Article

Macro-economic Factors Influencing Tourism Entrepreneurship: The Case of Kazakhstan

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Abstract

Tourism development contributes to economic development. In emerging economies like Kazakhstan, tourism development needs active entrepreneurship. As the country emerges from the post-Soviet era, there has been an increase in economic development and prosperity. Entrepreneurship in the tourism sector can drive economies forward through the creation of new tourism and hospitality businesses. The macroeconomic environment can influence entrepreneurial activity. We use an autoregressive distributed lag (ARDL) model to examine

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the impact of macroeconomic factors on tourism entrepreneurship in Kazakhstan. Using data from 1996 to 2018, we find that there is a positive short-run relationship between wages in the tourism sector and entrepreneurship, suggesting that wage growth in the sector attracts entrepreneurs. In the long run, however, tourism sector wages have a negative relationship with entrepreneurship, suggesting that these higher wages represent a higher cost to entrepreneurship. There is also a strong positive relationship between national income and tourism entrepreneurship in Kazakhstan. Implications of macroeconomic policy changes for Kazakhstan and other emerging economies are discussed.

Entrepreneurship helps develop the economy by raising productivity, creating new employment opportunities, and creating and revitalising markets through new products and improved product development (Esfandiar et al., 2019; Guerrero et al., 2008). While some scholars have defined entrepreneurship as starting a new business (Moriano et al., 2012), others have proposed a broader definition to include activities such as innovation, business decisions that involve risk-taking and proactivity (Hernández-Perlines, 2016). Schumpeter (2017) calls entrepreneurs, 'creative destroyers'. Entrepreneurship is a bridge that links businesses to society to create economic benefits and satisfy wants and needs (Cole, 1946). Entrepreneurship is a catalyst for economic growth and development (Wilken, 1979) where it is a creator of values from nothing (Timmons & Spinelli, 2008). Consequently, Drucker (2017) defines an entrepreneur as an individual who seeks change, pursues opportunities and reacts quickly.

Therefore, entrepreneurial activity can be defined as a specific form of economic activity, undertaken by individuals, to start and develop a new business by taking responsibility and accepting risk in the organisation of an enterprise, based on their interests.

Tourism is a field with many opportunities for entrepreneurial development (Britton, 1991). Tourism-related sectors' interaction with other sectors can promote economic development and, by creating sustainable enterprises, can result in increasing the value and volume of profitable businesses (Ritchie & Crouch, 2003). Both regional and international

tourism development are driven by entrepreneurship and innovation (Lopéz et al., 2009). Entrepreneurship in the tourism industry has gained momentum (Getz et al., 2004). The role of tourism entrepreneurs is of vital importance for the development of various attractive destinations (Koh & Hatten, 2002).

Several studies have shown that one of the main objectives of tourism sector development is the creation of jobs, and entrepreneurship is a driver of this (Peters et al., 2009). Encouraging entrepreneurship in the sector leads to reduction in unemployment, increase in labour productivity of people and, consequently, increase in income of the local population (Samiei & Akhoondzadeh, 2014).

Given the importance of market development and entrepreneurship to economic growth, this research seeks to understand the relationship between entrepreneurship and macroeconomic indicators. Seeking a better understanding of entrepreneurial activity is important due to the special role played by entrepreneurship in fostering an innovative economy and the need for more strategic uses of limited resources. As noted by Esfandiar et al. (2019), there is a paucity of research, to date, investigating entrepreneurship in developing countries. This assertion holds even more true for studies at a macroeconomic level.

This research examines the role of tourism entrepreneurship in Kazakhstan. Since the cessation of the Soviet Union and its gaining of independence in 1991, Kazakhstan's economy has developed rapidly. Its market economy relies heavily on the oil and metal sectors. However, it has the natural and cultural resources for a thriving tourist sector (Abubakirova et al., 2016). The country can offer tourists a range of experiences and attractions (Tiberghien & Lennon, 2019). Geographic features include attractive mountain ranges, steppes, water resources and a rich historical and cultural heritage, promising a range of recreational activities (Aliyeva et al., 2019; Tiberghien, 2019).

This creates the prerequisites for sustainable development of international tourism. To date, international tourism is in its infancy in Kazakhstan. However, different forms of tourism are beginning to develop (Tiberghien & Xie, 2018). Business tourism is gaining momentum. Yet, the underdevelopment of the tourism infrastructure and questionable quality of service from tourism and hospitality service providers have, to date, also provided a barrier to further tourism development. Abubakirova et al. (2016) suggest that tourism development has been hampered by the lack of an educated and qualified workforce and the lack of government support.

The tourism industry in Kazakhstan has focused on the development of outbound tourism, while inbound and domestic tourism have not been

accorded the same level of attention. Domestic tourists are deterred by high prices (Allayarov et al., 2018). The overwhelming majority of travel agencies prefer to deal with helping Kazakhstanis travel abroad, with only a few firms facilitating inbound tourists. Tourism could become one of the stimuli for the development of the economy, as found in many other studies (Brida et al., 2016), and can provide opportunities to create additional jobs, expand the export potential of the market for goods and become one of the sources of foreign exchange earnings.

Given the above-mentioned findings, the objectives of this study are to assess the factors relating to the macroeconomic environment that influence tourism entrepreneurship in Kazakhstan. This is achieved by using available secondary data from 1996 to 2018, employing econometric methods. This research is a case study, which can contribute to the literature. Case studies aim primarily to expand and generalise theories (analytical generalisation) and not to enumerate frequencies (statistical generalisation) (Yin, 2009). In other words, the findings of these case studies are not representative in a general sense (Veal, 2006), but they intend to provide new resulting ideas (Xiao & Smith, 2006) or help understand and present theoretically relevant outlines and connections (Amaratunga & Baldry, 2001). This research demonstrates how tourism entrepreneurship influences and is influenced by the macroeconomic environment. Notably, for a destination just starting to develop its tourism industry, Kazakhstan provides a useful case for other emerging destinations (e.g. Koster & Rai, 2008).

