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Institutional factors, entrepreneurship capital types, and economic growth in Asian countries

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Abstract

This paper investigates the relationship between institutional factors, entrepreneurial types, and economic growth. The analysis is based on an unbalanced panel data of 18 Asian countries over 2006-2018 using a 3SLS estimation method. It extends the neoclassical growth model with entrepreneurship capital types as an endogenous variable to the economic growth function. **Findings/Originality**: The results show that new business density and productive entrepreneurship significantly affect GDP per capita. Additionally, a reverse impact of economic growth on entrepreneurship is revealed. Institution's constructs, namely corruption control and the rule of law, are crucial to entrepreneurship, which in turn stimulate economic growth. The results also confirm the significant role of human capital, accumulating domestic investment, economic openness, and controlling inflation in the economic growth model of the Asian countries.

Introduction

Entrepreneurship is a crucial engine of economic growth and other social aspects, playing a role as is a channel of transmission between institutions and economic development (Acs, Estrin, Mickiewicz, & Szerb, 2018; Baumol, 1990; Ivanović-Djukić, Lepojević, Stefanović, van Stel, & Petrović, 2018). The positive effect of entrepreneurial factors on economic growth is significant in Eastern or Western developed countries (Aparicio, Urbano, & Audretsch, 2016; Urbano, Audretsch, Aparicio, & Noguera, 2020). Meanwhile, entrepreneurial impacts on economic growth are vague, with mixed effects in developing and emerging economies (Hessels & van Stel, 2011). North (1990) provides a significant contribution, in theory, showing the importance of institutional factors in promoting growth, shaping the progressive intention of individuals in each society, and differences in the institution might lead to differences in national economic development. Institutional factors can influence economic growth through endogenous variables, including entrepreneurship and industrial development (Acemoglu, Gallego, & Robinson, 2014; Bjørnskov & Foss, 2016). The institutional factors are particularly useful in understanding how entrepreneurship is shaped and how entrepreneurs make decisions to improve economic development. However, new research questions about what institutional dimensions are conducive to entrepreneurship, which enhances economic growth and opens for new empirical studies (Urbano et al., 2020).

The mechanism of influence of the institutional environment needs to be clarified to understand why entrepreneurship types' impact on growth varies across regions and countries (Bjørnskov & Foss, 2016). David (2012) concludes that understanding the implications of the relationship between institutions, entrepreneurship, and economic growth can better encourage the dynamics of these sectors at the micro and macro levels, bringing about useful for strategic

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planning and public policy and providing new insights in these areas of research, which can complement and interdisciplinary links between institutional theory, entrepreneurial theory, and economic development theory. Moreover, Shane (2009) shows that government policies are unable to distinguish between productive and unproductive entrepreneurship and can produce long-term adverse effects on the economy due to inefficiency in resource allocation. Therefore, it is crucial to support institutions and entrepreneurship's theory to identify which types of entrepreneurship are good for economic growth and vice versa, or even destructive (Baumol, 1990).

Formal institutions include constituents such as contracts, procedures, political structures, and property rights associated with reducing regulatory transaction costs (North, 1990). Besides, there are procedural issues related to access to the market, financial system, recruitment and dismissal rules and controls, and political structures such as corruption, democracy, regulations, size and capacity of government, ownership regulations (Autio & Fu, 2015; Bruton, Ahlstrom, & Puky, 2009; Estrin, Korosteleva, & Mickiewicz, 2013). Formal institutions tend to reduce transaction costs to improve market efficiency in terms of price and distribution and may change in the short term to encourage or restrict individuals from making sound decisions.

Informal institutions include belief systems, social norms, cultures, and cognitive aspects (North, 2005). In particular, the belief system is the most used variable in the models through the process of socialization, which can affect entrepreneurial participation, welfare, and society. Social and cultural norms involve several variables, such as corruption control and community-based rules (Aparicio et al., 2016; Sobel, 2008). Cognitive aspects, such as confidence, motivation, and opportunity awareness, are the variables used (Estrin et al., 2013). These informal institutions tend to be rigid for a long time, reducing the uncertainty caused by individual and group decisions (Acemoglu et al., 2014).

Entrepreneurship is defined and approached on several levels, including self-employment (Reynolds et al., 2005), intrapreneurial behavior (Lumpkin & Dess, 1996), individual-level (Shane, 2009), and at the national level (Chowdhury, Audretsch, & Belitski, 2018). Baumol (1990) distinguished entrepreneurial activities at the national level into three types: productive, unproductive, and destructive. Productive entrepreneurship refers to any business that directly or indirectly contributes to the economy's net output or the ability to produce additional output by providing new products, production processes, innovation, and job creation. Unproductive entrepreneurship aims to seek transfers, usually through rent or takeover activities.

Shane (2009) examines entrepreneurship as an event or a process. Accordingly, entrepreneurship can be considered an individual trait/decision, a business/organization, or a social phenomenon. Entrepreneurship includes diverse activities such as total early-stage entrepreneurial activity (TEA) at the individual level, entrepreneurial capital at the national level, self-employment, entrepreneurial university, immigrant and transnational entrepreneurship, social entrepreneurship, and green entrepreneurship (David, 2012).

