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IMPACT OF THE ECONOMIC FREEDOM ON ENTREPRENEURIAL
ACTIVITY: EVIDENCE FROM GEM DATA

Master's Thesis by the 2nd year student
Concentration — Master in Management
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ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

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Аннотация

Автор	Валентин Андреевич Румянцев
Название ВКР	Влияние экономической свободы на предпринимательскую активность: выводы из данных GEM
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Научный руководитель	Ольга Рафаиловна Верховская
Описание цели, задач и основных результатов	<p>Цель исследования: определить факторы экономической свободы, которые влияют на уровень общей, вынужденной и добровольной предпринимательской активности в Центральной и Восточной Европе.</p> <p>Результаты: в ходе исследования было выявлено, что два фактора влияют на общий уровень предпринимательской активности: размер государства (положительное влияние), свобода от регуляций (положительное влияние), два фактора влияют на уровень добровольной предпринимательской активности: размер государства (положительное влияние), свобода от регуляций (положительное влияние), один фактор влияет на уровень вынужденной предпринимательской активности: размер государства (положительное влияние).</p>
Ключевые слова	Предпринимательство, экономическая свобода, GEM, Центральная и Восточная Европа

Abstract

Master Student's Name	Valentin Rumyantsev
Master Thesis Title	The Impact of the Economic Freedom on Entrepreneurial Activity: evidence from GEM data
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Academic Advisor's Name	Olga R. Verkhovskaya
Description of the goal and main results	<p>Research goal: to determine the factors of economic freedom that affect the total level, the level of opportunity, and necessity-driven entrepreneurial activity in Central and Eastern Europe.</p> <p>Results: the study revealed that two factors affect the total level of entrepreneurial activity: Size of Government (positive impact), Regulation (positive impact); two factors affect the level of opportunity-driven entrepreneurial activity: Size of Government (positive impact), Regulation (positive impact), one factor affects the level of necessity-driven entrepreneurial activity: Size of Government (positive impact).</p>
Keywords	Entrepreneurship, economic freedom, GEM, Central and Eastern Europe

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1 Introduction

Entrepreneurship has long been considered a fundamental building block of economic development (Schumpeter, 1934), innovation (Terjesen et al., 2016; Wong et al., 2005), productivity (Bjørnskov & Foss, 2008), and growth (Urbano et al., 2020; Wennekers & Thurik, 1999) of countries. For this reason, governments around the world are increasing the resources allocated to various programs and initiatives created to support the entrepreneurial initiative. However, with the growth of this trend, it becomes evident that a deep understanding of the main drivers of entrepreneurship development is needed.

The level of entrepreneurial activity varies significantly from country to country and from region to region. This is why some studies in the entrepreneurship literature have sought to identify factors that could explain differences in the level of entrepreneurial activity (Amorós et al., 2016; Aparicio et al., 2016; Chowdhury et al., 2015). The authors of these studies concluded that a significant part of these differences could be explained by the peculiarities of the institutional environment in which entrepreneurs work, namely, institutional quality. Institutional quality can be reflected in various institutional dimensions, but the critical element of such dimensions is economic freedom (Pastó & Esteban, 2007). This implies that society will be economically free if people have the freedom and the right to work, produce, consume, and invest in any manner consistent with the rule of law, and the state protects and respects this freedom (Gwartney et al., 1999). Thus, the primary purpose of our research is an empirical assessment and analysis of the influence of factors of economic freedom on the level of entrepreneurial activity.

This study focuses on the impact of economic freedom factors on forming entrepreneurial aspirations in Central and Eastern Europe (CEE). This region is of particular interest because it has a deferred potential for growth in economic activity. After all, the region's countries transitioned to a free market much later than the rest of Europe. Since the early 1990s, all the former communist countries in the region have begun their difficult journey towards democracy and a market economy. The citizens of these countries had to deal with many radical political and economic reforms that significantly impacted the level of entrepreneurship and attitudes towards it.

The level of entrepreneurial activity is particularly important for this region. This is due to the fact that in transition economies, small and medium-sized businesses play a crucial role in the development of a functioning market economy and are the primary potential source of

economic recovery. Despite the importance of entrepreneurship, particularly for countries with economies in transition, the conditions for the development of entrepreneurship and the functioning of the small business sector in CEE are problematic for various reasons. First, countries with economies in transition lack experience in entrepreneurship, as, under the planned economic system, entrepreneurship/enterprise ownership was either officially prohibited or restricted to specific industries. The economy was highly specialized and consisted mainly of large state-owned companies focused on mass production. Secondly, entrepreneurship in the socialist bureaucracy was significantly different from entrepreneurship in the established market economy since there was virtually no competition in the market, and sales were almost 100% guaranteed. The state closely controlled private enterprises, and entrepreneurs had to face a high degree of uncertainty about the future of public policy (Brezinski & Fritsch, 1996). Third, the poorly developed economic framework remains an important barrier to the growth of the small business and entrepreneurship sector in Central and Eastern Europe. High levels of corruption, unstable legal and political conditions, difficulties accessing finance, tax rates, and tax administration. They were identified as the main problems in CEE. The framework conditions generally improve as the transition process moves forward (Rutkowski & Scarpetta, 2005). However, even today, the main indicators of economic freedom in these countries are significantly lower than in the main developed economies.

Another important aspect of the work concerns the types of entrepreneurial activity. Previous studies (Urbano & Aparicio, 2016; Zali et al., 2013) have examined the impact of various types of entrepreneurial activity on economic growth. The main conclusions of these studies are that opportunity-driven entrepreneurship has a positive impact on economic growth in both developed and developing countries of the world, while necessity-driven entrepreneurship constrains economic growth. Thus, the main efforts of the states should be directed to the development of factors that would have a positive impact on opportunity-driven business activity in the region.

Our research makes at least two contributions to the current literature on the institutional environment and entrepreneurship. First of all, we offer empirical data on the significance of the influence of factors of economic freedom on entrepreneurial activity in CEE. Thus, this work contributes to the understanding of which elements of the institutional environment have the strongest influence on entrepreneurs in the region. Secondly, our study examines the differences in the influence of factors of economic freedom depending on the

motivation of entrepreneurial activity and indicates the improvement of which factors contributes to the development of productive entrepreneurial activity in CEE.

Relevance of the study

Given the key role of entrepreneurs in closing the economic development gap between the CEE countries and Western Europe, it becomes vital to understand the main factors contributing to increased entrepreneurial activity. This study will be useful for policymakers, as many countries in the CEE region are developing specific strategies to promote entrepreneurship. At the same time, approaches to this policy vary greatly in different countries, so there is no consensus on the most effective measures to stimulate the growth of entrepreneurship. This article is aimed at solving this problem.

Therefore, this research work is necessary to find out the main factors of economic freedom that affect the overall level of entrepreneurial activity and, in particular, various types of entrepreneurial activity by motivation.

Research gap

In the recent history of research, the greatest attention has been paid to the study of entrepreneurship and economic growth. However, research on the impact of economic policies, especially in the area of economic freedom, on entrepreneurship has been underestimated. Such studies are particularly important for regions with economies in transition, such as Central and Eastern Europe. The importance of this information is explained by the increased value of entrepreneurial activity in such regions, the growth of entrepreneurship in them leads to an acceleration of economic growth and the transition to a market system. To date, there are no studies in the scientific literature that provide information about the factors of economic freedom that affect the level of entrepreneurship in the CEE. Such a study will allow us to identify the main factors of economic freedom that affect the level of entrepreneurial activity in general and different types of entrepreneurship by motivation. The results of the study, in turn, will highlight the main areas of the institutional environment that allow increasing the total level of entrepreneurial activity in the region, as well as the level of productive entrepreneurial activity, which most strongly accelerates the economic growth of countries.

Research goal

This paper aims to identify the main factors of economic freedom that stimulate the development of entrepreneurial activity in CEE.

