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# Entrepreneurial Behaviour on the New Silk Road: Space for Improvement?

**Key words:** entrepreneurial behaviour; One Belt, One Road Initiative; cluster analysis

## Abstract

A number of studies point out a positive influence of entrepreneurship on economic growth. This is due to the role that entrepreneurs play in the economy by utilizing new knowledge, shaping markets, and pushing out unproductive incumbents. The ambitious One Belt One Road Initiative, which recently includes sixty Asian, African and European countries, aims at stimulating global economic development and prosperity. From the theoretical point of view, entrepreneurship is crucial for achieving the aim. Consequently, the intent of this paper is to analyze entrepreneurial behavior of the countries participated in the One Belt One Road Initiative, using the data from the Global Entrepreneurship Monitor (GEM). Distinct country clusters are identified and their entrepreneurial characteristics are interpreted.

## Introduction

There is a straightforward way of dealing with the influence of entrepreneurship on economic growth and regional development. In this thinking, entrepreneurs' businesses create new jobs, intensify competition and stimulate technological change. Consequently, a positive influence of entrepreneurship on economic growth and regional development is exerted (compare with Acs)<sup>1</sup>. However, as Acs<sup>2</sup> claims the reality is much more complex because high entrepreneurship rates may also indicate sluggish economy that does not create enough employment opportunities.

Regarding the level of economic development, Acs, Desai and Hessels<sup>3</sup> distinguish three phases that differ in their characteristics of entrepreneurship. The first phase is factor-driven economic development. Self-employment is of high importance in this phase. The second phase is efficiency-driven economic development. The importance of large firms is increasing and wage employment may be, therefore, preferred to self-employment in this phase. The third phase is innovation-driven economic development, which is characterized by a resurgence of entrepreneurship. Several reasons have been mentioned in this regard:

– Technological development has reduced the influ-

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<sup>1</sup> Z.J. Acs, How is entrepreneurship good for economic growth? *Innovations*, 1(1)/2006, pp. 97–107.

<sup>2</sup> *Ibidem*.

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<sup>3</sup> Z.J. Acs, S. Desai, J. Hessels, Entrepreneurship, economic development and institutions. *Small Business Economics*, 31(3)/2008, pp. 219–234.

ence of economies of scale. On the contrary, the flexibility of small firms is seen essential to adapt to changing economic conditions<sup>4</sup>.

- The importance of services has been increasing rapidly since the 1970s and small firms are more likely to engage in services than in manufacturing<sup>5</sup>.
- Audretsch<sup>6</sup> points out that entrepreneurship may be an attractive life-strategy for many people, including disadvantaged groups in the labour market (e.g., women, migrants and others).

Altogether, Acs, Desai and Hessels<sup>7</sup> claim that the influence of entrepreneurship on economic growth and regional development may differ between the efficiency-driven phase and innovation-driven phase. While the efficiency-driven phase indicates a negative influence of entrepreneurship on economic growth and regional development, the innovation-driven phase indicates a positive influence of entrepreneurship on economic growth and regional development. Moreover, Acs, Desai and Hessels emphasize the importance of distinguishing between the opportunity driven entrepreneurship on one hand and the necessity driven entrepreneurship on the other hand because the former type of entrepreneurship positively influences economic growth and regional development.

The above-mentioned considerations about the influence of entrepreneurship on economic growth and regional development are the main interest of this paper. In this regard, these considerations are embedded within the so called One Belt, One Road Initiative, which is described by Overholt as: “*a vision of common development of up to 60 (Eurasian and African) countries based on infrastructure development and common standards*”<sup>8</sup>. However, infrastructure development is only one piece of an overall approach to economic growth and regional development<sup>9</sup> and there are a number of

other influencing factors, including entrepreneurship<sup>10</sup>. Accordingly, it is desirable to understand the characteristics of entrepreneurial behavior in the particular One Belt, One Road Initiative countries in order to increase the potential of fruitful benefits from large infrastructure projects. This is also the main aim of this paper – to analyze the characteristics of entrepreneurial behavior in the One Belt, One Road Initiative countries. The paper is structured as follows. The following section presents the methodology of this paper. Empirical results are introduced and discussed in the subsequent section. The final section concludes.

