

Entrepreneurship Causes Growth or Growth Causes Entrepreneurship? Evidence from Thailand

Muhammadsuhaimee Yanya¹, Roslan Abdul-Hakim² and Nor Azam Abdul Razak²

¹Communication Sciences Faculty, PRINCE OF SONGKLA UNIVERSITY, Pattani, THAILAND

²Department of Economics, College of Arts and Science, UNIVERSITI UTARA MALAYSIA
06010 UUM Sintok, Kedah Darul Aman, MALAYSIA

Abstract. The entrepreneurship seems to be an important source for economic growth. However most entrepreneurship literatures based their studies on evaluating the effect of entrepreneurship on economic growth. This study will evaluate the causal relationship between firm establishment as a proxy of entrepreneurship and economic growth by employing the growth accounting model. The empirical analysis bases on panel data of Thailand 76 provinces from 1997-2008. The results suggest that firm establishment plays a key role in increasing the Gross Provincial Products of Thai economy.

Keywords: Entrepreneurship, Economic growth, Causality, Thailand.

1. Introduction

Does economic growth increase when the number of new firm was established? Since the entrepreneurship is believed to be an important mechanism of economic growth and development (Schumpeter 1934[1]; Boumol, 2002[2]; Ven Stel, et al.2005[3]) by creating new jobs (Van Stel & Storey, 2004[4]), reducing unemployment (Evans & Leighton, 1989[5]), and increasing economic development and growth of a region (Van Stel, et al., 2005[3]; Acs, et al., 2008 [6]). They were also believed that they increase productivity by bringing new innovation and speed up structural changes by forcing existing businesses to reform and increase competition.

However, even these assumptions were strongly emphasized, the causal relationship between entrepreneurship and economic growth has not been explored. It is very important to explore the direction of the causal relationship between entrepreneurship and economic growth for the purpose of policy maker to make decision about whether or not they should encourage the entrepreneurship.

In Thailand, entrepreneurs constitute a large proportion of the adult workforce. According to GEM 2002 report, Thailand has the highest rate of entrepreneurship activity in Asia (Reynolds, et al., 2002[7]). The activities of entrepreneurs provide a major impetus of commercial activity. In 2005 Thailand had the highest Total Entrepreneurial Activity (TEA) index with over 20 percent of the adult populations claiming to be engaged in some form of entrepreneurship. And additional 14 percent of adults claimed to be owner-manager of businesses more than 3 and half years old. Even adults who are not themselves active entrepreneurs profess a positive attitude towards entrepreneurial activity. Some 86 percent of adults aged between 18-64 years say they would be willing to start new businesses. This means that individuals with an entrepreneurial mind set perceive business opportunities and actively pursue these opportunities through some forms of entrepreneurial endeavor. Furthermore, Global Entrepreneurship Monitor report year 2007 have shown that the level of Total Early-Stage Entrepreneurial Activity(Which is defined as percentage of 18-64 population who are either actively involved in setting up business they will own or co-own, nascent entrepreneur, and who are currently an owner-manager of a new business, i.e. new business ownership of Thailand is very

high, especially in the population ages between 18 to 34 years when compared to India, China, Japan, and Also America.

This study will focus on the causal relationship between entrepreneurship and economic growth of Thailand by investigating the causes of entrepreneurship on economic growth and the causes of economic growth on entrepreneurship through the Granger causality test based on the Growth Accounting model. Using firm establishment from 76 provinces of Thailand as a measurement for entrepreneurship.

2. Literature Review

Literatures study relating to entrepreneurship and economic growth mostly based their studies on developed economy especially America and Europe which is based on one direction of causality by assuming the entrepreneurship as exogenous variable.

Some of them study the effect of entrepreneurship on economic growth such as Acs and Armington (2005)[8], and Henderson (2006)[9]. These studies confirm that entrepreneurship contributes positively to economic growth. On the other side is the influence of economic growth on entrepreneurship which is studied by Van Stel, et al. (2007)[10] and Wennekers, et al. (2007)[11].