To achieve the research goal, several research objectives have been stated:

1. Conduct a literature overview about entrepreneurship
2. Identify peculiarities of main types of entrepreneurship
3. Select framework of economic freedom which is most appropriate for this study
4. Choose factors of economic freedom and state hypotheses
5. Collect and adapt the data
6. Build regression models for different types of entrepreneurship
7. Analyze the obtained results
8. Provide recommendations for different stakeholders based on the findings

To achieve the research goal and complete research objectives, the following research questions should be answered:

1. What economic freedom factors affect total entrepreneurial activity in the CEE region?
2. What are the differences in the impact of factors of economic freedom on different types of entrepreneurial activity in the CEE region?

The article consists of three main parts. The first chapter presents the theoretical foundations of entrepreneurship and its impact on the economy, the concept of economic freedom and research on its impact on the level of entrepreneurial activity, as well as highlights the features of entrepreneurial activity in Central and Eastern Europe. The second chapter describes the research methodology, the empirical part, namely the regression models used, the results of calculations and hypothesis testing. The third section evaluates the results of the analysis and practical conclusions for policy makers and managers. The work contributes to understanding the factors of economic freedom that could boost the level of entrepreneurial activity in the countries of the region, which allows us to focus on the factors that have the greatest impact on the share of enterprises seeking growth, which, in turn, can stimulate GDP growth.

THEORETICAL BACKGROUND

1.1 Definition of entrepreneurship

At the beginning of our work, it is necessary to define the meaning of the term entrepreneurship. There is presently no generally accepted definition of entrepreneurship in modern economics. In the last 20 to 30 years, this term has been under the significant influence of various researchers and changes in the world economy, which led to a wide variety of possible definitions. Among the others, two theories of entrepreneurship stand out. It would be wrong to treat these definitions as mutually exclusive, rather each of them complements each other.

One of the main theories of entrepreneurship relates it to innovation: the entrepreneur creates new products or new production methods, or new combinations of resources (Schumpeter, 1934). According to this theory, entrepreneurs are a constant source of economic change, and these changes lead to market instability. Thus, by creating and applying innovations, entrepreneurs significantly change the market landscape and force other companies to adapt. Innovation is an important competitive advantage, thanks to which an entrepreneur can significantly increase their market share. Joseph Schumpeter is the author of this vision of entrepreneurship, and he called this process "creative destruction": it destroys the previously established order to give rise to technological progress and growth, which pushes the economy to find a new balance.

Another vision of the entrepreneur is "alertness", which is now the main approach in the management sciences. According to this concept, entrepreneurship is a manifestation of alertness in the face of unrealized profit opportunities (Boettke & Coyne, 2003; Kirzner, 1997). So entrepreneurial innovation in many cases consists of arbitrage but also includes marginal innovations that make minor improvements to existing products. Entrepreneurial opportunities arise from mistakes and market distortions. An example of such a situation is an attentive entrepreneur who notes such a market error, noticing that the product is sold at a low price in one place and at a high price in another. Thus, the search for profit through the realization of entrepreneurial opportunities makes the entrepreneur, according to this approach, a stabilizing force. The actions of entrepreneurs smooth out what can be considered an economic deficit and surplus and bring the economy into a state of equilibrium.

Global Entrepreneurial Monitor, which is the primary source of information about entrepreneurial activity across the world, has its definition of entrepreneurship. GEM believes

that entrepreneurship is a multifaceted phenomenon with many characteristics. However, it defines entrepreneurship as "any attempt at new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business." Thus, while GEM may see entrepreneurship rather narrowly as new business activity, it takes a broad view of what it recognizes as a new business activity. For example, unlike many official records of new business activity, GEM's definition is not restricted to newly registered businesses. This definition correlates with the previous ones. It takes into account not only the creation of new ventures but expanding already existing. In this paper, GEM's definition of entrepreneurship will be used to align with the main objectives and concept of the study.

One of the key topics in the entrepreneurship study concerns the impact of entrepreneurs on the country's economic growth. Researchers have identified several approaches to determining this relationship. Next, we will look at the key ones to determine the role of entrepreneurship and understand its importance.

Schumpeter (1934) was one of the first to consider this relationship. According to his approach, entrepreneurship is one of the most important elements of economic growth and development, mainly due to the skills of entrepreneurs for constant adaptation to the needs of the market. He comes to the conclusion that innovation and progress are mainly stimulated by entrepreneurial activity, which leads to increased productivity and economic development of the country. In 1966, Kuznets proposed the opposite theory. According to his work (Kuznets, 1966), entrepreneurship leads to a slowdown in economic growth, mainly because it encourages self-employment and reduces the level of employment in the commercial sector. This theory was later empirically tested by Wennekers (2005).

The discussion of the relationship between entrepreneurship and economic growth is of such high importance since it helps in the formation of recommendations on measures of state support for the economy. Stimulating the development of entrepreneurship has a higher priority if these measures have a positive impact on economic growth as a result. The work of Minnitti (2008) proved that there is a significant positive effect between the level of development of entrepreneurship and economic growth. The author of the article confirms the effectiveness of stimulating economic development through entrepreneurship.

A study conducted by Baumol and Storm (2007) shows some detail in the analysis of the impact of entrepreneurship on economic growth. The authors proposed the hypothesis that

different types of entrepreneurship have different effects on economic growth. In this study, entrepreneurship was classified based on its driver. Businesses driven by innovation or technology improvements have a greater impact on economic growth. In their recommendations, the authors suggest that governments adopt a special subsidy scheme and help start-ups and small businesses that are more focused on efficiency.

Some researchers tried to take into account the influence of some regional features on the structure of entrepreneurship in the country (Fritsch & Wyrwich, 2017; Stough, 2016). For example, Stough (2016) applied the historical and economic experience of the United States, Europe, and China to determine the structure of entrepreneurship in each region. The author concluded that, in the European region, entrepreneurship is mainly supported by government measures, in China, the greatest support is through the public sector, the United States has the lowest degree of government support. Fritsch and Wyrwich (2017) studied the historical influence of culture on entrepreneurial activity in various regions of Germany. The results of the study demonstrate that opportunity-based entrepreneurship is more developed in West Germany than in East Germany. Thus, institutions such as infrastructure, legislation, and the level of a bureaucracy affect the structure of entrepreneurship even within a single country.

The relationship between entrepreneurship and economic growth is not the subject of this article. However, this review provides an understanding of the main patterns in this area. First, it is extremely important to diversify the type of entrepreneurship since each of them is associated with economic growth in a unique way. Second, both economic development and entrepreneurship differ depending on the regional basis.

After discussing the various definitions of entrepreneurship and choosing the most appropriate option for our work, we turn to the following question: what are the main types of entrepreneurial activity?

1.2 Difference between opportunity-driven and necessity-driven entrepreneurs

Entrepreneurial activity is most often divided into two types by motivation, which acts as a driver for a person to enter the path of entrepreneurship. The first group of people creates new businesses, seeing a new opportunity in the market. The second group becomes an entrepreneur due to the lack of more attractive alternatives for making money and improving their own life situation. This division is critical for assessing the level of entrepreneurial activity and its possible impact on other economic indicators.

This classification was originally proposed by Catherine Hakim. Her research on this issue (Catherine, 1989) suggested two main motivators for future entrepreneurs. The first group includes “pull” factors, i.e., opportunities that arise in the market and provide increased economic interest. The second group of “push” factors includes factors that force a person to come to entrepreneurship. Often, such factors are related to personal or external circumstances, such as, for example, the breakdown of a marriage or a problem with the promotion in the main place of work. They also often have a negative connotation. This approach was also developed in another study (Kirkwood, 2009), author found relatively few gender differences in motivations but suggested existing push-pull theory should recognize the importance of the role of children, referred to by others as the “motherhood” aspect of women’s entrepreneurship.

The GEM project uses the same concept. However, there are differences in the structure of the definition of motivation. GEM team developed the pull-push approach into a necessity (push) and opportunity (pull) driven entrepreneurship framework (Reynolds et al., 2001). In modern research works these terms are oftentimes interchangeable. In this research, GEM’s terminology will be used.