## Methodology

The methodology of this paper is based on the Global Entrepreneurship Monitor (hereafter referred to as GEM) database. As Allen and others claim: “*GEM is a major research project aimed at describing and analyzing entrepreneurial processes within a wide range of countries*”<sup>11</sup>. Therefore, the GEM database is an appropriate source of information for our kind of analysis. In this regard, the following methodological steps were taken:

- Firstly, the countries that participate in the One Belt, One Road Initiative and concurrently in the GEM surveys were chosen. Overall, forty countries were included into the subsequent analyses.
- Secondly, the variables relating to entrepreneurial behaviour were selected (see table 1 for the list of these variables), and data for the last available year from the GEM Global Entrepreneurship Monitor database were taken.

<sup>4</sup> M. Raposo, Support policies to entrepreneurship [in:] Public Policies for Fostering Entrepreneurship, Berlin: Springer 2009, pp. 133–148; D.B. Audretsch, Entrepreneurship: a Survey of the Literature, Luxembourg: Publications Office of the European Union 2001.

<sup>5</sup> Z.J. Acs, S. Desai, J. Hessels, *op.cit.*

<sup>6</sup> D.B. Audretsch, *op.cit.*

<sup>7</sup> Z.J. Acs, S. Desai, J. Hessels, *op.cit.*

<sup>8</sup> W.H. Overholt, One Belt, One Road, One Pivot. Global Asia, 10(3)/2008, pp. 1–8.

<sup>9</sup> R. Capello, Space and theoretical approaches to regional growth [in:] Modelling Regional Scenarios for the Enlarged Europe, Berlin: Springer 2008, pp. 13–31; R. Crescenzi, A. Rodriguez-Pose, Innovation and Regional Growth, Berlin: Springer 2011,

<sup>10</sup> e.g. M. Fritsch, The effect of new business formation on regional development. empirical evidence, interpretation, and avenues for further research [in:] Handbook of Research on Entrepreneurship and Regional Development, Cheltenham: Edward Elgar 2011, pp. 58–106.

<sup>11</sup> I.E. Allen, N. Langowitz, M. Minniti, Global Entrepreneurship Monitor. 2007 Report on Women and Entrepreneurship. Wellesley: Babson College 2008.

Table 1. List of variables for further analysis

Variable	Description
OPPORTUNITIES	Percentage of 18–64 population who see good opportunities to start a firm in the area where they live
CAPABILITIES	Percentage of 18–64 population who believe they have the required skills and knowledge to start a business
INTENTION	Percentage of 18–64 population (individuals involved in any stage of entrepreneurial activity excluded) who are latent entrepreneurs and who intend to start a business within three years
TEA	Total early-stage Entrepreneurial Activity – percentage of 18–64 population who are either a nascent entrepreneur or owner-manager of a new business
ESTABLISHED BUSINESSES	Percentage of 18–64 population who are currently an owner-manager of an established business
MOTIVATION	Percentage of those involved in TEA that are opportunity motivated; divided by the percentage of TEA that is necessity-motivated
STATUS	High Status to Successful Entrepreneurs
CAREER	Entrepreneurship as a Good Career Choice

Source: GEM Global Entrepreneurship Monitor (2017) – Entrepreneurial Behaviour and Attitudes<sup>12</sup>.

- Thirdly, the structure of variables was simplified using principal component analysis (PCA). In this regard, the Measure of Sampling Adequacy (MSA) was calculated to decide on the inclusion of each variable into PCA. The threshold of 0.50, as suggested e.g. by Janssens and others<sup>13</sup> was used. The MSA results indicated that the MOTIVATION variable should be omitted from PCA. Hence, PCA was performed on the remaining seven variables (Varimax Rotation), extracting two principal components on the basis of the Kaiser’s criterion, i.e., eigenvalue of 1.0 or more<sup>14</sup>. Table 2 gives the rotated component matrix and loadings for the two components and related variables. Note that the two components explain more than 66% of total variance.