However, there were some studies try to investigate the two ways direction of relationship between entrepreneurship and economic growth such as Thurik, et al. (2008)[12], who investigated relationship between entrepreneurship and unemployment by estimating a two-equation Vector Autoregressive (VAR) model. They found that lagged levels of unemployment significantly drive the rate of business ownership and vice versa. Audretsch and Keilbach (2004)[13] investigated the two-way relationship between entrepreneurship capital and economic performance at a regional level by using three stage least squares (3SLS) to simultaneously estimated two equations capturing both impacts and causes of entrepreneurship. They found that entrepreneurship capital has a significantly positive impact on economic output and the spatially specific entrepreneurship capital is shaped by regional-specific factors.

In Thailand, there are small numbers of literatures about entrepreneurship, especially in the field of economics. Few of them such as Paulson and Townsend (2004)[14] had studied about entrepreneurship and financial constraints by using the data from rural and semi-urban of Thailand. There was a seminar on Entrepreneurship and Socio-economic Transformation in Thailand and Southeast Asia in 1993 held by Chulalongkorn University Social Research Institute and French Institute of Scientific Research for Development in Cooperation, divided their paper into five main parts. In each part of the seminar paper report about Thailand was included. However, in this seminar there was no study about relationship between entrepreneurship and economic growth.

3. Methodology and Data

To evaluate the causal relationship between firm establishment and economic growth of Thailand, we employ a standard growth accounting model which is augmented to include a measure of entrepreneurship as follows:

$$\left(\frac{\dot{Y}}{Y}\right)_t = \alpha + \delta(E)_t + \alpha \left(\frac{\dot{K}}{K}\right)_t + \beta \left(\frac{\dot{H}}{H}\right)_t + \gamma \left(\frac{\dot{L}}{L}\right)_t + \varepsilon \quad (1)$$

where (\dot{Y}/Y) is growth rate of per capita GPP of a province from time 0 to time t. E_t is the number of new firm establishment in a province at time 0 to time t. (\dot{K}/K) is the rate of change in physical capital of a province at time 0 to time t. Calculated from $\dot{K}_t = S - \delta K_{t-1}$, where S is Amount of saving in a province, K_{t-1} is stock of physical capital of Thailand at time t-1 and take this ratios to provincial level. (\dot{H}/H) is the rate of change in human capital of a province at time 0 to time t by using Average year of schooling of the working population in a province. (\dot{L}/L) is the rate of change in amount of labor of a province at time 0 to time t.

The Granger causality test would be applied to test the causal relationship between entrepreneurship and economic growth by applying the following steps: first the order of integration of the series(stationary) were needed to test for both variables by using the augmented Dickey Fuller (ADF) Panel Unit Root test, if the economic growth and entrepreneurship variable are stationary t-test or F-test will be used and the F-test

would be proposed if the causal variable can be made to appear only in first differences. Second step, the optimal lag length will be chosen by using the Schwarz Information Criterion (SIC) and the Akaike Information Criterion(AIC) and then the cointegration would be tested as the third step if non-stationary appeared for both variables. For testing the long run relationship, the Granger Causality Test will be applied at this step, with the null hypothesis that entrepreneurship does not granger cause economic growth and vice versa. To indicate how much the variability of Gross provincial product (YG) is explained by disturbances in firms establishment (EG) and vice versa, the variance decomposition and Impulse Response Function will be tests.

Given the model specification in Eq.(1), we collect the necessary data on the aforementioned variables for the 76 provinces in Thailand during the period 1997–2008. The data are obtained from four main sources: The National Statistical Office (NSO), Office of Small and Medium Enterprise Promotion (OSMEP), Department of Business Development (DBD), Bank of Thailand, Office of the National Economic and Social Development Board.

4. Results

The ADF panel unit root test results are presented in Table 1. We found that all variables included in this study are all integrated at order zero $I(0)$. Therefore the tests suggest that all of the variables in the equation are stationary at level. Thus we can directly estimate the VAR Granger Causality Test. In order to investigate the direction of causal relationship between Gross provincial products and firm establishment, whether the gross provincial product granger cause firm establishment or vice versa. We need to test these relationships by using panel granger causality with application of VAR method.