The remainder of the article is structured as follows: the second section reviews the current literature on entrepreneurship and the role it plays in the economy. The third section presents several hypotheses based on this literature. The fourth section discusses the methodology and explains the methods used to assess the hypotheses. It also describes the data sources, data limitations and analyses. The fifth section outlines the results of the analyses, while the final section sheds light on discussion and conclusions, situates the findings of this research back into the wider literature, highlights the contribution of this research and its implications. Areas for future research are also noted.

Literature Review

Entrepreneurial activity is the combination of energy transformed into a final entrepreneurial product, including the education, experience, knowledge, skills and abilities of entrepreneurs (Kor et al., 2007). Entrepreneurial

activity is a dynamic process that encompasses all stages of the formation and development of a business: from an innovative idea to its successful commercialisation; from the idea of creating a new entrepreneurial business to the emergence of early entrepreneurs to a stable company operating in a complex competitive environment (Ivanov et al., 2014).

Entrepreneurs play an important role in fostering innovation and value creation in the tourism industry (Solvoll et al., 2015). There are several reasons why entrepreneurship in the tourism sector is important. As countries have evolved from manufacturing-based to service-based economies, more opportunities are created for business start-ups due to lower barriers to entry and the possibility of starting smaller companies (Duening et al., 2015). This is because service innovations are typically less resource-intensive than product innovations (Preissl, 2000), and the processes of manufacturing products are typically more structured and often technical (Sundbo, 1998). Second, increasingly smart technologies make it easier for entrepreneurs to start new businesses by raising consumer awareness and increasing the productivity of tourist enterprises (Koh, 2006). Third, entrepreneurial activity can be a lifestyle choice by satisfying an individual's need for self-fulfilment and provide higher incomes (King et al., 2014).

Tourism development in emerging economies like Kazakhstan needs active entrepreneurship (Kantarci, 2007b). In a country with significant tourist potential, the economy is historically oriented towards the extraction of minerals and raw materials (Jumadilova, 2012). Little tourism infrastructure exists. There is little practice of a customer-oriented service culture needed for tourism (Kantarci, 2007a). At the same time, the dependency on world commodity markets means that relying on minerals and raw materials makes countries like Kazakhstan economically vulnerable (Burke & Okulova, 2009). There is a need to diversify the country's economy, including the development of the tourism industry.

Macroeconomic Factors

The dynamics of entrepreneurship and economic growth are largely determined by macroeconomic environmental factors (Boettke & Coyne, 2009). The structural conditions of entrepreneurship are important elements in understanding the processes of creating a business (Morrison et al., 1999). The factors directly affect the availability of entrepreneurial opportunities in the external environment, as well as the willingness and ability of people to create their own businesses (Bryant, 1989). The

Global Entrepreneurial Monitor (GEM) project outlines the key structural conditions of entrepreneurship. These are financial support, national policy of the state, regulation of national policy, state programmes, education and training, introduction of scientific and technical developments, commercial and professional infrastructure, market openness/entry barriers, access to physical infrastructure, and cultural and social norms (Global Entrepreneurship Research Association, 2018).

Government policy at the national and regional levels provides significant assistance to the expansion of entrepreneurship, regarding taxation, provision of freedoms and existence of restrictions. The type of government structures and their ability to support development programmes, aimed at improving certain areas of the economy, can contribute to the formation of favourable conditions for the growth of entrepreneurial activity (Smallbone et al., 2010).

Many experts note the priority of financial support for the business: the availability of own or borrowed funds; the probability and guarantee of financial support and facilitating business relations in the financial world (Gnyawali & Fogel, 1994); and educational programmes that are available to contribute to the acquisition and cultivation of professional skills and skills necessary for entrepreneurial activity (Lordkipanidze et al., 2005).

New business trends and the availability of scientific and technical innovation determine the development level of a country's research and development (R&D) facilities. Structural conditions determine market openness and influence the impact of globalisation on its development (Nguyen et al., 2015). These conditions impact the degree of competition and stability of business confidence. To encourage entrepreneurship, it is important to create and maintain structures that can support small businesses, such as support services like accounting and legal services (Honggang & Shaoyin, 2014). The implementation of entrepreneurial activities is impossible without the provision of high-quality physical infrastructure, such as transportation, communications, utilities and the availability of land (Porter, 1997). Finally, certain perceptions and attitudes towards entrepreneurship depend on sociocultural norms held by a country's residents (Davidsson & Henrekson, 2002).

Entrepreneurial activity can be evaluated by certain indicators. At a macro/multinational level, the GEM (https://www.gemconsortium.org/) provides a comprehensive source of information for the analysis of entrepreneurship at the national level. The GEM seeks to understand different levels of entrepreneurial activity between countries. The project grew out of a collaboration between Babson College, USA, and London

Business School, UK, and began in 1999 (Pfeifer & Sarlija, 2010).GEM combines data from two studies: (a) Adult Population Survey (APS), which tracks the entrepreneurial attitudes, activity and aspirations of individuals among a minimum of 2,000 adults in each country and the (b) National Expert Survey (NES). The NES is conducted among at least 36 'experts' asking their opinion on 9 factors that are perceived as significantly influencing entrepreneurship. These factors are known as the Entrepreneurial Framework Conditions (EFCs).

The latest available data on Kazakhstan (2018) from the NES of the GEM report (Global Entrepreneurship Research Association, 2018) show that the top three ranked entrepreneurial indicators are 'Physical infrastructure' (3.62), 'Governmental support and relevance' (3.31) and 'Internal market dynamics' (3.26). These scores are averages on a 5-point Likert scale where 1 = 'highly insufficient' and 5 = 'highly sufficient'. The three lowest scoring indicators for 2018 are 'R&D transfer' (1.93), 'Entrepreneurial Education at School Stage' (2.03) and 'Entrepreneurial Finance' (2.12). Compared to 2017, 7 of the 12 indicators increased, and the other 5 decreased.