Table 2. Rotated Component Matrix (Varimax Rotation)

Variable	Component 1	Component 2
OPPORTUNITIES	0.694	0.369
CAPABILITIES	0.606	0.285
INTENTION	0.767	0.137
TEA	0.403	0.829
ESTABLISHED BUSINESSES	0.008	0.910
STATUS	0.767	0.025
CAREER	0.821	0.107

Source: own elaboration based on GEM Global Entrepreneurship Monitor (2017) – Entrepreneurial Behaviour and Attitudes<sup>15</sup>.

The two extracted components may be interpreted as follows. The first component is highly loaded by the five variables relating to entrepreneurial opportunities, capabilities, intentions, status and careers. Therefore, the first component is understood as a proxy of entrepreneurial potential in the countries (ENTREP\_POTENTIAL). The second component is highly loaded by the two variables relating to established businesses and early-stage entrepreneurial activity. Therefore, the second component is understood as a proxy of entrepreneurial density (ENTREP\_DENSITY). Note that component scores were calculated for all countries and that these scores were used for clustering and classification of countries.

- Fourthly, K-means clustering was applied to classify the forty countries from the first step of the methodology into four groups. Three variables were used in the clustering procedure, i.e. MOTIVATION, ENTREP\_POTENTIAL, and ENTREP\_DENSITY. The number of groups was determined by the variance ratio criterion (VRC) as suggested e.g. by Calinski and Harabasz<sup>16</sup>. This is also the main result to meet the aim of this paper. In addition, the country clusters were characterized, considering also relations to their socioeconomic development.

## Empirical results and discussion

Empirical results are discussed in the context of the four clusters of countries that were defined as the output of

<sup>12</sup> GEM Global Entrepreneurship Monitor (2017) – Entrepreneurial Behaviour and Attitudes, <http://www.gemconsortium.org/data/key-aps>, [12.12.2018].

<sup>13</sup> W. Janssens, K. Wijnen, P. De Pelsmacker, P. Van Kenhove, Marketing Research with SPSS. New York: Prentice Hall 2008.

<sup>14</sup> e.g. B.G. Tabachnick, L.S. Fidell, Using Multivariate Statistics. Boston: Pearson Education 2007.

<sup>15</sup> GEM Global Entrepreneurship Monitor (2017) – Entrepreneurial Behaviour and Attitudes, *op.cit.*

<sup>16</sup> T. Calinski, J. Harabasz, A dendrite method for cluster analysis. Communications in Statistics, 3(1)/1974, pp. 1–27.

PCA. Table 3 provides the characteristics of these clusters, while table 4 adds the list of countries classified into each of the clusters.

Table 3. Clusters of countries – characteristics

Characteristics	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Number of countries	9	3	17	11
MOTIVATION (mean, standard deviation)	1.80 (0.71)	5.87 (0.42)	1.18 (0.56)	2.76 (0.85)
ENTREP_POTENTIAL (mean, standard deviation)	0.74 (0.46)	0.47 (1.74)	0.11 (0.95)	−0.91 (0.42)
ENTREP_DENSITY (mean, standard deviation)	1.04 (0.75)	−0.67 (0.40)	−0.62 (0.49)	0.30 (1.09)
GDP per capita (USD, PPP)	11.456	89.936	20.219	28.948

Source: own elaboration based on GEM Global Entrepreneurship Monitor (2017) – Entrepreneurial Behaviour and Attitudes<sup>17</sup>; The World Bank Database (2017) for the data on GDP per capita (USD, PPP)<sup>18</sup>.