There are different opinions about the prevalence and influence of the two types of factors of entrepreneurial activity. Some researchers (Shinnar & Young, 2008) suggest that pull factors are more common than push factors and that these factors have different effects on the future of entrepreneurs. One of the most recent studies on this topic (Tipu, 2016) concluded that different motivations do not affect the structure or charge of an entrepreneur at the start-up stage of a business. This work also concluded that opportunity-driven entrepreneurs have a counterintuitive mindset that leads to less realistic plans that are less likely to be implemented, while necessity-driven entrepreneurs set more realistic but less ambitious goals, which leads to their more frequent achievement. Another study (Zali et al., 2013) concluded that opportunity-driven entrepreneurs are more successful in growing their business, and necessity-driven entrepreneurs have the opposite situation.

Another major study on this topic (van der Zwan et al., 2016) concluded that there are additional differences in the profiles of entrepreneurs focused on opportunities and needs. The researchers came to the conclusion that entrepreneurs from these two groups perceive the importance of factors that contribute to the development of entrepreneurship differently. For example, financial support is very important for necessity-driven entrepreneurs, but it is not so important for opportunity-driven entrepreneurs. Block and Wagner (2007) concluded that the

labor market and education have a positive effect on the income level of opportunity-motivated entrepreneurs but have no effect on necessity-motivated entrepreneurs.

The researchers also examined the various macroeconomic effects that the two main types of entrepreneurs have. One study by Hessels (2008) concluded that countries with a higher share of opportunity-driven entrepreneurs than the global average create more new jobs and have export-oriented entrepreneurship.

Another research (Acs et al., 2008) concluded that necessity-driven entrepreneurship has a neutral effect on economic growth, while opportunity-driven entrepreneurship is positively associated with economic growth. Later, two other works (Aparicio et al., 2016; Ferreira et al., 2017) obtained similar results on the impact of different types of entrepreneurs on economic growth in their work.

Additional studies examined the relationship between the type of entrepreneurship and the development of the business cycle. For example, one of the works devoted to this issue (Koellinger & Thurik, 2012) proved that among OECD countries opportunity-driven entrepreneurs exceed the business cycle by two years, while the necessity-driven lead the cycle by only one year. Such conclusions are logical since entrepreneurs spend more resources in creating and improving their business, trying to change or update existing offers in the market, which leads to outperforming the market.

Another aspect of this topic that researchers have studied is the relationship between the type of entrepreneurs and their income. So, for example, van Stel (2018), came to the conclusion that the income of necessity-driven entrepreneurs in all cases is lower than the income of opportunity-driven entrepreneurs. The main reason for this result is that opportunity-motivated entrepreneurs are more likely to enter low-competitive or completely new markets, which leads to higher profitability for this type of entrepreneur.

Research by Acs and Varga (2005) concluded that opportunity-motivated entrepreneurs have a much greater impact on a country's technological development aspect. Moreover, GEM's annual reports state that opportunity-motivated entrepreneurs are more likely to influence technological breakthroughs in the country, which can be explained by the fact that there are significantly more innovators among this type of entrepreneurs. Thus, opportunity-motivated entrepreneurs contribute a much bigger share to the country's GDP compared to necessity-motivated through fundamentally new products and services that are of great value in the domestic and foreign markets.

In conclusion, it should be noted that different types of entrepreneurs, depending on their motivation, have significant differences in the development of entrepreneurship in the country. In addition, these types of entrepreneurs are influenced by various factors. For example, the regulation of the labor market and the level of development of education have an impact only on opportunity entrepreneurship, while financial support has a significant impact only on necessity entrepreneurship. The GEM data demonstrates that the level of opportunity-driven entrepreneurship opportunities is higher in countries with a high level of economic development, which are characterized by a wide range of alternatives for economic activity. Opportunity entrepreneurship has a higher potential for creating new jobs and has a higher level of labor productivity.

Our research focuses on the study of the features of the influence of factors of economic freedom on the level of entrepreneurial activity in the CEE. Previously, we studied the main definitions and characteristics of entrepreneurship in the world, but before further exploring the topic, it is also necessary to define the regional features of the development of entrepreneurship.

1.3 Entrepreneurship in Central and Eastern Europe

As described earlier in this paper, we decided to focus on a specific region - Central and Eastern Europe. The main reason for choosing this region is that entrepreneurship is a key driver of potential economic growth in CEE since it mainly consists of transition countries with a lack of entrepreneurial activity.

Before describing the features of this region, it is necessary to create a list of its countries. Unfortunately, to date, there is no consensus on which countries this region consists of. Some scholars consider this region to be a cultural entity. At the same time, in the second half of the 20th century, this region was called the Eastern Bloc and consisted of members and allies of the USSR with a similar political and economic structure. After the collapse of the USSR, all countries experienced a transition to a market economy, but the process itself was very different between countries. For convenience in our work, we will use the data of the UN Statistical Commission¹ to identify the countries of this region.

¹ <https://unstats.un.org/unsd/methodology/m49/#geo-regions>

Thus, this study analyzed the following list of countries: Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, North Macedonia, Poland, Romania, Russia, Serbia, Slovakia, Slovenia.

Next, it is necessary to study the specifics of the development of entrepreneurship in the region and the institutional environment for its development.

Entrepreneurship was perceived as one of the main goals of the systemic reform process in the former socialist countries in the early 1990s. The main reason for this policy is that entrepreneurial activity was perceived as a key element of the transition to a market economy (Blanchard, 2003; Estrin & Mickiewicz, 2011; Kolodko, 2020; Tarko, 2020). During the reforms, international and domestic organizations and expert centers that provided advice and financial support in this process believed that entrepreneurship would have a similar form and structure in most of the transition countries in the region. The necessary level of entrepreneurial activity had to be achieved together with the creation of suitable socio-economic conditions (Gros & Steinherr, 2004; Sachs, 1996) and the acquisition of international experience, primarily from countries such as the United States and the EU.

During the reforms, it turned out that the main problems encountered by the first wave of entrepreneurs in the region, in most cases, were common to a larger group of countries (Aidis, 2005). However, by the mid-to-late 1990s, it became clear that these countries were divided into two groups: countries with economies in transition (i.e., those that were relatively successful in creating the conditions for the emergence of a pre-industrial level of development of the entrepreneurial ecosystem) (Smallbone & Welter, 2001); and the second group of countries that have had significantly less progress in this process. Later it also turned out that the average level of business activity dynamics in the second group of countries was lower than expected (Scase, 1997). In addition, according to experts, in most of these states, privatization has not led to the emergence of a wide range of entrepreneurs who started businesses based on previously state-owned assets (Earle & Sakova, 2000; Hashi & Krasniqi, 2011; Manolova et al., 2008). In many countries, privatization has been characterized by the semi-legal seizure of assets by various groups, such as former political elites or large corporations. Researchers call this phenomenon "predatory entrepreneurship," and it has become a characteristic feature of the initial stage of systemic reforms (Spicer et al., 2000).

In the 2000s, the literature noted that Central European countries made significant progress in the structural transition to an entrepreneurial economy compared to the former

member republics of the Commonwealth of Independent States (CIS) (Chepureenko, 2017; Smallbone & Welter, 2001). However, it is worth considering that a basic indicator of the level of entrepreneurial activity, such as total early-stage entrepreneurial activity (TEA), varies significantly even in historically and geographically close states of a region (Figure 1). Another important feature of the region is that the average TEA in post-socialist countries is higher than in Western EU member states (Chepureenko, 2017). From 2006 to 2018, this indicator in the countries of the CEE region averaged 7.9, while in the countries of Western Europe it was on average 6.3 for the same period. One possible explanation for these differences is the low-base effect: in such new market economies, barriers to entry and competition remain low, so it is easier for new entrepreneurs to create and manage imitation (as opposed to innovative) enterprises. Another important observation is that a significant part of business activity in the region is still driven by necessity (Earle & Sakova, 2000) (Figure 2).