Macroeconomic Factors Affecting Tourism

The tourism-specific entrepreneurship literature identifies both, internal micro factors that contribute to entrepreneurship and external macro factors that also contribute to entrepreneurship. This literature notes that like other sectors, entrepreneurship in tourism and hospitality is affected by the macroeconomic environment (as noted earlier). Recent literature reviews of entrepreneurship in the tourism and hospitality sector have highlighted the importance of the external environment in the growth of the sector (Fu et al., 2019; Işıka et al., 2019). For example, within the context of the Philippines, a large-scale survey conducted by Roxas and Chadee (2013) found that government policies significantly contribute to the entrepreneurial orientation of owners and managers of firms in the tourism sector.

These policies include taxation laws, macroeconomic policies and regulations conducive to business. Their structural equation modelling approach also found the rule of law, regulatory quality and business support to be significant contributors. Skokic et al. (2016) note the issues hindering entrepreneurship in the tourism and hospitality sector of another former socialist economy, Croatia. These macroeconomic influences, which are critical factors for entrepreneurial growth, include a

shortage of capital and, hence, the ability to secure loans as well as the financial regulatory environment which includes taxes.

Wang et al. (2016) report how the institutional structure at the macro level can facilitate or inhibit, in the case of China, as entrepreneurial firms do not have resource independence or a clear legal identity. Galdon et al. (2013) argue that economic leakages, which can be prominent in tourism due to repatriated profits of transnational hotel groups and the high level of imported goods to service tourists' tastes, affect entrepreneurship in the tourism sector.

Specific to tourism, several authors have noted the meso-level or destination-level characteristics that influence entrepreneurship. This can include how 'mature' is the destination or where the destination and its tourism lie in the destination area life cycle (Weiermair et al., 2007). Lerner and Haber (2001) note that tourist-related infrastructure as well as destination characteristics like options for excursions and scenery are three environmental factors that contribute to small entrepreneurial tourism ventures. In their review, Fu et al. (2019) reveal that along with destination environment (these are the macro factors like government policies and the health of the macroeconomy), there are other destination-level antecedents such as destination location and its associated social and natural resources (Roxas & Chadee, 2013) and place identity, which contribute directly to entrepreneurial success (Hallak et al., 2014).

Study Objectives and Hypotheses

The overall goal of this research is to determine the macroeconomic factors that influence the degree of tourism entrepreneurship in Kazakhstan. We recognise that entrepreneurship is also dependent on internal firm-level factors, and in the tourism and hospitality sector, there are meso-or destination-level factors that influence entrepreneurship. Since a time series approach is taken for this research, we restrict ourselves to a macro-level analysis. As noted earlier and highlighted in the GEM reports, the main macroeconomic factors influencing entrepreneurship are national income, taxes, subsidies, investment, prevailing wages in the sector and availability of loans. Additionally, based on the literature cited earlier, we could also expect that entrepreneurship can contribute to the wider macroeconomic economy.

A country's general economic conditions influence the degree of economic and start-up opportunities (Levie & Autio, 2007). As noted in the GEM report (Global Entrepreneurship Research Association, 2018),

innovation levels increase with economic development levels. More sustainable development means enterprises are more globally competitive. This is a result of more intensive innovation activities and also further input to more intensive innovation activities. Based on a review of the literature, we propose the following hypothesis:

H₁: National income and tourism entrepreneurship have a positive relationship.

Taxes are a barrier to new business start-ups (Klapper et al., 2006). Davidsson and Henrekson (2002) note how taxes cause direct financial costs on firms that inhibit their growth and lower their profits. Conversely, subsidies represent governments' support of entrepreneurial firms through the funding of programmes, which provide direct funds, materials and information for new ventures (Dahles, 2005). Based on the earlier literature, we propose:

H₂: Subsidies and tourism entrepreneurship have a positive relationship.
H₃: Taxes and tourism entrepreneurship have a negative relationship.

Valliere (2010) highlights the importance of investment in the entrepreneurial framework provided by a country. Investment in discovery, invention, innovation and new venture creation necessarily foster entrepreneurial activity (Zahra & Wright, 2016). More intensive investment accounts for productivity differences between enterprises and highlights the link among technology, productivity and business dynamics (Doms et al., 2004). Therefore, we propose the following hypothesis:

H₄: Investment in the tourism sector and tourism entrepreneurship have a positive relationship.

Although it has been suggested that new business creation has been associated with low wages (Oosterbeek & van Praag, 1995), research of that nature includes small firms that close after a short time. However, over a longer period, productive and profitable firms are likely to grow (Geroski, 1995). As noted by Baily et al (1996), as firms grow and mature, wages and productivity of these new firms increase. So, some of the present low-wage firms will grow to be high-wage firms in the future. Hence, we propose the following hypothesis:
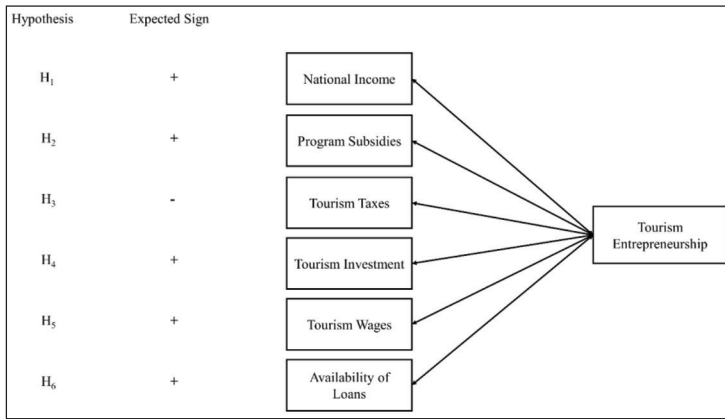
Hypothesis	Expected Sign
H_1	+
H_2	+
H_3	-
H_4	+
H_5	+
H_6	+

National Income

Program Subsidies

Tourism Taxes

Tourism Investment

Tourism Wages

Availability of Loans

Tourism Entrepreneurship

Figure 1. Conceptual Framework

Source: The authors.

