects bilateral trade flows indirectly as expected. 3 proxies of entrepreneurship have significant and positive effects on bilateral trade flows of the countries during 2008-2018.

The estimated results reported in the tables indicate that all three aspects of entrepreneurship affect significantly and positively the bilateral export flows in the selected Asian countries. In comparison, due to the coefficient values, the effectiveness of aspiration is higher than those of entrepreneurial activities and attitudes. It implies that a percentage of entrepreneurs who indicate that at least 15% of the customers coming from overseas should play a significant role in promoting trade relations in such countries. Additionally, a percentage of entrepreneurs who indicate innovation in their products or services are able to make more demands for bilateral trade between countries.

In addition, other variables indicating GDPs and distance have been estimated significantly to show anticipated effects on trade flows in these countries.

**Table (7): Panel Estimation Results for the Selected Countries Based on Cross-sectional Time-series FGLS Regression: Entrepreneurial Attitude Effect**

Variable	Coefficient	Z-Statistic	P> Z
<i>LGDP<sub>it</sub></i>	0.94	9.13	0.001
<i>LGDP<sub>jt</sub></i>	0.54	6.11	0.000
<i>LDIS<sub>ij</sub></i>	-0.51	-3.37	0.000
<i>Ent<sub>1it</sub></i>	0.32	2.95	0.003
<i>Cons</i>	-22.10	-5.16	0.000
Wald Chi2= 206.74		Prob. > Chi2 = 0.0000	
LR chi2 = 412.93		Prob > chi2 = 0.0000	
$F_{Leamer} = 92.72$		Prob > F = 0.0000	

Note: Except for *Ent<sub>1it</sub>*, other explanatory variables are in logarithm.

Source: Author

**Table (8): Panel Estimation Results for the Selected Countries Based on Cross-sectional Time-series FGLS Regression: Entrepreneurial Activities Effect**

Variable	Coefficient	Z-Statistic	P> Z
<i>LGDP<sub>it</sub></i>	0.97	12.78	0.000
<i>LGDP<sub>jt</sub></i>	0.53	6.70	0.000
<i>LDIS<sub>ij</sub></i>	-0.52	-3.88	0.000
<i>Ent<sub>2it</sub></i>	0.06	2.13	0.033
<i>Cons</i>	-22.81	-5.94	0.000
Wald Chi2= 222.45		Prob. > Chi2 = 0.0000	
LR chi2 = 476.77		Prob > chi2 = 0.0000	
$F_{Leamer} = 107.69$		Prob > F = 0.0000	

Note: Except for *Ent<sub>2it</sub>*, other explanatory variables are in logarithm.

Source: Author

**Table (9): Panel Estimation Results for the Selected Countries Based on Cross-sectional Time-series FGLS Regression: Entrepreneurial Aspiration Effect**

Variable	Coefficient	Z-Statistic	P> Z
<i>LGDP<sub>it</sub></i>	0.98	13.80	0.000
<i>LGDP<sub>jt</sub></i>	0.53	6.83	0.000
<i>LDIS<sub>ij</sub></i>	-0.51	-3.83	0.000
<i>Ent<sub>3it</sub></i>	0.02	3.05	0.002
<i>Cons</i>	-20.57	-5.91	0.000
Wald Chi2 = 242.18		Prob. > Chi2 = 0.0000	
LR Chi2 = 464.62		Prob > Chi2 = 0.0000	
$F_{Leamer} = 103.51$		Prob > F = 0.0000	

Note: Except for *Ent<sub>3it</sub>*, explanatory variables are in logarithm.

Source: Author

Based on Empirical results reported in Tables (7)-(9), all three key components of entrepreneurship including entrepreneurial attitude, entrepreneurial activities and entrepreneurial aspiration affect international trade positively in 10 selected Asian countries. It shows that entrepreneurship leads to comparative advantage, which promotes international trade flows. Meanwhile, the coefficient of entrepreneurial attitude is greater than two other components indicating that it is more important for international trade. The results of this research emphasize with the role of entrepreneurship in expanding international trade that could help policymakers in the selected Asian countries to support innovative

entrepreneurs and eliminate the obstacles in the economic environment that they face.

## 6. Conclusion

The empirical results in this paper represented that there was an interacted causality between trade and entrepreneurship patterns in 10 selected Asian countries during 2008-2018. Since international trade is an important determinant of development in entrepreneurship, targeting development in trade relationship can cause growth in entrepreneurship through knowledge transfer and trade spillovers. International trade transfers technologies through products or capital goods as well as equipment, and encourages innovative activities. In addition, the results also showed that causality ran from entrepreneurship to trade, causing trade promotion in the selected countries.

More importantly, the empirical results of the trade model indicated that entrepreneurship affected trade patterns, where countries could increase their trade relations via innovation and creation arising from entrepreneurship. From a policy perspective, the results in this study imply that for accessing higher growth rate the Asian countries should have a macro view on the relationship between trade and entrepreneurship. The more opportunities gaining from entrepreneurship, the higher rate of trade relations, which results in a higher rate of economic growth.

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