Institutions play a substantial role in directly explaining differences in economic growth and development between regions and countries (North, 1990, 2005; Robinson & Acemoglu, 2012). Poorly institutionalized governments may not encourage productive entrepreneurship but instead be inefficient or even destructive business activities (Parker, 2018). Institutional factors might facilitate or hinder entrepreneurial development by providing an appropriate environment or imposing barriers (Bruton et al., 2009). Government policies and processes, entrepreneurship and entrepreneurial skills, socio-economic factors, financial and non-financial support affect each stage of the entrepreneurial process from opportunity awareness to creating new businesses (Sine & David, 2010). Based on North (1990, 2005) past studies have demonstrated the premise of institutional factors on entrepreneurship, the rate of small business formation in a country, and the dynamics, efficiency, and economic activities of these enterprises (Aparicio et al., 2016; Bjørnskov & Foss, 2016; Boudreaux, Nikolaev, & Holcombe, 2018; Nikolaev, Boudreaux, & Palich, 2018;

Sobel, 2008). In particular, informal institutional factors influence entrepreneurship stronger and more positively than formal institutional factors (Thornton, Ribeiro-Soriano, & Urbano, 2011).

Previous studies adopted the neo-classical economic growth theory to estimate the impact of entrepreneurship on economic growth, assumed in production decisions (Aparicio et al., 2016). Schumpeter (1934) asserts that entrepreneurship encourages the process of innovation and thereby impacts economic development. Empirical studies confirmed the presence and role of entrepreneurship in growth models of countries, regions, and industries (Bjørnskov & Foss, 2016; Bosma, Content, Sanders, & Stam, 2018). Other studies continue this approach, demonstrating the link between entrepreneurship and economic growth based on the endogenous growth theory (Noseleit, 2013). Audretsch, Bönte, and Keilbach (2008) adopt both neoclassical growth theory and endogenous growth theory, which have affirmed the importance of linking entrepreneurship with economic growth and the role of the institutional environment in which this relationship takes place. The institutional economic theory with formal institutional factors is adopted to explain the difference in the outcome of entrepreneurship impacts on economic growth across cultures (Aparicio et al., 2016; Baumol & Strom, 2007).

The study examines the relationship between formal institutions, entrepreneurship capital types, and the economic growth of Asian countries. The findings might contribute to the literature of development economics by extending the neoclassical growth model with the addition of new business density and productive entrepreneurship as endogenous variables to the economic growth function of countries in Asia. Entrepreneurship is a significant mechanism for contribution to economic growth through sufficient institution bases, namely corruption control and the rule of law.

Methods

The study approaches the unbalanced panel data set of 18 countries in Asia over the period 2006-2018, which is classified according to World Bank's per capita income criteria and the availability of entrepreneurial activities, including:

1. Lower middle-income countries (India, Indonesia, Philippines, and Vietnam);
2. Upper middle-income countries (China, Iran, Kazakhstan, Malaysia, Thailand, and Turkey);
3. High-income countries (Cyprus, Israel, Japan, Qatar, Saudi Arabia, Singapore, South Korea, and the United Arab Emirates).

Detailed measurement variables and data sources are described in Table 1.

Table 1. Variable definition and sources of data

VARIABLES	Variable definition, data sources	Expected sign
GDP per capita	GDP per capita (constant 2010 US$), World Bank national accounts data, and OECD National Accounts data files.	
Labour (L)	Labour force, total, World Bank national accounts data, and OECD National Accounts data files.	
Capital (K)	Gross capital formation (constant 2010 US$), World Bank national accounts data, and OECD National Accounts data files.	(+)
Political instability and absence of violence (INS1)	Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and politically-motivated violence, including terrorism, Worldwide Governance Indicators (WGI), World Bank.	(+)

VARIABLES	Variable definition, data sources	Expected sign
Control of corruption (INS2)	Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests, Worldwide Governance Indicators (WGI), World Bank.	(+)
Regulatory quality (INS3)	Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development, Worldwide Governance Indicators (WGI), World Bank.	(+)
Rule of law (INS4)	Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence, Worldwide Governance Indicators (WGI), World Bank.	(+)
Government effectiveness (INS5)	Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies, Worldwide Governance Indicators (WGI), World Bank.	(+)
Voice and accountability (INS6)	Reflects perceptions of the extent to which a country's citizens can participate in selecting their government, as well as freedom of expression, freedom of association, and free media, Worldwide Governance Indicators (WGI), World Bank.	(+)
New business density	New registrations per 1,000 people ages 15-64, New businesses registered are the number of new limited liability corporations registered in the calendar year. World Bank's Entrepreneurship Survey and database.	(+)
Productive entrepreneurship	Job creation expectation driven-TEA, which is expected to create at least six new jobs and job growth rate of at least 50 per cent in the next five years, Global Entrepreneurship Monitor (GEM)	(+)
Unproductive entrepreneurship	Necessity-driven TEA, Global Entrepreneurship Monitor (GEM)	(+)
Controlled variables		
GDP growth (GDPr)	GDP growth (per cent), (constant 2010 U.S. dollars), World Bank national accounts data, and OECD National Accounts data files.	(+)
Inflation (INF)	Inflation, GDP deflator (annual per cent), World Bank national accounts data, and OECD National Accounts data files.	(+/-)
Agriculture (ARG)	Agriculture, forestry, and fishing, value added (per cent of GDP), World Bank national accounts data, and OECD National Accounts data files.	(-)
Economic openness (XOG)	Exports of goods and services (per cent of GDP), World Bank national accounts data, and OECD National Accounts data files.	(+)
Government primary balance (BAL)	Government primary balance, per cent of GDP (per cent of GDP), World Economic Outlook, IMF	(+/-)
Human capital (HMC)	Average total years of schooling for the adult population (years), Our World in Data	(+)