Figure 1 Share of early-stage entrepreneurs in the working population of CEE countries: 2006–2018 (%)

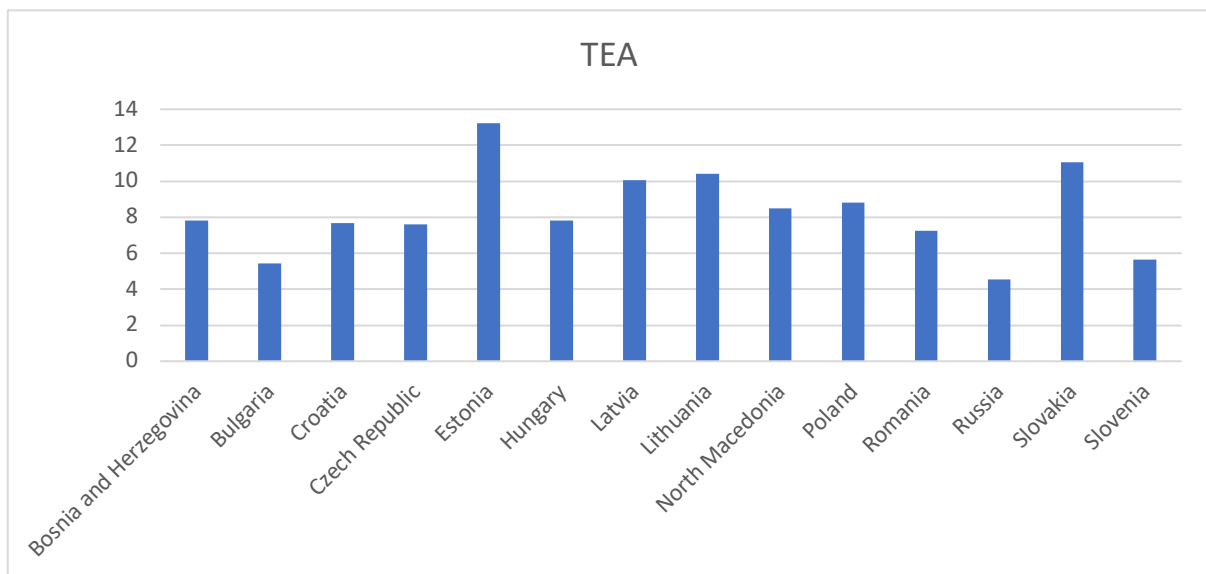
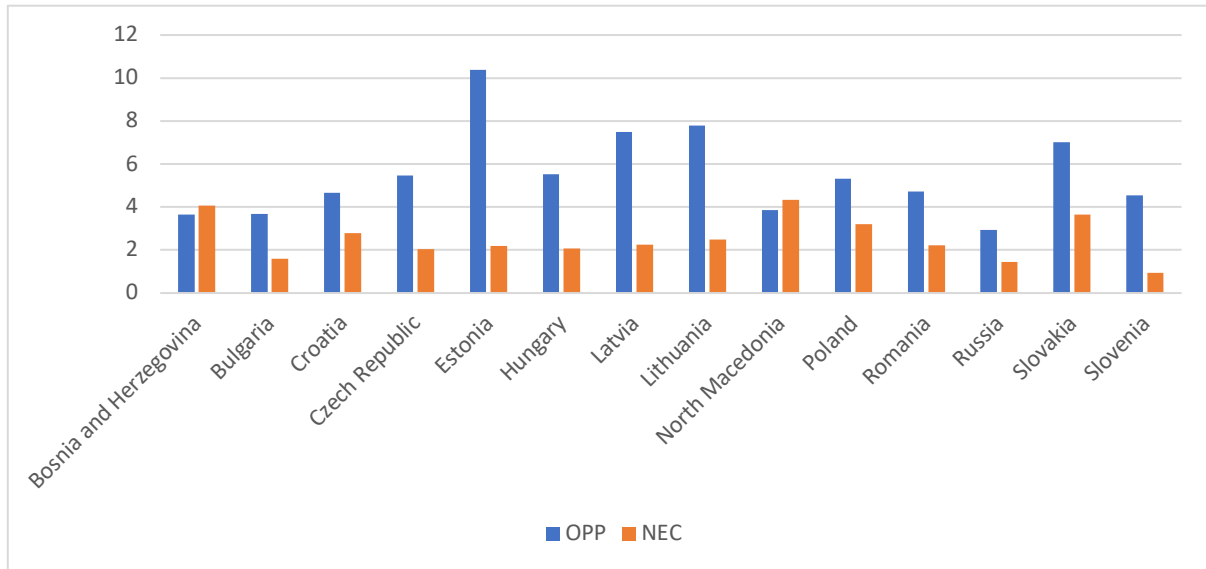


Figure 2 Shares of opportunity and necessity-driven early-stage entrepreneurs among the economically active adult population of CEE countries: 2006–2018 (%)



Entrepreneurship is important for the countries of this region for several reasons. First, it provides employment by increasing the number of jobs (Gherghina et al., 2020; Picot & Dupuy, 1998). The second reason is that entrepreneurial activity leads to economic growth and innovation (Bosma et al., 2018; Doran et al., 2018; Wennekers et al., 2005; Wong et al., 2005). Since the mid - the 1990s, SMEs have been the main class of enterprises that have created new jobs in European transition economies and thus provided employment for the population of these countries, a significant proportion of which were laid off from large, previously state-owned enterprises. Third, in transition economies, SMEs play an important role in developing a market-based economic culture and a healthy market economy and are a major potential source of economic recovery and growth (Brezinski & Fritsch, 1996; Urbano et al., 2020).

Next, it is necessary to study the features of the institutional environment in the region to assess possible factors affecting the level of entrepreneurial activity.

Features of the institutional environment

Initially, most countries in the region adopted neoliberal policies (often under the guidance and pressure of the IMF) and showed a low level of market intervention (Welter & Smallbone, 2011). However, some policy mistakes were made, especially in areas where states previously had little experience, such as the introduction of business taxation and business legislation. A more recent trend has been the desire of regional governments to over-regulate and interfere with private business activities, which has led to significant difficulties in the

expansion and growth of the private business sector. Excessive regulation and interference in the private sector have led to a significant increase in the level of corruption (Amini & Douarin, 2020; Smallbone & Welter, 2001). Moreover, the negative attitude towards private business owners and entrepreneurs inherited from the central planning system, which continues to influence some regional officials, has a significant impact on the development of entrepreneurship (Dumitru & Dumitru, 2017). One of the most important government barriers seem to be related to relatively high levels of taxes, frequent changes in tax policy, or ambiguity in tax policy and/or the general regulatory environment (Bukvič & Bartlett, 2003; Kelmanson et al., 2019). Also, a number of studies have demonstrated that the lack of funding is one of the main obstacles to the start of business activity in the region (Bukvič & Bartlett, 2003; Hlavacek et al., 2015). Additional barriers to entrepreneurial activity include low purchasing power (Hall, 2007), insufficient number of skilled workers, lack of access to necessary equipment and premises (Zhang & Lucey, 2019). Informal barriers, such as selective enforcement of regulations, especially in the area of property law, high levels of bureaucracy, corruption, and unfair competition from the large informal economy, are also frequently cited as barriers to entrepreneurship development in the region (Hlavacek et al., 2015).

The development of entrepreneurship in the CEE countries has some common features. As the transition economies moved from a centrally planned to a market-based economy, the private enterprise grew significantly, primarily due to the unmet needs of consumers in these countries. This growth occurred even though, in most cases, government policies did not promote the active development of SMEs. In subsequent years, in many countries of the region, the total number of entrepreneurs declined after the initial jump and stabilized. This is a concern, as SMEs are seen as the main vehicle for further economic growth in terms of innovation and job creation. It is important to note that the development of entrepreneurship in the region was influenced by the views, practices and norms inherited from the previous economic and political regime. In addition, the relatively low and stable level of entrepreneurship in the countries of the region indicates that the necessary conditions for maintaining a dynamic business climate have not yet been created. Therefore, it can be noted that even in the most developed countries of the region, the legacy of a centrally planned system has not yet been completely overcome.