> **H_5:** Tourism sector wage and tourism entrepreneurship have a positive relationship.

The ability to access finance is important for entrepreneurs (Leibenstein, 1995). Entrepreneurs might have innovative ideas but may need to loan funds to start the business. A lack of finance is the reason cited as a barrier for doing so (Choo & Wong, 2006; Kawai & Urata, 2002). Therefore, we propose the following hypothesis:

> **H_6:** The availability of loans and tourism entrepreneurship have a positive relationship.

Given the formulated hypotheses, Figure 1 shows the conceptual framework for the tourism entrepreneurship model:

Previous research has tended to investigate these issues from a microeconomic perspective among new businesses or potential entrepreneurs (e.g., university students studying business degrees). We take a macroeconomic perspective to address the research questions.

Methodology

Unlike other studies, this one takes a macroeconomic perspective to examine the antecedents of tourism entrepreneurship. We do this with

regression analysis to determine the most significant factors influencing the level of development of entrepreneurial activity in tourism in Kazakhstan.

Data and Operationalisation of Indicators

All of the data have been obtained from various databases and reports issued by the Ministry of National Economy of the Republic of Kazakhstan Statistics Committee (www.stat.gov.kz). The variable of interest is tourism entrepreneurial activity. The indicator for this variable will be the number of active individual entrepreneurs and small and medium enterprises (SMEs) for the tourism-oriented sectors. These data are sourced from various reports (Ministry of National Economy of the Republic of Kazakhstan Statistics Committee, 2007, 2012a, Table 2.12, 2017b, Table 2.12).

While governments have increasingly been making available various data sets in the name of good governance and transparency (Jauhari et al., 2019), the quality and reliability of such data sets can sometimes be questionable (Rothman, 2007). The data for this study are issued by the Republic of Kazakhstan government. While there are few other sources for this macroeconomic data, we admit that there could be some uncertainty about its quality, given that governments do not always prioritise data collection in their budget. We note this as a limitation.

For the national income indicator, we use GDP per capita in Kazakhstan Tenge (KZT) (Ministry of National Economy of the Republic of Kazakhstan Statistics Committee, 2014, 2017a, Table 11.23). Taxes are sourced from the System of National Accounts under the category 'Taxes on production, net of other subsidies for production', for the tourism-oriented sectors in millions of KZT (Ministry of National Economy of the Republic of Kazakhstan Statistics Committee, 2013, Table 6.15, 2017a, Table 6.15). The indicator for programme subsidies is subsidies for production and imports for the tourism-oriented sectors denoted in millions of KZT from the System of National Accounts (Ministry of National Economy of the Republic of Kazakhstan Statistics Committee, 2017a, Table 11.25). Tourism investment is sourced from the System of National Accounts' 'Investments in fixed assets of small enterprises', denoted in millions of KZT for the tourism-oriented sectors (Ministry of National Economy of the Republic of Kazakhstan Statistics Committee, 2013, Table 6.31, 2017a, Table 6.30). Tourism wages are measured as average monthly nominal wages in the tourism sector, expressed in KZT
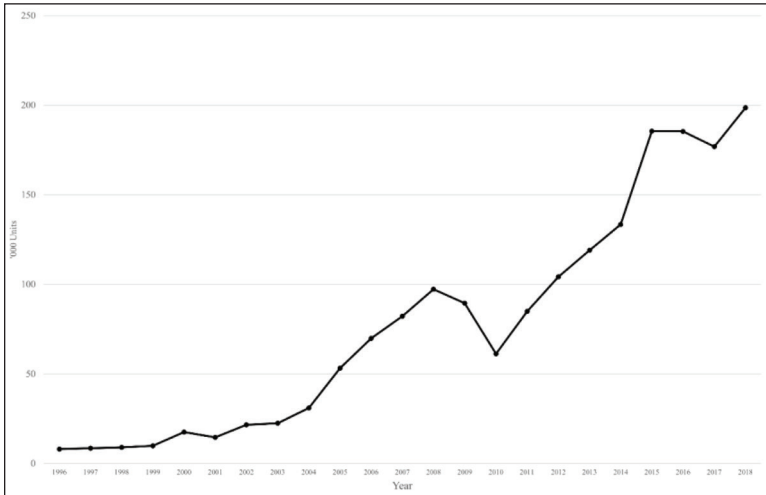
Figure 2. Active Individual Entrepreneurs and SMEs

Source: The authors.

(Ministry of National Economy of the Republic of Kazakhstan Statistics Committee, 2012b, Table 8.4, 2017c, Table 1.2). The availability of loans is measured as 'Loans from second-tier banks to small business entities' expressed in millions of KZT (Ministry of National Economy of the Republic of Kazakhstan Statistics Committee, 2013, Table 8.11, 2017a, Table 9.10).

The number of active individual entrepreneurs and SMEs in the tourism-oriented sectors from 1996 to 2018 is presented in Figure 2. In 1996, there were 7,945 individual and SME entrepreneurs in the tourism-oriented sectors. This increased rapidly until 2008, after which there was a decline for 2 years, primarily due to the Global Financial Crisis. However, from 2010, there has been a large increase in the number of entrepreneurs in the tourism-oriented sectors, plateauing in 2015 at185,545 units for several years before reaching a zenith in 2018 at 198,565 units. Across this period, the average annual increase was 18.5%.