Neoclassical Economic Growth Model Extension

Cobb and Douglas (1928) have built a production function, which is named Cobb - Douglas function:

$$Y = f(K, L) = K^{\alpha} L^{\beta} \quad (1)$$

In which: Y represents the total production in an economy (GDP) in some years, K is the capital of the economy, L is labor in the economy. α is the partial elasticity of output with respect to capital and β is the partial elasticity of output with respect to capital. When $\alpha + \beta = 1$ represents a constant rate of return on the scale, it implies that doubling capital and labor doubles output. When $\alpha + \beta < 1$ shows the rate of return decreases with scale and when $\alpha + \beta > 1$ shows the rate of return increases with scale. Solow (1956) and Swan (1956) input technological progress (A) into a production function, which reflects long-term economic growth in the form of:

$$Y = f(K, L) \quad (2)$$

or

$$Y = Af(K, L) = AK^{\alpha} L^{\beta} \quad (3)$$

In which: A represents total factor productivity (TFP).
Increase two sides by the partial derivative with:

$$\partial Y = \partial A + \alpha \partial K + \beta \partial L \quad (4)$$

In which: ∂Y is the growth of output (GDP); ∂K is the growth of capital; ∂L is the growth of labour; ∂A is the increase in the total factor productivity.

Contributions of Solow (1956) and Swan (1956) with the development of the neoclassical growth model have led to a theoretical framework where economic growth is primarily explained by the accumulation of physical capital and labor. The technological progress sources are not explained by the neoclassical growth model, which is frequently known as the Solow-Swan residual or TFP.

Jones and Romer (2010) identify two approaches in explaining the residuals in the neoclassical growth model. The first approach focuses on the role of human capital, suggesting that real GDP per capita growth is positively related to a country's initial reserves or investment in human capital. The endogenous growth theory explains the role of technological progress, knowledge accumulation in growth, with technology as an endogenous variable, a leading determinant of growth (Romer, 1990). However, the explanation level is only above 50 percent of the variation of the TFP growth, and the residual in the neoclassical growth model is still very large (Barro & Lee, 1993). Thus, new factors are added to the endogenous growth model, including ideas, institutions, population, and human capital. In particular, the difference in institutions could be the underlying source of significant differences in countries' growth rates, helping to allocate resources and results effectively (North, 1990; Robinson & Acemoglu, 2012). Entrepreneurial activities in a productive institutional environment provide a transmission mechanism from innovation and technological progress to economic growth (Acs et al., 2018).

Based on the theoretical background analyzed, this study proposes an expanded neo-classical growth model with the addition of entrepreneurship as equation 5. The function reflects the dynamic model:

$$dY_{it} = \alpha_{it} + \beta_1 Y_{it-1} + \beta_2 X_{it} + \beta_3 Z_{it} + \mu_{it} \quad (5)$$

In which:

$dY_{it} = Y_{it} - Y_{it-1}$ is the first-order difference of Y, a derivative for real GDP per capita growth (GDPGR). Y_{it-1}: The logarithm of real GDP per capita is one term late, deriving the initial income level to control production capacity in the theory of neoclassical growth.
Xit is a set of variables in the neoclassical growth model, including:
Gross capital formation (K) is the reserve of investment capital. The relation between investment and growth has been summarized in the growth theory of Domar (1946).

Entrepreneurial activities are assessed through quantity and quality criteria. The quantity of entrepreneurship is measured by the number of newly registered limited liability companies per 1,000 people aged 15-64 (Chambers & Munemo, 2019).

The quality of entrepreneurship is assessed by productive and unproductive entrepreneurial activities (Baumol, 1990). Productive entrepreneurship is measured by the TEA rate (Chowdhury et al., 2018). Unproductive entrepreneurship activities are measured by the necessity-driven TEA rate because there is no better career choice (Sobel, 2008).

Z_{it}: The set of control variables comprise human capital, economic openness, primary government balance, inflation rate, and contribution of agriculture GDP, selected based on empirical research results (Barro, 2013; Harrison & Sayogo, 2014; Hwa, 1988; Romer, 1990).

Effect Model of Institutional Factors on Entrepreneurial Types

The link between entrepreneurship development and economic growth are reciprocal (Galindo & Méndez, 2014). Additionally, entrepreneurial development is influenced by formal and informal institutional factors (Acs et al., 2018; Aparicio et al., 2016; Berdiev & Saunoris, 2018; Chambers & Munemo, 2019; Fuentelsaz, González, & Maicas, 2019; Omri, 2020). Therefore, the equation examining the impact of institutional factors on entrepreneurial development is described as equations 6, 7, and 8:

$$New\ business\ density_{it} = \alpha_{it} + \beta_1 INS_{it} + \beta_2 Z_{it} + \mu_{it} \quad (6)$$
$$Productive\ entrepreneurship_{it} = \alpha_{it} + \beta_1 INS_{it} + \beta_2 Z_{it} + \mu_{it} \quad (7)$$
$$Unproductive\ entrepreneurship_{it} = \alpha_{it} + \beta_1 INS_{it} + \beta_2 Z_{it} + \mu_{it} \quad (8)$$

Where:
INS_{it} is institutional factors. The institutional environment in each country is derived by six-global public governance indicators set by the World Bank, including political instability and absence of violence, control of corruption, regulatory quality, the rule of law, government effectiveness, and voice and accountability. These six indicators cover three dimensions that fully reflect a country's institutional quality (North, 1990). This set of indicators is compiled from the survey results of businesses, people, and experts in developed and developing countries with a scale of approximately -2.5 to 2.5 corresponding to the lowest and highest quality for each indicator.
Z_{it}: Controlled variable in the model is the GDP growth rate.