Table 1: Panel Unit Root Test Result

Level / $I(0)$				
Variable	Levin, Lin & Chu t	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square
YG	-18.8278 (0.0000)	-11.9053 (0.0000)	395.706 (0.0000)	387.494 (0.0000)
EG	-28.2639 (0.0000)	-21.5027 (0.0000)	655.451 (0.0000)	669.376 (0.0000)
EDUG	-130.304 (0.0000)	-47.6985 (0.0000)	735.196 (0.0000)	667.282 (0.0000)
KG	-203.055 (0.0000)	-55.9512 (0.0000)	462.113 (0.0000)	462.808 (0.0000)
LG	-222.788 (0.0000)	-40.2306 (0.0000)	578.200 (0.0000)	707.038 (0.0000)

Table 2: Granger causality test result.(VAR Granger Causality/Block Exogeneity Wald Tests)

Independent Dependent	YG		EG		KG		EDUG		LG	
	Chi-sq	Prob.	Chi-sq	Prob.	Chi-sq	Prob.	Chi-sq	Prob.	Chi-sq	Prob.
YG	-	-	9.49	0.0087	9.34	0.0093	6.72	0.0346	0.53	0.7655
EG	2.97	0.2359	-	-	42.13	0.0000	0.58	0.7457	0.86	0.6493
KG	33.91	0.0000	95.09	0.0000	-	-	14.88	0.0006	1.045	0.5930
EDUG	13.08	0.0014	11.12	0.0038	2.92	0.2314	-	-	0.069	0.9659
LG	0.94	0.6219	1.46	0.4801	0.97	0.6135	0.44	0.7998	-	-

Table 2 present the results for the Granger causality test which is based on the VAR Granger causality test, we found that there are significant relationships between YG and EG, KG and EDUG, which mean that firm establishment, growth in physical capital and growth in human capital are granger cause growth in gross provincial product. On contrary, growth of gross provincial product does not granger cause firm

establishment and growth of labour but granger cause growth in physical capital and growth in human capital. In Table 3, the variance decomposition of growth of gross provincial product (YG) clearly indicate that most (95.7%) of the variation of YG is explained by its own innovations even after 10th periods, while 1.26% of variation of YG is explained by disturbance of growth of firm establishment (EG).

Meanwhile in Table 4 the variance decomposition of growth of firm establishment (EG) indicates that most (94.6%) of the variation of EG is explained by its own innovations and only 0.28% of variation of EG is explained by disturbance of growth of gross provincial product (YG). These imply that even firm establishment (EG) does not have a great influence on growth of gross provincial product (YG) but the variance decomposition of growth of gross provincial product (YG) has been explained by growth of firm establishment (EG) that have a greater values than the variation of growth of firm establishment (EG) this explain the growth of gross provincial product (YG). This is consistent with the result of Granger Causality Test that the growth of firm establishment granger causes growth of gross provincial product but not vice versa.

Table 3: Variance Decomposition of EG

Period	S.E.	EDUG	EG	KG	LG	YG
1	29.55398	1.334181	98.66582	0.000000	0.000000	0.000000
2	31.28622	1.320638	95.10063	3.481570	0.082086	0.015075
3	31.34479	1.415071	94.77220	3.506198	0.085949	0.220584
4	31.45256	1.488775	94.65492	3.492803	0.092037	0.271466
5	31.46949	1.489790	94.61127	3.524123	0.092401	0.282419
6	31.47078	1.491682	94.60415	3.524162	0.092395	0.287614
7	31.47163	1.492326	94.60274	3.524087	0.092454	0.288391
8	31.47180	1.492339	94.60236	3.524313	0.092455	0.288535
9	31.47181	1.492358	94.60229	3.524310	0.092456	0.288581
10	31.47181	1.492362	94.60229	3.524310	0.092456	0.288587

Table 4: Variance Decomposition of YG

Period	S.E.	EDUG	EG	KG	LG	YG
1	6.624495	0.583240	0.048138	1.333447	0.022789	98.01239
2	6.720796	1.021837	1.182853	1.631203	0.029967	96.13414
3	6.735607	1.047323	1.193514	1.783542	0.092954	95.88267
4	6.740679	1.063137	1.266377	1.831155	0.092861	95.74647
5	6.741837	1.065730	1.268721	1.850944	0.092896	95.72171
6	6.742212	1.066985	1.269185	1.855033	0.092886	95.71591
7	6.742325	1.067422	1.269679	1.855813	0.092887	95.71420
8	6.742349	1.067475	1.269683	1.856030	0.092887	95.71392
9	6.742354	1.067490	1.269684	1.856064	0.092888	95.71387
10	6.742355	1.067494	1.269687	1.856070	0.092888	95.71386

The dynamic relationship between gross provincial product and Firm establishment were evaluated by using the Impulse Response Function. The results confirm that there are causal relationship between growth in firm establishment (EG) and growth in gross provincial product (YG), however, the growth in firm establishment (EG) has greater effect on growth in gross provincial product than vice versa.