Data Analysis

We first undertake a descriptive analysis of the indicators noted in the previous section. As per convention, we transform the data into logarithm

form to reduce the variability in it, while limiting heteroskedasticity or skewness in the data (Wooldridge, 2009). Table 1 presents the mean, standard deviation, minimum, maximum, skewness, kurtosis of entrepreneurship and other macroeconomic variables in their levels and natural log forms. There are 23 data points.

We follow this with correlation analysis and check for multicollinearity. The analysis is undertaken using EViews 8.0.

Table 2 shows that, except for tourism taxes, entrepreneurship has a very strong positive relationship with national income, subsidies, investment, wages and loans. The correlation coefficients for the variables in regular functional form and natural log form vary between 0.8 and 0.9, indicating that an increase in entrepreneurship will coincide with an increase in national income, subsidies, investment, wages and loans. Tourism taxes have a negative, but not statistically significant, relationship with entrepreneurship. Given the high correlations between these variables, we run ordinary least square (OLS) regression analysis of independent variables on the other independent variables. The variance inflation factors (VIFs) are presented in panel 3 of Table 2. As can be seen, except for subsidies and taxes, the other variables exhibit a high level of multicollinearity. Multicollinearity may result in coefficient estimates that change wildly based on which other independent variables are in the model (Hair et al., 2010). Excessive multicollinearity results in imprecise coefficient estimates that reduce the statistical power of the model. This makes including all these variables in further multivariate analyses unsuitable. Hence, we will progress with national income, wages and subsidies.

To assess the impact of macroeconomic variables on entrepreneurship, we use an autoregressive distributed lag (ARDL) model procedure. The first step is to define the ARDL model. The second step is to determine the optimal lag structure. We then perform several checks: (a) to ensure that the errors are not serially correlated and (b) to ensure the model is dynamically stable. We then perform the bounds test to assess if there is a long-run relationship. Finally, we then interpret the short-run dynamics and long-run equilibrium relationship between the variables. The generalised ARDL (p,q) model is specified as follows:

$$Y_t = \gamma_{0j} + \sum_{i=1}^{p} \delta_j Y_{t-i} + \sum_{i=0}^{q} \beta'_j X_{t-i} + \varepsilon_{jt} \tag{1}$$

where Y_t is a vector and the variables in X_t are either I(0) or I(1); β and δ are coefficients, γ is a constant, $j = 1$ to k, ε_{it} is a vector of the error terms which exhibit white noise characteristics, p and q are optimal lag orders,

Table 1. Descriptive Statistics of Variables from 1996 to 2018

Descriptive Statistics	Mean	Std. Deviation	Minimum	Maximum	Skewness	Kurtosis
Entrepreneurship (units)	77,520.30	63,837.01	7,945	198,565	0.592	2.113
National income (KZT)	1,150,927.00	1,041,735.00	90,882	3,382,500	0.671	2.136
Subsidies (millions KZT)	51,004.17	60,862.02	1,848	188,985	0.931	2.452
Taxes (millions KZT)	3,807.30	2,615.97	1,468	11,761	1.946	6.214
Investment (millions KZT)	86,007.17	89,117.32	1,143	321,768	0.827	3.082
Wages (KZT)	43,613.26	32,685.69	6,840	108,152	0.502	1.896
Loans (millions KZT)	1,158,782.00	941,024.40	60,953	3,002,974	0.283	1.942
Ln Entrepreneurship	10.79	1.11	8.98	12.13	−0.39	1.72
Ln National income	13.38	1.18	11.42	14.79	−0.30	1.63
Ln Subsidies	9.82	1.56	7.52	11.87	0.12	1.46
Ln Taxes	8.09	0.55	7.29	9.37	0.75	3.03
Ln Investment	10.16	1.93	7.04	12.07	−0.44	1.51
Ln Wages	10.34	0.89	8.83	11.46	−0.20	1.57
Ln Loans	13.35	1.40	11.02	14.92	−0.56	1.70

Source: The authors.
Note: $N = 23$

Table 2. Pearson Correlation Coefficients and Variance Inflation Factors (VIFs)

Correlations	Entrepreneurship	National Income	Subsidies	Taxes	Investment	Wages	Loans
Entrepreneurship	—	0.963*	0.908*	-0.134	0.935*	0.962*	0.927*
National income		—	0.970*	-0.234	0.969*	0.983*	0.867*
Subsidies			—	-0.263	0.914*	0.959*	0.799*
Taxes				—	-0.288	-0.271	0.024
Investment					—	0.948*	0.842*
Wages						—	0.898*
Loans							—

Correlations	Ln Entrepreneurship	Ln Income	Ln Subsidies	Ln Taxes	Ln Investment	Ln Wages	Ln Loans
Ln Entrepreneurship	—	0.982*	0.826*	-0.066	0.963*	0.961*	0.959*
Ln Income		—	0.888*	-0.180	0.971*	0.985*	0.929*
Ln Subsidies			—	-0.315	0.855*	0.901*	0.778*
Ln Taxes				—	-0.236	-0.264	-0.049
Ln Investment					—	0.973*	0.957*
Ln Wages						—	0.936*
Ln Loans							—

VIFs	Ln Entrepreneurship	Ln Income	Ln Subsidies	Ln Taxes	Ln Investment	Ln Wages	Ln Loans
Ln Entrepreneurship	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ln Income	N/A		79.19	38.87	47.76	26.53	51.78
Ln Subsidies	N/A	6.63		6.56	6.59	5.54	5.95
Ln Taxes	N/A	1.89	3.82		2.23	2.03	1.49
Ln Investment	N/A	32.36	53.38	31.03		48.00	22.47
Ln Wages	N/A	33.01	82.35	51.97	88.14		56.05
Ln Loans	N/A	23.76	32.62	14.07	15.21	20.66	

Note: *Correlation is significant at the 0.01 level (2-tailed).

p are lags for the dependent variable and *q* are lags for the independent variables. The lag lengths for *p* and *q* are not necessarily the same.