Econometric Model

Zellner and Theil (1962) proposed using the three-stage least squares (3SLS) method to apply to the system of simultaneous equations. The advantage of 3SLS is asymptotically more efficient since it takes into account the correlation among the errors of each of the simultaneous equations of interest (Wooldridge, 2010; Zellner & Theil, 1962). The method also adjusts the weighting matrix for potential heteroskedasticity of the errors by estimating the coefficients within a generalized least square (GLS) framework, an approach outlined by Wooldridge (2010). This method is particularly suitable when an equation is overly identified. In the first stage, each reduced form equation is estimated, and the predicted values of endogenous values are stored. These values then are substituted for endogenous variables and the estimated structural equation. However, in calculating

residuals and standard errors, real endogenous values are used instead of predicted values. Once structural estimates have been obtained, we can use them to obtain hidden short-form estimates by resolving each endogenous variable through exogenous variables. Because 3SLS estimates take extreme identification limits, hidden short-form estimates derived from them are more effective than direct reduction estimates. Besides, the 3SLS method is more effective than the two-stage least squares (2SLS) method if the system of equations is adequately specified (Baltagi, 1998). Breusch and Pagan (1980) test of independence is applied to evaluate whether cross-equation disturbances are indeed correlated, which verifies the system estimation method's requirements. Besides, Hausman's test (1978) is adopted to determine if the system is adequately assigned and selects the appropriate estimation method between 3SLS and 2SLS. Hausman test method is performed with the null hypothesis of the differences in the regression coefficients among the 2SLS, and 3SLS estimation methods are not systematic. If this standard Hausman test rejects the null hypothesis that the conditional mean of the regressors' disturbances is zero, the applied researcher reports the 2SLS estimator. Otherwise, the researcher reports the 3SLS estimator, see (Hausman, 1978).

Results and Discussion

Table 2 presents the data's descriptive statistics that give all the essential information about the primary and control variables we have used in our empirics analysis.

Table 2. Descriptive statistics

VARIABLES	Mean	S.D	Minimum	Maximum
GDP per capita	20258.79	19079.51	1079.06	69679.09
GDP growth rate	4.87	3.96	-7.44	26.17
K	4.00e+11	8.37e+11	-5.11e+11	5.02e+12
L	9.39e+07	1.97e+08	531589	7.85e+08
INS1*	-0.40	0.92	-1.91	1.11
INS2*	-0.061	0.88	-1.78	1.62
INS3*	0.58	0.75	-0.68	2.44
INS4*	0.32	0.81	-1.72	2.26
INS5*	0.26	0.76	-1.06	1.84
INS6*	0.21	0.87	-1.0	2.25
New business density	3.25	5.81	0.04	39.04
Productive entrepreneurship	20.76	51.50	8.51	4.50
Unproductive entrepreneurship	21.99	63.25	15.87	1.62
INF	4.86	7.35	-24.34	35.57
AGR	6.57	5.67	0.02	20.41
XOG	54.65	41.95	12.52	228.99
BAL	-0.337	5.86	-17.20	29.80
HMC	9.50	2.02	4.90	13.20

Note: *Estimate gives the country's score on the aggregate indicator, in units of the standard normal distribution, ranging from approximately -2.5 to 2.5.

Table 3 presents the estimated results according to the 2SLS and 3SLS methods, respectively. The Breusch-Pagan test results show that the residual equations are not independent ($\rho < 0.001$) and, therefore, show that the equations need to be estimated simultaneously. The Hausman test results show that the specifications of the various equations are accurate, and the 3SLS method is appropriate and effective, while the estimation results of the 2SLS method are entirely consistent with the results of 3SLS ($\rho > 0.05$).

Table 3. Estimating entrepreneurship capital types and economic growth, 2SLS and 3SLS results

VARIABLES	Model 1		Model 2		Model 3	
	2SLS	3SLS	2SLS	3SLS	2SLS	3SLS
DV: GDPGR						
$Y_{(-1)}$	-0.036***	-0.029***	-0.038**	-0.029***	-0.022**	-0.026***
	(0.008)	(0.007)	(0.013)	(0.008)	(0.009)	(0.008)
LnK	0.013***	0.006**	0.016***	0.008**	0.006**	0.007**
	(0.003)	(0.002)	(0.005)	(0.003)	(0.003)	(0.002)
New business density	0.006***	0.003***				
	(0.001)	(0.0005)				
Productive entrepreneurship			0.005***	0.004***		
			(0.001)	(0.0007)		
Unproductive entrepreneurship					-0.0004	0.00003
					(0.0003)	(0.0001)
LnHMC	0.080***	0.057***	0.104***	0.068***	0.059**	0.072***
	(0.019)	(0.017)	(0.031)	(0.020)	(0.023)	(0.019)
OPEN	0.00008	0.0002**	0.0005**	0.0001**	0.0002**	0.0002**
	(0.00008)	(0.00007)	(0.0001)	(0.00009)	(0.00009)	(0.00008)
INF	0.0007*	0.001**	0.001*	0.0009**	0.0010**	0.0009**
	(0.0004)	(0.0004)	(0.007)	(0.0004)	(0.0005)	(0.0004)
AGR	-0.0008	-0.0007	0.0001	-0.0002	-0.0004	-0.0003
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
BAL	-0.0001	-0.0009*	-0.00001	-0.0008	-0.0006	-0.0006
	(0.0006)	(0.0005)	(0.0009)	(0.0006)	(0.0006)	(0.0006)
Constant	-0.171	-0.0006	-0.410	-0.181	-0.059	-0.079
	(0.115)	(0.105)	(0.204)	(0.133)	(0.121)	(0.114)
Obs	136	136	136	136	136	136
Breusch-Pagan test of independence: chi2(15) = 387.55, Pr = 0.0000;						
Hausman test: (2SLS versus 3SLS) : chi2(8) = 10.77, Prob>chi2 = 0.2152						