In summary, there is only one way relationship between growth of output (gross provincial product) and entrepreneurship (firm establishment), that is increases in firm establishment could granger cause gross provincial products significantly. This means that firm establishment plays a key role in increasing of gross provincial products.

5. Conclusion

There are many studies try to link entrepreneurship and economic growth. We have attempted to capture these in a framework of growth accounting model by exploring the direction of causality using Granger Causality as a tool.

As an empirical finding, we find significant support for the notion that the firm establishment causes economic growth to increase but the change in economic growth does not cause new firm to establish. This may be explained by the data used in the study between years 1997-2008, which was the period of Asian economic crisis. At the time of crisis economic growth was at low level and number of unemployment was very high, the workers try to survive by becoming self-employment and establish new firm. A policy advice should come from this result, by promoting new firm to establish at the time of crisis would cause the economy to grow faster and easier to get out of the crisis.

To identify the causal effect of entrepreneurship on economic growth, future research should consider the role of entrepreneurial sectors in order to determine the policy and the sectors to be promoted.

6. References

- [1] Schumpeter, J.A. (1934), *The Theory of Economic Development*, Cambridge, MA: Harvard University Press.
- [2] Baumol, W. (2002), *The Free Market Innovation Machine: analyzing the Growth Miracle of capitalism*, Princeton : Princeton University Press.
- [3] Van Stel, A., Carree, M., & Thurik, R. 2005. The effect of entrepreneurial activity on national economic growth. *Small Business Economics*, 24(3): 311-321.
- [4] Van Stel, A., & Storey, D. 2004. The link between firm births and job creation: Is there a Upas tree effect? *Regional Studies*, 38(8): 893-909.
- [5] Evans, D., & Leighton, L. S. 1989. Some empirical aspects of entrepreneurship. *American Economic Review*, 79(519-535).
- [6] Acs, Z. J., Desai, S., & Hessels, J. (2008). Entrepreneurship economic development and institutions. *Small Business Economics*, 31(3), 219-234.
- [7] Reynolds, P., Bygrave, W., Erkkö, A. and Hay, M. 2002. *Global Entrepreneurship Monitor 2002 Summary Report*. Babson Park, MA: Babson College, Ewing Marison Kauffman Foundation and the London Business School.
- [8] Acs, Zoltan J. and Catherine Armington, 2005, "Using Census BITS to Explore Entrepreneurship, Geography, and Economic Growth," *Small Business Research Summary No. 248*, U.S. Small Business Administration's Office of Advocacy.
- [9] Henderson, Jason, 2006, "Understanding Rural Entrepreneurship at the County Level: Data Challenges," *Federal Reserve Bank of Kansas City, Omaha*.
- [10] Van Stel, A.J., D.J. Storey and A.R. Thurik (2007). The Effect of Business Regulations on Nascent and Young Business Entrepreneurship, *Small Business Economics*, 28, 171-186.
- [11] Wennekers, A.R.M., A.R. Thurik, A.J. van Stel and N. Noorderhaven (2007). Uncertainty avoidance and the rate of business ownership across 21 OECD countries, 1976-2004, *Journal of Evolutionary Economics*, 17, 133-160.
- [12] Thurik, A.R., M.A. Carree, A.J. van Stel and D.B. Audretsch (2008). Does Self-employment Reduce Unemployment? *Journal of Business Venturing*, 23 (6), 673-686.
- [13] Audretsch, D.B. and M. Keilbach (2004). *Entrepreneurship Capital – Determinants and Impact on Regional Economic Performance*, MPI Discussion Paper No. 3704, Jena: Max Planck Institute of Economics.
- [14] Paulson, A. L., and Townsend, R. (2004). Entrepreneurship and financial constraints in Thailand. *Journal of Corporate Finance*, 10, 229-262.