Pesaran et al. (2001) developed the 'bounds' test, which is the most appropriate co-integration approach to analyse the long-run effect of National Income and Wageson entrepreneurship. The 'bounds' test is based on an OLS estimation of the ARDL equation. This model has several advantages. The testing approach does not require pretesting for the order of integration of each variable of interest, as long as the underlying independent variables are I(0) or I(1). The approach also has the advantage over the Engle and Granger (1987) and Johansen (1995) methods of co-integration, in that the 'bounds' testing approach can capture long-run relationships with small sample sizes. Other ARDL approaches found in the literature with relatively small sample sizes include Gounder (2002) and Tang (2002).

As a first step, we check for stationarity of the time series data. Gujarati (2011) defines a time series as stationary if its mean and variance are constant over time. As with other analyses of this kind (e.g., Kim et al., 2006; Tang & Tan, 2015), we implement the Augmented Dickey-Fuller tests for unit roots (Table 3). As observed with many economic variables, all variables except for subsidies are integrated of order 1 (I(1)), except for investment, which is I(2). The same qualitative results are found when conducting the Phillips–Perron unit root tests (not shown).Therefore, we exclude subsidies from any further analysis.

Next, we determine the most appropriate lag length for the model. As noted by Goh and Wong (2014), short lag lengths may lead to incorrect specification, but longer lag lengths will decrease the degrees of freedom, which will be problematic in a study with a small sample size like this one. Based on several indices such as the Akaike information criterion and Schwarz information criterion, the Vector Auto Regressive (VAR) Lag Order Selection Criteria suggests a lag of 1 as the optimal lag length (Table 4).

The estimated equation is:

$$\Delta \mathrm{Ln}E_t = \gamma_0 + \delta_1 \Delta \ln E_{t-1} + \delta_2 \Delta \ln E_{t-2} + \beta_1 \Delta \mathrm{Ln} W_{t-1} + \beta_2 \Delta \mathrm{Ln}\, Y_{t-1} + \beta_3 \mathrm{Ln}\, W_{t-1} + \beta_4 \mathrm{Ln}\, Y_{t-1} + \beta_5 \mathrm{Ln}\, E_{t-1} + \varepsilon_{jt} \tag{2}$$

where E = entrepreneurship, W = wages, Y = income, ln is the natural logarithm and Δ is the first difference operator.

Table 3. Unit Root Tests (augmented Dickey–Fuller tests)

p-Values	Level	1st Difference	2nd Difference	Stationarity	Including
Ln Entrepreneurship	0.769	0.003		I(1)	Intercept and trend
Ln Income	1.000	0.096		I(1)	Intercept and trend
Ln Subsidies	0.704	0.949	0.008	I(2)	Intercept and trend
Ln Taxes	0.123	0.010		I(1)	Intercept and trend
Ln Investment	0.981	0.025		I(1)	Intercept and trend
Ln Wages	0.499	0.029		I(1)	Intercept and trend
Ln Loans	0.647	0.003		I(1)	Intercept and trend

Source: The authors.
Note: *MacKinnon (1996) one-sided p-values

Table 4. VAR Lag-order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	−23.151	NA	0.744	2.542	2.592	2.551
1	2.594	46.070*	0.055*	−0.063*	0.037*	−0.046*
2	2.998	0.681	0.059	0.000	0.149	0.025
3	3.003	0.007	0.065	0.105	0.304	0.139
4	3.033	0.044	0.073	0.207	0.456	0.249

Source: The authors.
Notes: *Indicates lag order selected by the criterion.
LR: sequential modified LR test statistic (each test at the 5% level); FPE: final prediction error; AIC: Akaike information criterion; SC: Schwarz information criterion; HQ: Hannan–Quinn information criterion.

Findings

We then ran the 'bounds' test of Pesaran et al. (2001) to check if there is any long-run relationship, that is, co-integrating relationships. The *F*-statistic of 10.44 is greater than the I(1) value of 6.36 at the 1% significance level, meaning that we cannot accept the null hypothesis that there is no co-integrating relationship. Therefore, there is a long-run relationship between the variables.

A key assumption of the Pesaran et al. (2001) methodology is that the errors of Equation (2) must be serially independent. We conducted the Breusch–Godfrey Serial Correlation LM test and the *p*-value associated with chi-square statistics was more than 0.05 (prob. chi-square (2) = 0.167). So, we cannot reject the null hypothesis. Hence, there is no strong evidence of serial correlation (Table 5).

We examined if the model is dynamically stable. For this, we conducted the cumulative sum (CUSUM) test. As can be seen from Figure 3, the CUSUM line is between the boundaries, so we concluded that the model is stable.

The 'bound' tests show if there is a long-run relationship between the variables in the model. Specifically, we tested $\beta_3 = \beta_4 = \beta_5 = 0$ as the null hypothesis. Table 6 presents the computed statistic falls between the value of the lower and upper bound at the 5% level of significance. This means that conclusive inference can only be made if the order of integration of each independent variable is known. However, at the 10% level of significance, the computed *F*-statistic (4.80) is greater than the upper bound critical value of 4.47. Therefore, there is evidence of a long-run relationship between the variables (Narayan, 2005).