***, **, * indicate rejection of the null hypothesis at the 0%, 1% and 5%, respectively; Robust standard errors are in parentheses under each coefficient.

Gross capital formation increased by one percent, leading to growth from 0.006 percent to 0.008 percent ($\rho < 0.001$). New business density increased by one percent, leading to a growth of 0.003 percent ($\rho < 0.01$). Productive entrepreneurship increased by one percent, resulting in a growth of 0.004 percent ($\rho < 0.01$). Meanwhile, unproductive entrepreneurship harms growth, and this entrepreneurial activity does not seem to contribute to the growth of countries ($\beta = 0.00003, \rho > 0.1$). An average total of years of schooling for the adult population increased by one percent may, in turn, lead to growth from 0.057 percent to 0.072 percent ($\rho < 0.001$). Economic openness increased by one percent, positively impacting economic growth, 0.0001 percent -0.0002 percent ($\rho < 0.01$). An inflation rate of one percent would increase the growth by 0.0009 percent to 0.001 percent ($\rho < 0.01$). The impact of maintaining the state budget balance on economic growth is not significant. Meanwhile, the role of agriculture in Asian countries is not revealed in this study.

The estimation results in Table 4 show the critical role of corruption control and the rule of law for types of entrepreneurship development in countries. Economic growth provides an essential foundation for developing entrepreneurship in countries. The effectiveness of corruption control increased by one unit, and new business density increased to 0.439 percent ($\rho < 0.05$), and the unproductive entrepreneurship increased to 0.938 percent $\rho < 0.01$). The effectiveness of the rule of law increased by one unit, new business density increased to 0.995 percent ($\rho < 0.001$), productive entrepreneurship increased to 0.759 percent ($\rho < 0.01$), and the unproductive

entrepreneurship increased to 0.952 percent ($\rho < 0.01$). Economic growth in countries is tending to support entrepreneurship activities in nations. If economic growth increased by one percent, new business density increased by 0.281 percent $\rho < 0.001$), the productive entrepreneurship increased by 0.333 percent ($\rho < 0.01$).

Table 4. Estimating institutional factors and entrepreneurship types, 2SLS and 3SLS results

VARIABLES	Model 1 DV: New business density		Model 2 DV: Productive entrepreneurship		Model 3 DV: Unproductive entrepreneurship	
	2SLS	3SLS	2SLS	3SLS	2SLS	3SLS
INS1	-0.256	-0.349	0.098	-0.895	-0.556	-0.610
	(0.142)	(0.110)	(0.200)	(0.301)	(0.204)	(0.265)
INS2	0.414	0.439*	0.798	0.070	0.536***	0.983**
	(0.104)	(0.162)	(0.271)	(0.277)	(0.131)	(0.299)
INS3	-0.134	-0.214	-0.457	-0.207	-0.259	-0.421
	(0.048)	(0.072)	(0.159)	(0.060)	(0.085)	(0.118)
INS4	0.675***	0.995***	0.942**	0.759**	0.989**	0.952**
	(0.217)	(0.339)	(0.345)	(0.213)	(0.312)	(0.328)
INS5	-0.133	0.245	0.935	-0.049	-0.240	-0.636
	(0.045)	(0.832)	(0.301)	(0.021)	(0.115)	(0.296)
INS6	0.136	-0.381	0.870	0.305	0.241	0.315
	(0.045)	(0.139)	(0.310)	(0.123)	(0.858)	(0.119)
GDP growth rate	0.248**	0.281***	0.386	0.333**	0.221	0.495
	(0.083)	(0.067)	(0.190)	(0.151)	(0.068)	(0.153)
Constant	0.474	0.336	0.368	0.526	0.788	0.689
	(0.104)	(0.102)	(0.120)	(0.171)	(0.246)	(0.259)
Obs	136	136	136	136	136	136
Breusch-Pagan test of independence: chi2(15) = 387.55, Pr = 0.0000;						
Hausman test: (2SLS versus 3SLS) : chi2(8) = 10.77, Prob>chi2 = 0.2152						

***, **, * indicate rejection of the null hypothesis at the 0%, 1% and 5%, respectively; Robust standard errors are in parentheses under each coefficient.

The paper finds that entrepreneurship capital types have an essential impact on economic growth, based on creating new jobs, expanding tax bases for governments (Bosma et al., 2018; Sobel, 2008). However, low-quality entrepreneurial activities are driven by the need only to create jobs for owners and not bring spillover benefits to society, negatively impacting economic growth (Baumol, 1990).