Table 4. Clusters of countries

Clusters	Countries
Cluster 1	Bangladesh, Ethiopia, Indonesia, Iran, Lebanon, Montenegro, Philippines, Turkey, Vietnam
Cluster 2	Qatar, Saudi Arabia, Singapore
Cluster 3	Bosnia and Herzegovina, Bulgaria, Croatia, Egypt, Georgia, China, India, Israel, Jordan, Kazakhstan, Macedonia, Pakistan, Palestine, Romania, Russia, South Africa, United Arab Emirates
Cluster 4	Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malaysia, Poland, Slovakia, Slovenia, South Korea, Thailand

Source: own elaboration based on GEM Global Entrepreneurship Monitor (2017) – Entrepreneurial Behaviour and Attitudes<sup>19</sup>.

Cluster 1 includes nine countries that are characterized by high values of the variables ENTREP\_POTENTIAL and ENTREP\_DENSITY. Hence, these are the countries with a relatively high number of entrepreneurs and with a high entrepreneurial potential, however, the

quality of entrepreneurs seems to be rather low, as indicated also by the variables MOTIVATION and also by the variable GDP per capita (PPP).

Cluster 2 includes only three high-income countries – Qatar, Saudi Arabia and Singapore. The common feature of these countries is a high value of the MOTIVATION variable. Hence, the opportunity driven entrepreneurship is the distinguishing feature of the three countries. On the contrary, entrepreneurial density is relatively low.

Cluster 3 includes eighteen countries. These are more developed countries, as indicated by the variable GDP per capita (PPP), which are characterized particularly by their necessity driven entrepreneurship. The values of the two remaining variables – of the ENTREP\_POTENTIAL variable and especially of the ENTREP\_DENSITY variable – are lower, suggesting a higher emphasis on large firms in economic structure of these countries.

Cluster 4 includes eleven countries that are characterized by relatively higher values of the MOTIVATION variable and of the ENTREP\_DENSITY variable. Hence, the countries are characterized by a high number of entrepreneurs who utilize market opportunities for their entrepreneurial activities. However, the low value of the ENTREP\_POTENTIAL variable, but also of the MOTIVATION variable, suggests a space for improvement.

Overall, our empirical results indicate that the distinction of the three phases of economic development – (1) factor-driven economic development; (2) efficiency-driven economic development; and (3) innovation-driven economic development – is relevant for the One Belt One Road Initiative countries. The first phase seems to be connected particularly with the characteristics of the cluster 1 countries, the second phase particularly with the characteristics of the cluster 3 countries, and the third phase particularly with the characteristics of the cluster 4 countries. However, the cluster 4 countries still lag behind the most developed countries, particularly when considering the MOTIVATION variable. Therefore, the potential of the innovation-driven phase of economic development seems to be not fully utilized. Altogether, the projects realized under the One Belt One Road Initiative create development potential for each of the four defined clusters of countries.

<sup>17</sup> GEM Global Entrepreneurship Monitor (2017) – Entrepreneurial Behaviour and Attitudes, *op.cit.*

<sup>18</sup> The World Bank Database (2017) for the data on GDP per capita (USD, PPP), <https://data.worldbank.org/data-catalog/>, [12.12.2018].

<sup>19</sup> GEM Global Entrepreneurship Monitor (2017) – Entrepreneurial Behaviour and Attitudes, *op.cit.*

## Conclusions

The aim of this paper was to analyze the characteristics of entrepreneurial behavior in the One Belt, One Road Initiative countries. This aim was achieved by identifying four clusters of countries with respect to the three variables relating: (a) to the importance of opportunity-driven entrepreneurship; (b) to entrepreneurial potential; and (c) to entrepreneurial density. In this regard, the features of the four clusters of countries indicate a relevance to the theoretical concept of the three phases of economic development – (1) factor-driven economic development; (2) efficiency-driven economic development; and (3) innovation-driven economic development. Moreover, there is a potential to stimulate economic development in all the four clusters of countries through entrepreneurship development. The One Belt One Road Initiative may play an important part in these efforts.

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