Table 5. ARDL Model (unrestricted ECM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	−0.338	0.726	−0.466	0.650
ΔLnE_{t-1}	0.099	0.226	0.438	0.669
ΔLnE_{t-2}	0.251	0.202	1.242	0.238
ΔLnW_{t-1}	0.813	0.290	2.800	0.016**
$\Delta LnInc_{t-1}$	0.326	0.510	0.639	0.535
LnW_{t-1}	−0.741	0.238	−3.110	0.009***
$LnInc_{t-1}$	−0.546	0.285	−1.916	0.080*
LnE_{t-1}	1.041	0.303	3.435	0.005***
R^2	0.672	Mean dependent var	0.151	
Adjusted R^2	0.481	S.D. dependent var	0.235	
S.E. of regression	0.169	Akaike info criterion	−0.423	
Sum squared residuals	0.345	Schwarz criterion	−0.025	
Log likelihood	12.229	Hannan–Quinn criterion	−0.345	
F-statistic	3.513	Durbin–Watson stat	2.287	
Prob (*F*-statistic)	0.027			

Source: The authors.
Notes: ***p < 0.01; **p < 0.05; and *p < 0.1.
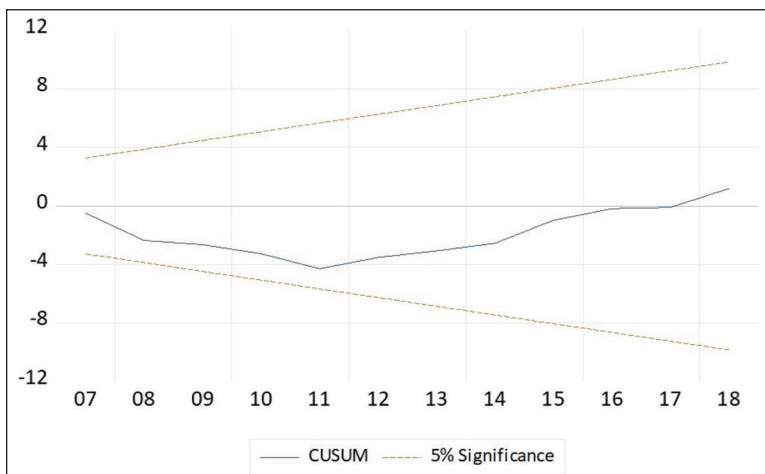
Figure 3. CUSUM for ARDL Model (Unrestricted ECM)
Source: The authors.

Table 6. Results of Bounds Test Approach to Cointegration

	Critical Value	
Computed *F*-statistic: 4.80*	Lower Bound I(0)	Upper Bound I(1)
1% Significance level	6.18	7.87
5% Significance level	4.27	5.47
10% Significance level	3.44	4.47

Source: The authors.
Notes: *Indicates that computed statistic falls between the lower and upper bonds value at the 5% level of significance. The Bounds critical values are obtained from Narayan (2005, p. 1988); Case III: Unrestricted intercept and unrestricted trend ($k = 2$).

The long-run multiplier between wages and entrepreneurship is − (−0.546/−0.741) = −0.736. In the long run, an increase of one unit of wages will lead to an increase of 0.736 units in entrepreneurship. Additionally, in the long run, an increase of one unit of income will lead to an increase of 1.404 units in entrepreneurship. As the function form is a double-log model, the coefficients can be interpreted as elasticities. We also note a significant short-run relationship between wages and entrepreneurship. A one-unit increase in the one-period lagged difference in wages ($\Delta \mathrm{Ln}W_{t-1}$) results in a 0.813 increase in entrepreneurship.

Table 7. ARDL ECM Model

Variable	Coefficient	Std. Error	*t*-Statistic	Prob.
Constant	−0.190	0.101	−1.878	0.079*
$\Delta \mathrm{Ln}E_{t-1}$	0.690	0.359	1.920	0.073*
$\Delta \mathrm{Ln}W_{t-1}$	0.312	0.258	1.210	0.244
$\Delta \mathrm{LnInc}_{t-1}$	1.230	0.485	2.536	0.022**
ECT	−1.240	0.414	−2.998	0.009***
R^2	0.524	Mean dependent var	0.147	
Adjusted R^2	0.405	S.D. dependent var	0.230	
S.E. of regression	0.177	Akaike info criterion	−0.415	
Sum squared residuals	0.504	Schwarz criterion	−0.167	
Log likelihood	9.362	Hannan–Quinn criterion	−0.361	
F-statistic	4.404	Durbin–Watson stat	1.861	
Prob (*F*-statistic)	0.014			

Source: The authors.
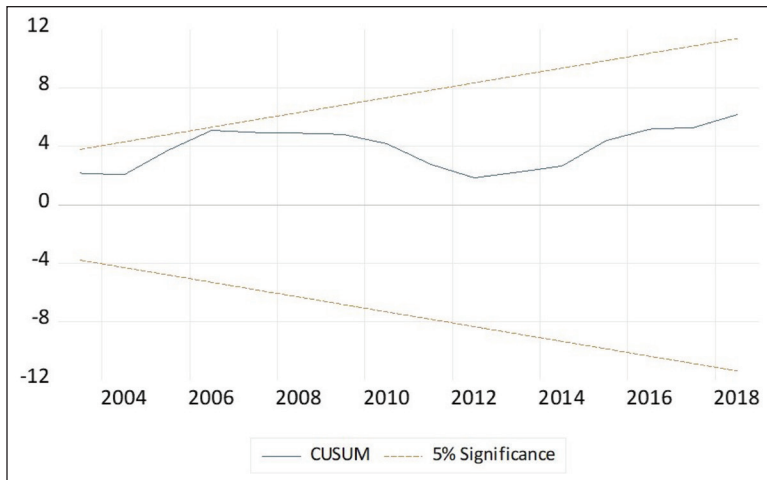**Notes:** ***$p < 0.01$; **$p < 0.05$; and *$p < 0.1$.

Figure 4. CUSUM for ARDL ECM Model

Source: The authors.

Given the long-run relationship, we derived the residuals from the long-run model and estimated the restricted error correction model (ECM). Table 7 shows that the coefficient of the error-correction term is negative and significant, which is to be expected if there is cointegration between entrepreneurship and the explanatory variables. If the error-correction term parameter is between −2 and −1, the 'errors' between shocks and the trend are reduced in less than 1 year (Loayza & Ranciere, 2004). The magnitude of this coefficient implies that the speed of adjustment from its long-run equilibrium is dynamically stable.