The impact and contribution of entrepreneurship to national economic growth depend on the type of entrepreneurship with economic development (Adusei, 2016; Antony, Klarl, & Lehmann, 2017). Numerous studies have demonstrated that the impact of entrepreneurial activities depends on each country's economic development and has a U-shaped relationship (Amorós, Fernández, & Tapia, 2012). The impact of entrepreneurship on economic growth is different across countries and geographies, depending on the political structure and stage of economic development, the capacity and effectiveness of laws and regulations. TEA tends to be the highest among resource-based economies, declines for higher economic development levels, and is negatively correlated with economic development, economic growth, economic freedom, and global competitiveness (Szabo & Herman, 2014). The impact of entrepreneurship development on economic growth is not well promoted in developing countries and even shows adverse effects (Sautet, 2013).

Resource-based growth economies are dominated by low value-added goods and services production. During this period, non-agricultural self-employment rates are high, creating no

knowledge or innovation, and the impact of these factors on economic growth is limited (Acs et al., 2018). However, entrepreneurship still plays an essential role in the growth of these countries (Pogodaeva & Senchenko, 2017). There is a transition from self-employment to wage employment in efficiency-based countries because of the substitution between capital and labor generated during this period, which increases the benefits of wage employment and reduces the profits from self-employment (Acs et al., 2018). Innovation-based economies experience a decline in production and an increase in service provision, and information technology development provides more opportunities for entrepreneurship (Jorgenson, 2001).

The findings emphasize the role of corruption control and the rule of law in entrepreneurship development in countries and have similarities with recent studies (Acs et al., 2018; Aparicio et al., 2016; Berdiev & Saunoris, 2018; Fuentelsaz et al., 2019). Baumol (1990) argues that when the institutional structure discourages creative entrepreneurial talent and encourages redistribution and seeking rents, economic growth may be lower than its potential. Acemoglu et al. (2014) consider economic institutions critical because they affect the economic incentive structure in society. The quality of good political institutions reduces corruption and increases the government's governance efficiency, ensures political stability, and enhances the democratic freedom of the people, thereby improving the efficiency of investment capital and the increase in human capital accumulation, which indicate growth (Samadi, 2019). The quality of good economic institutions also improves the business environment, secure property rights, and transparent and consistent policies, thereby reducing transaction costs and increasing the scale of production in the economy (Redford, 2020). The high quality of economic and political institutions might positively affect entrepreneurial activities' quality and inhibit the unproductive entrepreneurship types (Chambers & Munemo, 2019; Omri, 2020).

The lag of GDP per capita (-1) harms economic growth in all research models, supporting the hypothesis of a conditional convergence of per capita income in the long run (Barro & Lee, 1993). As a result, countries are moving toward a normal long-term average income level; low-income countries likely grow faster than high-income countries. The findings also confirm the crucial role of capital and labor, economic openness, government budget balance, and inflation in the growth model among Asian economies.

The study has certain methodological limitations, including the size and nature of its sample and measurements. Further studies can cover other areas and different types of institutional factors, entrepreneurship capital types, and economic development outcomes.

Conclusion

Economic growth throughout history is only achieved by creating an appropriate institutional structure that leads to productivity-enhancing economic activities. The result reveals that entrepreneurial types significantly affect GDP per capita. Besides, economic growth has a reverse impact on entrepreneurship. The institutional aspect represented by corruption control and the rule of law plays a critical role in developing entrepreneurial types in Asian economies with an essential economic growth foundation. Macroeconomic intervention policies improve institutional quality, invest in human capital, accumulate domestic investment, promote comprehensive international economic integration, and control inflation, which plays a decisive role in promoting economic development.

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References

Acemoglu, D., Gallego, F. A., & Robinson, J. A. (2014). Institutions, human capital, and development. *Annual Review of Economics*, *6*(1), 875–912. https://doi.org/10.1146/annurev-economics-080213-041119

Acs, Z. J., Estrin, S., Mickiewicz, T., & Szerb, L. (2018). Entrepreneurship, institutional economics, and economic growth: An ecosystem perspective. *Small Business Economics*, *51*(2), 501–514. https://doi.org/10.1007/s11187-018-0013-9

Adusei, M. (2016). Does entrepreneurship promote economic growth in Africa? *African Development Review*, *28*(2), 201–214. https://doi.org/10.1111/1467-8268.12190

Amorós, J. E., Fernández, C., & Tapia, J. (2012). Quantifying the relationship between entrepreneurship and competitiveness development stages in Latin America. *International Entrepreneurship and Management Journal*, *8*(3), 249–270. https://doi.org/10.1007/s11365-010-0165-9

Antony, J., Klarl, T., & Lehmann, E. E. (2017). Productive and harmful entrepreneurship in a knowledge economy. *Small Business Economics*, *49*(1), 189–202. https://doi.org/10.1007/s11187-016-9822-x

Aparicio, S., Urbano, D., & Audretsch, D. (2016). Institutional factors, opportunity entrepreneurship and economic growth: Panel data evidence. *Technological Forecasting and Social Change*, *102*, 45–61. https://doi.org/10.1016/j.techfore.2015.04.006