It is obvious that purposeful promotion of entrepreneurship development can lead to economic growth and employment in the region. The next question that needs to be addressed is: if entrepreneurship is of high importance to CEE, how can politicians stimulate its

development? To answer this question, we will consider the influence of factors of economic freedom.

1.4 Economic Freedom

Earlier, we pointed out that a significant part of the differences in the level of entrepreneurial activity can be explained by the peculiarities of the institutional environment in which entrepreneurs work, namely, institutional quality. This parameter has no generally accepted measurement method, but the key element of such measurements is economic freedom (Pastó & Esteban, 2007). Institutions and policies are consistent with economic freedom when they provide the infrastructure for the voluntary exchange and protection of individuals and their property (Gwartney et al., 1999). Societies with greater economic freedom will be better positioned to develop more effective and democratic government. A sustained commitment to economic freedom is essential to promote economic development and prosperity (Faria & Montesinos, 2009; Peev & Mueller, 2012). Thus, the main indicator of the quality of the institutional environment of our study is the level of economic freedom in the country.

In today's economic science, there is no single universally accepted definition of economic freedom. However, most scholars in the field agree that economic freedom is a fundamental right of everyone to have their own work and property at their disposal and to have full control over them.

According to the definition of Gwartney and Lawson (1999), representing the Fraser Institute, the economic freedom of an individual is reflected in the ability to acquire property without the use of force, fraud or theft and to have it protected from physical invasion by others.; they may freely use, exchange, or donate the acquired property, as long as their actions do not endanger the identical rights of others.

Miller, Kim, and Roberts (2018), representing the Heritage Foundation, define economic freedom as the condition under which people are free to work, produce, spend, and invest as they see fit. Thus, their security and protection is ensured by the state, which at the same time undertakes not to violate the specified rights of economic agents. In an economically free society, the role of the state is to protect property and enforce contracts (Gwartney et al., 1999). An economically free state allows the unhindered flow of labor, capital, and goods, and refrains from coercion and restrictions, except in cases of protection and defense of freedom as such (Wu, 2011). The absence of government corrections or structures in the production,

distribution, and consumption of goods and services, except when necessary measures are applied to protect and maintain freedom as a concept, characterizes economic freedom (Miller et al., 2018). The state may violate the economic freedom of citizens in various situations: by failing to protect private property, by confiscating private property, and by prohibiting voluntary exchange. Such actions of the government often create negative incentives for citizens who assess the benefits of engaging in business activities.

Miller and Kim (2018) interpret the restriction of economic freedom as excessive government intervention in the sphere of economic activity, which thus hinders the autonomy of individuals in the pursuit of higher living standards. The dualism of the goals of economic freedom is reflected in the following: to minimize state coercion or restrictions, and to create and maintain a common sense of freedom for all citizens. Government action is often necessary to form the unity of the people. Since the power of the authorities is difficult to restrain, it can easily cross the line of necessity. Often, in the name of equality or to meet some seemingly noble social needs, restrictions are imposed that place the few in a privileged position (Miller et al., 2018).

Economic freedom does not mean anarchy, as Miller, Holmes, and Fulner (2011) argued. It is important to note that the state is created to provide basic protection of economic rights, such as the right to property and economic activity, and citizens are obliged to respect the economic rights and freedoms of others.

Several studies in recent years have examined the relationship between the level of economic freedom and the level of entrepreneurial activity. Kreft and Sobel (2005) have investigated the relationship between economic freedom and sole-proprietorship growth rates in the US in a cross-sectional study. Their results confirm the positive correlation and show that entrepreneurship helps translate the positive effects of economic freedom into successful economic development.

Sobel, Clark, and Lee (2007), conducted a study for 22 OECD countries using the Economic Freedom Index provided by the Fraser Institute. They found that there is a positive and statistically significant relationship between the level of economic freedom and overall entrepreneurial activity. In addition, they point out that the size of government and regulation are the most important areas of economic freedom for determining the pace of entrepreneurship.

Bjørnskov and Foss (2008) studied the relationship between economic freedom and entrepreneurship, based on information from 29 countries. Most of the countries in this study are developed countries. The authors of the study conclude that reducing the size of the government contributes to increased entrepreneurial activity. The size of the government has an impact on both opportunity-based and necessity-based entrepreneurs, but the effect is significantly higher for opportunity-based businesses. Another finding of the study is the fact that access to sound money has a strong positive influence on both types of entrepreneurial activity.

Another research by Andreas Kuckertz, Elisabeth S.C. Bergera and Andrew Mpeqa (2016) addressed the question of how policymakers might design specific components of economic freedom to most effectively encourage high levels of entrepreneurial activity. It analyzed the effects of four components of economic freedom on entrepreneurship and relied on fuzzy-set qualitative comparative analysis (fsQCA) to do so. The results suggest that the effects of economic freedom vary according to the developmental stage of an economy and the type of economic activity in question. The results also reveal that simplistic explanations implying that high levels of economic freedom trigger high levels of entrepreneurial activity regardless of a country's developmental stage are inadequate.

Final paper to consider is Dragan Mandić, Zoran Borovic, and Mladen Jovičević (Mandić et al., 2017). In their paper, they presented the results of the survey on economic freedom and entrepreneurial activity, conducted in 11 EU countries (Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Netherlands, Spain, Sweden, and the United Kingdom) for the period 2000-2014. The authors of the study used data from the Global Entrepreneurship Monitor as a measure of the level of entrepreneurial activity, and they used data from the Fraser Institute to study economic freedom. The results of the study show a strong statistically significant positive and long-term impact of economic freedom on entrepreneurial activity.

1.5 Economic freedom factors selection and hypotheses setting

Since the purpose of this article is to assess which factors of economic freedom really affect the overall level of entrepreneurial activity and the two types of motivation for entrepreneurial activity, it is necessary to determine which factors have such a probability and what impact they will have.

The first factor to consider is the size of the government. Many researchers (Hicks & Friedman, 1963) have defined the size of government as the extent to which government intervenes in the economy through public consumption of resources, redistribution through transfer schemes, public investment, and marginal taxation. In most studies, this factor is an accurate measure of economic freedom (Carlsson & Lundström, 2002; Gwartney et al., 1999). There are many reasons why one can expect a priori that the size of government will affect entrepreneurship.

Most directly, if economic activity in certain industries or sectors has essentially been nationalized, business opportunities are reduced, since nationalization often (but not necessarily) implies a state monopoly. More indirect government controls, such as certification requirements for certain activities, can also reduce entrepreneurial activity, for example, since certification amounts to barriers to entry.

With the growth of the size of government the incentives to engage in entrepreneurship in order to earn a living (what can be called “entrepreneurship by necessity”) are reduced, since relatively high wages are virtually guaranteed. However, such schemes also reduce the incentives to generate individual wealth, which can be expected, it will negatively affect the level of entrepreneurial activity (Henrekson, 2005). One reason is that entrepreneurial judgment is peculiar and often difficult to communicate clearly to potential investors. The entrepreneur may have to finance his own business, at least initially. If the formation of individual wealth is reduced due to generous government transfer schemes, etc., this makes such financing more difficult.

For several reasons, one would theoretically expect a link between the size of government and entrepreneurship. An example of such barriers is the service sector, which has a high level of government funding. The activities of entrepreneurs in markets such as education or healthcare are clearly limited by the broad presence of government agencies in these areas. Second, the large size of the state is often accompanied by a high level of state benefits, which also reduces business incentives.

Next, we need to examine the empirical evidence on the relationship between the size of government and entrepreneurship. Bjornskov and Foss (2008) use entrepreneurship data from GEM and use the Economic Freedom Index as an explanatory institutional variable. Their study is a cross-country study for 29 countries, covering the year 2001. The results show that the large public sector tends to reduce entrepreneurship. Sobel (2007) examines the relationship

between the 2002 GEM Entrepreneurship index for 21 OECD countries and the aggregate index of Economic freedom, and finds a strong relationship. Among the areas of the economic freedom index, the size of government is the one that has the strongest association with entrepreneurship.