We again checked for serial correlation via a Breusch–Godfrey Serial Correlation LM Test and can report that the *p*-value associated with chi-square statistics was more than 0.05 (prob. chi-square (2) = 0.831), so we cannot reject the null hypothesis. Hence, there is no strong evidence of serial correlation.

Last, we examined if this ECM model is dynamically stable. Figure 4 shows that the model is dynamically stable, via the CUSUM test.

Discussion and Conclusions

In conclusion, this article sought to determine which macroeconomic environmental factors influence tourism entrepreneurship in Kazakhstan.

This study is important since tourism, here, is in an early stage of development. To date, the economy has relied heavily on the oil and metal sectors. Development of tourism and encouragement of tourism entrepreneurs help growth of the sector and offer an alternative income source and economic diversification. The novelty of this study is that there are few studies on the tourism sector for Central Asian countries in general, and Kazakhstan in particular (Kantarci, 2007a). As tourism is emerging here, baseline studies are important to provide a benchmark for academic researchers and policymakers for evidence-based decisions. This study is also one of the few to use publicly available secondary data to examine the macroeconomic external antecedents of entrepreneurship (Solvoll et al., 2015). Many of the previous studies have been taken at an individual level. Few studies have undertaken this type of time series analysis for entrepreneurship in the tourism sector.

All of the macroeconomic variables, except for taxation on the tourism sectors, are highly correlated with tourism entrepreneurship, as measured by the number of active individual entrepreneurs and SMEs. Given that the explanatory variables are highly correlated with each other, any regression analysis would be plagued with multicollinearity. Therefore, we implemented an ARDL model with national income and wages as explanatory variables. Results from this analysis show there is a positive short-run relationship with wages but a negative long-run relationship with the same variable. As with previous research (Baily et al., 1996), in the short run, high real wage growth is associated with increased productivity. High wage growth may be needed to attract higher-skilled labour. The negative long-run relationship may have several explanations. In the longer term, an increase in tourism entrepreneurs and SME firms may experience a decrease in productivity and real wages, as the quality of labour and entrepreneurship decreases. This could be associated with the law of diminishing returns; as there are more firms, they may not be as productive or efficient. Another explanation could be that after a certain point of high wage growth, this significantly impacts the capital to labour ratio. Capital may be substituted for more relatively expensive labour.

There is a long-run positive relationship with income. Our findings corroborate those of Geroski (1995), who notes that new start-ups are likely to see an increase in wages and salaries as businesses grow and become more profitable and productive. Those businesses that are not productive and profitable will close down (Baily et al.., 1996). In the long run, higher wages in the sector may represent additional higher

costs, making the start of a new business less attractive. Further, we also note, like Levie and Autio (2007), that the macroeconomic environment will influence the degree of entrepreneurial activities, like start-up opportunities.

Based on the correlation results, the following recommendations are suggested as policymakers can develop policies that encourage and support entrepreneurs. Some of these policies could be appropriate fiscal tools (subsidies and taxation schemes) that support new businesses and SMEs (Allayarov et al., 2018). The results show a strong link between investment and tourism entrepreneurship. Tseng (2012) shows the relationship between entrepreneurial infrastructures and new business development. This investment can come in the form of commercial and legal infrastructures and human infrastructure development, like education and training. In terms of physical infrastructure development, for the tourism and hospitality sector, the Kazakhstan government would be well advised to invest in transportation, like airports and roads, to enable tourism entrepreneurship to flourish. Given the importance of accessibility to finance, policymakers could encourage 'angel' investors and venture capitalists by allowing for a total and immediate write-off of invested capital against commitment for a multi-year, staggered investments in new ventures (Global Entrepreneurship Research Association, 2018). Entrepreneurs, themselves, need to optimise the use of digital technologies to create new products, services and seek new markets.

A lack of an enabling macroeconomic environment may also encourage and stimulate entrepreneurial activities and encourage new start-ups. For example, Amorós et al. (2019) argue that in less developed economies, the failure of the state to provide an enabling economic environment may drive and stimulate new enterprises, as individuals are forced to start ventures 'to meet their basic needs'. Kazakhstan as an emerging, post-Soviet, satellite economy with prospects for rapid tourism development is an appropriate case study for this. With the post-COVID-19 pandemic world being uncertain, a more liberal tourist visa regime and large-scale infrastructure development taking place in the country as part of China's Belt and Road Initiative will have some bearing on the macro environment for tourism entrepreneurial expansion.

Like most research, this study has some limitations. Data were only available from 1996 to 2018. This period covers 23 years, almost back to when Kazakhstan declared independence at the end of 1991. Data in the early years of the new Kazakh Republic were sparse, missing or unreliable. However, 23 data points are not many with which to undertake multivariate data analysis and hence is a limitation. Second, this analysis

uses secondary macro-level data. As such, the study uses very broad indicators to determine key factors influencing tourism entrepreneurship. Future research could include destination-level attributes in the study also (Fu et al., 2019). A complementary study could involve interviews with key stakeholders, like entrepreneurs in the accommodation and food services, arts, entertainment and leisure sectors concerning which factors most affect their decisions to start and maintain a tourism business.

Third, the focus of this study is Kazakhstan. It would be interesting to compare and contrast tourism entrepreneurship with other Central Asian countries like Kyrgyzstan and Uzbekistan. Another comparison could be with other countries that are in the 'factor-driven economic development phase'. The factor-driven phase is dominated by subsistence agriculture and extraction businesses, with a heavy reliance on (unskilled) labour and natural resources (Global Entrepreneurship Research Association, 2018).

Declaration of Conflicting Interests

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