Audretsch, D. B., Bönte, W., & Keilbach, M. (2008). Entrepreneurship capital and its impact on knowledge diffusion and economic performance. *Journal of Business Venturing*, *23*(6), 687–698. https://doi.org/10.1016/j.jbusvent.2008.01.006

Autio, E., & Fu, K. (2015). Economic and political institutions and entry into formal and informal entrepreneurship. *Asia Pacific Journal of Management*, *32*(1), 67–94. https://doi.org/10.1007/s10490-014-9381-0

Baltagi, B. H. (1998). On the efficiency of two-stage and three-stage least squares estimators. *Econometric Reviews*, *7*(2), 165–169. https://doi.org/10.1080/07474938808800150

Barro, R. J. (2013). Inflation and Economic Growth. *Annals of Economic and Finance*, *14*(1), 121–144. https://doi.org/10.1086/450067

Barro, R. J., & Lee, J.-W. (1993). *Losers and winners in economic growth*. Retrieved from http://www.nber.org/papers/w4341.pdf

Baumol, W. J. (1990). Entrepreneurship: Productive, unproductive, and destructive. *Journal of Political Economy*, *98*(5), 893–921.

Baumol, W. J., & Strom, R. J. (2007). Entrepreneurship and economic growth. *Strategic Entrepreneurship Journal*, *1*(3-4), 233–237. https://doi.org/10.1002/sej.26

Berdiev, A. N., & Saunoris, J. W. (2018). Corruption and entrepreneurship: Cross-country evidence from formal and informal sectors. *Southern Economic Journal*, *84*(3), 831–848. https://doi.org/10.1002/soej.12250

Bjørnskov, C., & Foss, N. J. (2016). Institutions, entrepreneurship, and economic growth: What do we know and what do we still need to know? *Academy of Management Perspectives*, *30*(3), 292–315. https://doi.org/10.5465/amp.2015.0135

Bosma, N., Content, J., Sanders, M., & Stam, E. (2018). Institutions, entrepreneurship, and

economic growth in Europe. *Small Business Economics*, *51*(2), 483–499. https://doi.org/10.1007/s11187-018-0012-x

Boudreaux, C. J., Nikolaev, B. N., & Holcombe, R. G. (2018). Corruption and destructive entrepreneurship. *Small Business Economics*, *51*(1), 181–202. https://doi.org/10.1007/s11187-017-9927-x

Breusch, T. S., & Pagan, A. R. (1980). The Lagrange multiplier test and its applications to model specification in econometrics. *The Review of Economic Studies*, *47*(1), 239–253. https://doi.org/10.2307/2297111

Bruton, G. D., Ahlstrom, D., & Puky, T. (2009). Institutional differences and the development of entrepreneurial ventures: A comparison of the venture capital industries in Latin America and Asia. *Journal of International Business Studies*, *40*(5), 762–778. https://doi.org/10.1057/jibs.2009.3

Chambers, D., & Munemo, J. (2019). Regulations, institutional quality and entrepreneurship. *Journal of Regulatory Economics*, *55*(1), 46–66. https://doi.org/10.1007/s11149-019-09377-w

Chowdhury, F., Audretsch, D. B., & Belitski, M. (2018). Institutions and entrepreneurship quality. *Entrepreneurship Theory and Practice*, *43*(1), 51–81. https://doi.org/10.1177/1042258718780431

Cobb, C. W., & Douglas, P. H. (1928). A theory of production. *The American Economic Review*, *18*(1), 139–165. Retrieved from http://www.jstor.org/stable/1811556

David, A. (2012). Entrepreneurship research. *Management Decision*, *50*(5), 755–764. https://doi.org/10.1108/00251741211227384

Domar, E. D. (1946). Capital expansion, rate of growth, and employment. *Econometrica, Journal of the Econometric Society*, *14*(2), 137–147. https://doi.org/10.2307/1905364

Estrin, S., Korosteleva, J., & Mickiewicz, T. (2013). Which institutions encourage entrepreneurial growth aspirations? *Journal of Business Venturing*, *28*(4), 564–580. https://doi.org/10.1016/j.jbusvent.2012.05.001

Fuentelsaz, L., González, C., & Maicas, J. P. (2019). Formal institutions and opportunity entrepreneurship: The contingent role of informal institutions. *BRQ Business Research Quarterly*, *22*(1), 5–24. https://doi.org/10.1016/j.brq.2018.06.002

Galindo, M.-Á., & Méndez, M. T. (2014). Entrepreneurship, economic growth, and innovation: Are feedback effects at work? *Journal of Business Research*, *67*(5), 825–829. https://doi.org/10.1016/j.jbusres.2013.11.052

Harrison, T. M., & Sayogo, D. S. (2014). Transparency, participation, and accountability practices in open government: A comparative study. *Government Information Quarterly*, *31*(4), 513–525. https://doi.org/10.1016/j.giq.2014.08.002

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, *46*(6), 1251–1271. https://doi.org/10.2307/1913827

Hessels, J., & van Stel, A. (2011). Entrepreneurship, export orientation, and economic growth. *Small Business Economics*, *37*(2), 255–268. https://doi.org/10.1007/s11187-009-9233-3

Hwa, E.-C. (1988). The contribution of agriculture to economic growth: Some empirical evidence. *World Development*, *16*(11), 1329–1339. https://doi.org/10.1016/0305-750X(88)90208-2

Ivanović-Djukić, M., Lepojević, V., Stefanović, S., van Stel, A., & Petrović, J. (2018). Contribution of entrepreneurship to economic growth: A comparative analysis of South-East transition and developed European countries. *International Review of Entrepreneurship*, *16*(2), 257–276.