One of latest researches on the topic (Carlos Díaz-Casero et al., 2012) found significant positive impact on the overall level of entrepreneurial activity, and both types of entrepreneurial activity depending on motivation. In addition, the authors noted that this factor was significant for both developed and developing countries.

In our opinion, the specifics of the CEE region should only increase the impact of this factor, since in most of the countries in our set, the size of the government is higher than in developed countries. Thus, reducing the size of the government should lead to the growth of total entrepreneurial activity and two types of entrepreneurial activity by motivation.

Thus, it would be logical to formulate the following hypotheses:

1.1 Size of government factor has a positive impact on total entrepreneurial activity in CEE

1.2 Size of government factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE

1.3 Size of government factor has a positive impact on necessity-motivated entrepreneurial activity in CEE

A related but separate point in the overall measure of economic freedom is related to the strengthening of property rights, that is, the extent to which property rights are protected over time (North, 1990). The vast literature on economic history, intellectual property rights, and innovation highlights the importance of clearly defined and enforced property rights for entrepreneurship (Falvey et al., 2006; Glaeser et al., 2011; North, 1990). Research shows that clearly defined property rights reduce the transaction costs of creating new business ventures, which can most often be associated with entrepreneurship. Such an environment encourages the search for the most attractive resources and services in the market, since the costs of contracting are relatively low, and therefore it makes sense to invest more time in finding the best offers. The inviolability of the rights to dispose of property and income also reduces the risk of doing business, which also reduces the barriers for new entrepreneurs. The findings of previous studies on this topic lead to the hypothesis that institutional features, such as the quality of regulations and the judicial system, affect the overall level of business activity.

Thus, improving the quality of the legal system should lead to the growth of all three types of entrepreneurs.

2.1 Legal System and Security of Property Rights factor has a positive impact on total entrepreneurial activity in CEE

2.2 Legal System and Security of Property Rights factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE

2.3 Legal System and Security of Property Rights factor has a positive impact on necessity-motivated entrepreneurial activity in CEE

A third important element in measuring economic freedom may be reliable money (Hicks & Friedman, 1963), in particular the level and variability of inflation. Although forecasts of future relative prices are generally important for economic decision-makers, it can be argued that they are particularly important for entrepreneurs, since entrepreneurs are essentially speculators who earn a residual income (Kirzner, 1997).

As Bjørnskov and Foss (Bjørnskov & Foss, 2008) note, financial stability may be less of a problem for some entrepreneurs, who can be described as "risk-takers". On the other hand, the impact can be much greater for risk-averse entrepreneurs, such as necessity-driven entrepreneurship. Previous empirical data on the relationship between safe money and entrepreneurship should be considered rather sparse. The previously mentioned study by Bjørnskov and Foss (2008) showed that access to reliable money is positively associated with entrepreneurship.

As we described earlier, one of the features of the regions with transition economies is the high level of positive influence of the factor of availability of financial resources on necessity-driven entrepreneurs. Thus, we believe that this factor should influence the growth of all three types of entrepreneurial activity, but the greatest effect should be for necessity entrepreneurship.

3.1 Sound Money factor a has a positive impact on total entrepreneurial activity in CEE

3.2 Sound Money factor a has a positive impact on opportunity-motivated entrepreneurial activity in CEE

3.3 Sound Money factor a has a positive impact on necessity-motivated entrepreneurial activity in CEE

The fourth area of economic freedom is the degree of openness to international trade and investment. The reduction of barriers to international trade and the growth of the country's trade flows open up the country's entrepreneurs to international markets and allow them to significantly increase the scale of their business (Angulo-Guerrero et al., 2017). It is important to note that the absence of restrictions on capital allows entrepreneurs to reduce the cost of loans and receive more financial resources on more comfortable terms (Herrera-Echeverri et al., 2014).

Barriers to work in international trade determine the market potential of an entrepreneur, since access to international markets allows for the use of economies of scale. This feature is most important for entrepreneurs from small countries, whose domestic market does not allow them to start producing goods and services only for the local population. It is obvious that the opening of international markets leads to growth among such categories of entrepreneurs. Sobel's research (2007) shows that there is negative relationship between barriers to international competition measured by tariff barriers and entrepreneurship. However, Bjørnskov and Foss (2008) did not find any significant relationship between freedom to trade internationally and entrepreneurship.

In our opinion, entrepreneurs in CEE have significantly less business experience than representatives of developed economies. Thus, it can be assumed that their products, all other things being equal, will be less competitive in the domestic market. Therefore, it is logical to assume that the growing openness of domestic markets to foreign goods and services may negatively affect entrepreneurial activity in the region.

4.1 Freedom to Trade Internationally factor has a negative impact on total entrepreneurial activity in CEE

4.2 Freedom to Trade Internationally factor has a negative impact on opportunity-motivated entrepreneurial activity in CEE

4.3 Freedom to Trade Internationally factor has a negative impact on necessity-motivated entrepreneurial activity in CEE

Finally, following Kirzner (1986), government regulation is an important element of the measure of economic freedom that is relevant to explaining the prevalence of entrepreneurial activity. Perhaps regulations can both help and hinder entrepreneurs who need clear rules and predictable compliance with these rules. On the other hand, excessive regulation puts a burden on all firms, not least startups, which can entail prohibitively high startup costs.

In addition, Baumol (1996) noted that individuals working in a highly regulated economic environment may benefit more from engaging in rent-seeking activities in the public sector- what he called “destructive entrepreneurship” - than in actual economic activities.

A large number of studies have examined the relationship between regulation and the level of entrepreneurial activity. Van Stel, Storey and Thurik (2008) studied this topic using the World Bank data. According to this study, regulation was defined as the minimum capital requirements required to start a business, as well as administrative and labor regulations. Capital requirements and labor regulation reduce the level of entrepreneurial activity, while administrative regulation does not have a significant impact.

A more recent study focuses on the impact of regulation on entrepreneurship, depending on the level of economic development of the country (Álvarez et al., 2014). The researchers found a positive impact of the state legislation on entrepreneurship on business activity. The data for the study was a set of panel data for 49 countries for the years 2001-2010. Another result of the study is that regulations can have a different impact on entrepreneurship depending on the economic development of the country. Thus, in developed countries, unemployment legislation is positively associated with entrepreneurship, while in other cases this relationship is negative. Another result of the study is the fact that regulations have different impacts depending on the level of economic development in the country. For example, labor legislation in the developed world has a positive impact on the level of entrepreneurship, but in developing countries, labor legislation has a negative impact.

Another research (Bailey & Thomas, 2017), devoted to the US job regulations finds that worse bureaucratic quality tend to decrease entrepreneurship. Another finding of the researchers is the fact that regulations reduce the growth of entrepreneurial activity in firms of all types and that large firms are less likely to leave the regulated industry, but small firms have worse resources to stay in markets with an increasing regulatory burden. In their study Bjørnskov and Foss (2008) found no significant relationship between regulatory burden and entrepreneurial activity.

Based on the analysis of the literature, we did not find any regional features associated with the influence of this factor, so it is logical to assume that it will have a positive impact on all types of entrepreneurial activity.

5.1 Regulation factor has a positive impact on total entrepreneurial activity in CEE

5.2 Regulation factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE

5.3 Regulation factor has a positive impact on necessity-motivated entrepreneurial activity in CEE

Summary

In conclusion, it is important to note that entrepreneurship has been a relatively popular subject of study over the past decades. One of the most studied questions in this field is topic of the factors that stimulate the development of entrepreneurship. This problem is particularly relevant for the regions with economies in transition, since for them entrepreneurship is a key driver of economic growth and acceleration of the transition to a market system.

The topic of the influence of institutions on the level of entrepreneurial activity has been studied in some detail, but there is not enough information about the relationship between the factors of economic freedom and the levels of entrepreneurial activity, depending on the motivation of entrepreneurs. A unique set of data will partially fill this space in the scientific literature with the study of the influence of factors of economic freedom on the level of entrepreneurial activity in a particular region - Central and Eastern Europe. Based on the analysis of the existing literature and the current stage of research in this area, 15 hypotheses were formulated. They are presented in the table below.

Table 1 Research Hypotheses

Null hypotheses
1.1 Size of government factor has a positive impact on total entrepreneurial activity in CEE
1.2 Size of government factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE
1.3 Size of government factor has a positive impact on necessity-motivated entrepreneurial activity in CEE
2.1 Legal System and Security of Property Rights factor has a positive impact on total entrepreneurial activity in CEE
2.2 Legal System and Security of Property Rights factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE

2.3 Legal System and Security of Property Rights factor has a positive impact on necessity-motivated entrepreneurial activity in CEE

3.1 Sound Money factor a has a positive impact on total entrepreneurial activity in CEE

3.2 Sound Money factor a has a positive impact on opportunity-motivated entrepreneurial activity in CEE

3.3 Sound Money factor a has a positive impact on necessity-motivated entrepreneurial activity in CEE

4.1 Freedom to Trade Internationally factor has a positive impact on total entrepreneurial activity in CEE

4.2 Freedom to Trade Internationally factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE

4.3 Freedom to Trade Internationally factor has a positive impact on necessity-motivated entrepreneurial activity in CEE

5.1 Regulation factor has a positive impact on total entrepreneurial activity in CEE

5.2 Regulation factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE

5.3 Regulation factor has a positive impact on necessity-motivated entrepreneurial activity in CEE

2 Methodology and empirical evidence

2.1 Data collection and processing methods

This research paper will use two main sources of information: the GEM database and the Fraser Institute Economic Freedom of the World Database.

GEM is a reliable source of data on entrepreneurship and is mainly used by large organizations such as the United Nations, the OECD, and the World Bank. In addition, it has been collecting data on business activities in different countries for more than 20 years. This data allows us to conclude that this source has sufficient data for this article.

GEM is a global consortium founded in 1999 through a collaboration between two universities, namely Babson College and London Business School. Since then, the consortium has developed significantly, including more than 500 different studies and collecting data from more than 100 countries. It consists of many national groups that participate in research on various aspects of entrepreneurship. These national teams contribute to the development of a global view of entrepreneurship and study what factors either encourage people to start their businesses or help them remain successful and continue to work in the market at both the national and global levels.

The GEM data also consists of two parts: the Adult Population Survey (APS) and the National Expert Survey (NES). The first is a survey of the adult population. The APS covers at least 2,000 individual entrepreneurs in each participating country to determine the aspirations, motivations, personality characteristics, ambitions of entrepreneurs, and perceptions of people starting their businesses in society.

The NES, in turn, attracts at least 36 experts who are knowledgeable about the business context, institutional environment, and national situation in each economy participating in GEM research.

Several stakeholder groups can use the data collected by the GEM consortium. First, these data are of particular interest to the members of the scientific field, as it contains a large amount of information both at the individual and national level. Second, policymakers can use data from GEM research and reports to assess how effectively certain policies and programs encourage individuals to start their businesses. Third, individual entrepreneurs themselves can analyze data about the business environment and based on this information, decide an effective

strategy for allocating the resources they have. Various international organizations can also be mentioned among the stakeholders.

For this research work, one type of survey will be used, namely APS. From the APS dataset, we will use three variables as dependent - the total level of entrepreneurial activity, the level of opportunity-motivated entrepreneurial activity and the level of necessity-motivated entrepreneurial activity.

The indicators of the Economic Freedom Index measured by the Fraser Institute will be used as independent variables. This index measures the degree of economic freedom in the five main areas: Size of Government, Legal System, and Security of Property Rights, Sound Money, Freedom to Trade Internationally, Regulation. Comprehensive data is only available with a two-year lag, so the index itself has a two-year lag.

Within the five main areas, the index includes 26 components. Many of these components themselves consist of several sub-components. The index consists of 44 different variables. These variables use third-party sources, such as the Global Competitiveness Report and the World Bank "Doing Business" Project. This method makes it possible to avoid subjectivity in the assessment of the authors of the index. Also, this approach makes the index transparent, and also allows researchers to check the quality of the index. Over the previous years, the index was updated and in each new edition had a small change in the underlying data.

Each component of the index and its sub-component is on a scale from 0 to 10. The scale reflects the distribution of the underlying data. If a component has sub-components, the sub-component scores are averaged to get a rating from a single component. Then the score for each of the index components is averaged to get a score in a certain area. The data from the five areas are then averaged to obtain an estimate for each country.

In the first part of the research work, the author defined the goal as follows: to determine which factors of economic freedom affect the total level of entrepreneurial activity, the level of opportunity-motivated entrepreneurial activity, and the level of necessity-motivated entrepreneurial activity.

To achieve these goals and answer the research questions mentioned in the previous chapter, the author will use quantitative analysis, namely, a regression model. According to Wooldridge(2013), quantitative analysis is necessary when a researcher wants to test a theory or assess the relationship between different factors. Thus, quantitative analysis is the most

optimal method for this research work to identify the relationship between different factors of economic freedom and the level of different types of entrepreneurship and determine what relationship exists between the variables.

Two software programs will be used to complete the analysis. First, the data will be collected and converted using Microsoft Excel software. Further analysis will then be carried out using STATA software, as this software provides a wide range of tools for working with panel data.

The study will use GEM and Fraser Institute data for 12 years from 2006 to 2018. This period was chosen for several reasons. First, this time interval allows us to collect a sufficient number of observations for our study. Secondly, studies of the factors of economic freedom have a lag of 2 years when published, so the latest available data to date describe 2018.

For the study, we turn to the countries of Central and Eastern Europe. Total number of observations for that region and that time interval is 75.

The regression models will be constructed sequentially with three different independent variables: total level of entrepreneurial activity, the level of opportunity-motivated entrepreneurial activity, and the level of necessity-motivated entrepreneurial activity.

2.2 Model description

To answer the research questions, a quantitative analysis will be conducted. In particular, three regressions will be constructed based on panel data. This type of analysis allows the author to measure the influence of certain factors of economic freedom on various types of entrepreneurial activity.

There will be three different dependent variables: Total Entrepreneurial Activity, Opportunity-Motivated Entrepreneurial Activity, Necessity-Motivated Entrepreneurial Activity. All of the variables are collected by the APS.

For this article, after analyzing the literature and in accordance with the theoretical basis of the study, five independent variables were selected, namely: Size of Government, Legal System and Security of Property Rights, Sound Money, Freedom to Trade Internationally, Regulation.

At this stage, it is important to understand what is behind each independent variable.

The size of the Government (Factor 1) variable consists of 4 components. They measure the degree to which a country gives provides the freedom for individual market decisions rather than for state economic measures. Thus, countries with low levels of public spending in general, a smaller public business sector, and lower marginal tax rates receive the highest ratings in this area. Therefore, this variable will correspond to hypotheses 1.1, 1.2, 1.3 set out in Part 1 of the research paper.

Legal System and Security of Property Rights (Factor 2) focuses on protecting people and their legally acquired property. The key components of a legal system consistent with economic freedom are the rule of law, the security of property rights, an independent and impartial judiciary, and the impartial and effective enforcement of the law. The nine components in this area are indicators of how effectively the government's protective functions are being carried out. This variable checks the validity of hypotheses 2.1, 2.2, 2.3

Sound Money (Factor 3) consists of four components. They are designed to measure the consistency of monetary policy (or institutions) with long-term price stability. In order to get a high rating in this area, a country must follow policies and adopt institutions that lead to low (and stable) levels of inflation and avoid rules that restrict the use of alternative currencies. Factor 3 refers to hypotheses 3.1, 3.2, 3.3.