Jones, C. I., & Romer, P. M. (2010). The new kaldor facts: Ideas, institutions, population, and human capital. *American Economic Journal: Macroeconomics*, *2*(1), 224–245. https://doi.org/10.1257/mac.2.1.224

Jorgenson, D. W. (2001). Information technology and the U.S. economy. *American Economic Review*, *91*(1), 1–32. https://doi.org/10.1257/aer.91.1.1

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, *21*(1), 135–172. https://doi.org/10.5465/amr.1996.9602161568

Nikolaev, B. N., Boudreaux, C. J., & Palich, L. (2018). Cross-country determinants of early-stage necessity and opportunity-motivated entrepreneurship: Accounting for model uncertainty. *Journal of Small Business Management*, *56*(S1), 243–280. https://doi.org/10.1111/jsbm.12400

North, D. C. (1990). A transaction cost theory of politics. *Journal of Theoretical Politics*, *2*(4), 355–367. https://doi.org/10.1177/0951692890002004001

North, D. C. (2005). *Understanding the process of economic change*. Princeton University Press.

Noseleit, F. (2013). Entrepreneurship, structural change, and economic growth. *Journal of Evolutionary Economics*, *23*(4), 735–766. https://doi.org/10.1007/s00191-012-0291-3

Omri, A. (2020). Formal versus informal entrepreneurship in emerging economies: The roles of governance and the financial sector. *Journal of Business Research*, *108*, 277–290. https://doi.org/10.1016/j.jbusres.2019.11.027

Parker, S. C. (2018). *The economics of entrepreneurship*. New York: Cambridge University Press.

Pogodaeva, T., & Senchenko, N. (2017). Institutions and economic growth in the resources intensive use economies. In M. H. Bilgin, H. Danis, E. Demir, & U. Can (Eds.), *Eurasian Studies in Business and Economics Book Series* (5th ed., pp. 105–123). Cham: Springer International Publishing.

Redford, A. (2020). Property rights, entrepreneurship, and economic development. *The Review of Austrian Economics*, *33*(1), 139–161. https://doi.org/10.1007/s11138-019-00485-6

Reynolds, P., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I., … Chin, N. (2005). Global entrepreneurship monitor: Data collection design and implementation 1998-2003. *Small Business Economics*, *24*(3), 205–231.

Robinson, J. A., & Acemoglu, D. (2012). *Why nations fail: The origins of power, prosperity and poverty*. London: Profile.

Romer, P. (1990). Endogenous technological change. *Journal of Political Economy*, *98*(5), s71–102.

Samadi, A. H. (2019). Institutions and entrepreneurship: Unidirectional or bidirectional causality? *Journal of Global Entrepreneurship Research*, *9*(1), 3. https://doi.org/10.1186/s40497-018-0129-z

Sautet, F. (2013). Local and systemic entrepreneurship: Solving the puzzle of entrepreneurship and economic development. *Entrepreneurship Theory and Practice*, *37*(2), 387–402.

https://doi.org/10.1111/j.1540-6520.2011.00469.x

Schumpeter, J. (1934). *The theory of economic development*. Cambridge: Harvard University Press.

Shane, S. (2009). Why encouraging more people to become entrepreneurs is bad public policy. *Small Business Economics*, *33*(2), 141–149. https://doi.org/10.1007/s11187-009-9215-5

Sine, W. D., & David, R. J. (2010). Institutions and entrepreneurship. In Wesley D Sine & R. J. David (Eds.), *Institutions and Entrepreneurship* (Vol. 21, pp. 1–26). Emerald Group Publishing Limited. https://doi.org/10.1108/S0277-2833(2010)0000021005

Sobel, R. S. (2008). Testing Baumol: Institutional quality and the productivity of entrepreneurship. *Journal of Business Venturing*, *23*(6), 641–655. https://doi.org/10.1016/j.jbusvent.2008.01.004

Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, *70*(1), 65–94. https://doi.org/10.2307/1884513

Swan, T. W. (1956). Economic growth and capital accumulation. *Economic Record*, *32*(2), 334–361. https://doi.org/10.1111/j.1475-4932.1956.tb00434.x

Szabo, Z. K., & Herman, E. (2014). Productive entrepreneurship in the EU and its barriers in transition economies: A cluster analysis. *Acta Polytechnica Hungarica*, *11*(6), 73–94.

Thornton, P. H., Ribeiro-Soriano, D., & Urbano, D. (2011). Socio-cultural factors and entrepreneurial activity: An overview. *International Small Business Journal*, *29*(2), 105–118. https://doi.org/10.1177/0266242610391930

Urbano, D., Audretsch, D., Aparicio, S., & Noguera, M. (2020). Does entrepreneurial activity matter for economic growth in developing countries? The role of the institutional environment. *International Entrepreneurship and Management Journal*, *16*(3), 1065–1099. https://doi.org/10.1007/s11365-019-00621-5

Wooldridge, J. M. (2010). *Econometric analysis of cross-section and panel data*. Cambrigde: MIT press.

Zellner, A., & Theil, H. (1962). Three-stage least squares: Simultaneous estimation of simultaneous equations. *Econometrica*, *30*(1), 54–78. https://doi.org/10.2307/1911287