The components of Freedom to Trade Internationally (Factor 4) are designed to measure a wide range of restrictions that affect international exchange: tariffs, quotas, hidden administrative restrictions, and controls on exchange rates and capital movements. If a country wants to get a high rating in this area, it must have low tariffs, low customs barriers and effective customs administration, a freely convertible currency, and limited control over the movement of physical and human capital. This factor corresponds to hypotheses 4.1, 4.2, 4.3.

The fifth factor Regulation focuses on regulatory restrictions that restrict the freedom of exchange in the credit, labor, and product markets. In order to get a high score in this factor, countries need to allow market mechanisms to determine prices independently and refrain from regulatory restrictions that can slow down the business and increase the cost of production. Countries should also refrain from supporting and rewarding some businesses at the expense of others. Using this factor, we can check hypotheses 5.1, 5.2, 5.3.

The control variable in this study will be GDP per capita at purchasing power parity. To obtain this data, the author used the World Bank database. Some other studies (Angulo-Guerrero et al., 2017; Nyström, 2008) on the impact of economic freedom on the level of

entrepreneurship also included this variable as a control one, and it was significant. In this regard, the author decided to include this control variable in the study to control the results and extend the variety of factors. To bring the distribution of GDP per capita to normal, the author replaced the variable with the natural logarithm of the variable.

2.3 Research Strategy

As mentioned earlier, to build a panel data analysis model, the Stata software package will be used, which provides functions that are more suitable for analyzing the data used in this research paper.

The table below provides a detailed description of each of the variables.

Table 2 Description of the variables

Variable	Variable in output	Explanation of the variable	Source
Dependent variables			
Total early-stage Entrepreneurial Activity (TEA) Rate	TEA	Percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business	APS
Opportunity-driven early-stage entrepreneur	OPP	Total Entrepreneurial Activity reporting opportunity as a major motive	APS
Necessity-driven early-stage entrepreneur	NEC	Total Entrepreneurial Activity reporting necessity as a major motive	APS
Independent variables			
Size of Government	Area 1	Degree to which a country gives provides the freedom for individual market decisions, rather than for state economic measures	Index of Economic Freedom

Legal System and Security of Property Rights	Area 2	Degree of country's effectiveness in protecting people and their legally acquired property	Index of Economic Freedom
Sound Money	Area 3	Degree of country's consistency of monetary policy (or institutions) with long-term price stability	Index of Economic Freedom
Freedom to Trade Internationally	Area 4	Degree of restrictions that affect international exchange: tariffs, quotas, hidden administrative restrictions, and controls on exchange rates and capital movements	Index of Economic Freedom
Regulation	Area 5	Degree of regulatory restrictions that restrict the freedom of exchange in the credit, labor, and product markets	Index of Economic Freedom
Control variable			
GDP per capita, PPP	lngdp	GDP per capita, PPP, by country, in current international \$	World Bank

Cross-sectional time-series data, also known as panel data, will be used for the analysis. Three main methods are used to analyze panel data: the Pooled OLS, the fixed-effects model, and the random-effects model. To date, there is no consensus in the scientific community about which of these methods is best suited for cross-country analysis of panel data, and it usually depends on the data itself and the research questions that are formulated in the study (Alexandrova and Verkhovskaya, 2016).

Several tests will be performed to select between the models and determine the most appropriate method for the data presented in this article. First of all, the data will be checked for collinearity, as these are the most important assumptions for the Pooled OLS regression. Then two models will be constructed using random-effects and fixed-effects models. In order

to choose between the models, a Hausman test will be performed. Thus, the following tests will be performed to select the most suitable model:

1. Multicollinearity check
2. The Wald Test
3. The Hausman Test

After selecting the appropriate method, final regression can be built.

2.4 Data analysis

After determining the research strategy, the author can proceed to the cross-country analysis itself.

Analysis of a model with a total level of entrepreneurial activity

As mentioned earlier, the first step is to determine the model that will be used for the study. To find out which model estimates are adequate for our data, we need to compare the estimated models in pairs.

Before the author goes on to compare the models, it is important to check for multicollinearity. Multicollinearity is a phenomenon where some of the predictors are strongly correlated in multivariate regression, and some independent variables can be predicted from other predictors (Field, 2013).

Usually, multicollinearity can be checked by calculating the coefficient of influence of variance (VIF). However, this method is not suitable for panel data. Therefore, a different method will be used, namely, the covariance matrices of the coefficients.

The output of the Covariance Matrix (Appendix 1) table shows multicollinearity between factor 3 and $\ln gdp$ ($0.69 > 0.6$). There is a strong correlation between the factors, as seen from the analysis, which can worsen the final model. This can cause difficulties when using the regression model and interpreting the results. Therefore, we remove factor 3 from the analysis.

Repeated construction of the correlation matrix shows that there is no strong correlation between the variables; the coefficients are lower than ± 0.6 .

Therefore, we can continue to work on determining the most appropriate model. First, we compare the Pooled OLS model, which ignores the nature of the data, and the model with fixed effects. In order to do this, we need to build a model with fixed effects and pay attention

to the values of the Wald test at the bottom of the results table. The Wald test checks the hypothesis that all individual effects in the fixed-effects model are equal to zero. STATA automatically checks this hypothesis at the same time as evaluating the model with fixed effects and outputs the result in the last row of the results table. Since the p-value table is less than the significance level, the basic hypothesis that all individual effects are equal to 0 is rejected. Therefore, the choice is made in favor of a model with fixed effects.

Now it is important to understand whether to use a model with fixed effects or a model with random effects. In order to determine this, a Hausman test must be performed. This test checks the endogeneity of variables. The null hypothesis of this test states that the difference in coefficients is not systematic; hence the data is not endogenous. If the p-value of this test is below 0.05, then the null hypothesis will be rejected, and we will assume that a fixed-effect model will be used.

As can be seen from the STATA output, the Hausman test shows that the null hypothesis should be rejected (The results of the Hausman test can be found in Appendix 3). Thus, the fixed-effects model is the most appropriate model for the data set to be analyzed.

After conducting all the necessary tests, we determined that the most suitable model for this data is the fixed-effects model.

```
. xtreg tea lngdp area1 area2 area4 area5, fe

Fixed-effects (within) regression      Number of obs   =       75
Group variable: id                   Number of groups =       13

R-sq:                                Obs per group:
   within = 0.2748                    min =           1
   between = 0.0144                   avg =           5.8
   overall = 0.0050                    max =           11

corr(u_i, Xb) = -0.8369                F(5,57)         =       4.32
                                        Prob > F         =       0.0021
```

tea	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lngdp	6.167054	2.280646	2.70	0.009	1.60014	10.73397
area1	-2.040482	.8535772	-2.39	0.020	-3.74974	-.3312228
area2	-.4125008	1.382134	-0.30	0.766	-3.180177	2.355175
area4	-.1393172	1.202712	-0.12	0.908	-2.547706	2.269072
area5	2.034293	.982601	2.07	0.043	.0666681	4.001917
_cons	-52.78588	19.91398	-2.65	0.010	-92.66293	-12.90883
sigma_u	2.8145769					
sigma_e	1.7314239					
rho	.7254653	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(12, 57) = 3.23          Prob > F = 0.0014
```

Figure 3 STATA output, regression model for Total Entrepreneurial Activity

After a thorough analysis of the literature, it was found that the p-value should be set at a significance level of 10%. Thus, it can be seen that the model as a whole is significant, control variable, and two factors were found to be statistically significant and affect the dependent variable. The result of our analysis is shown in the table below.

Table 3 Accepted and rejected hypotheses for TEA model

Hypothesis	Status
Size of government factor has a positive impact on total entrepreneurial activity in CEE	Rejected
Legal System and Security of Property Rights factor has a positive impact on total entrepreneurial activity in CEE	Rejected
Sound Money factor has a positive impact on total entrepreneurial activity in CEE	Rejected
Freedom to Trade Internationally factor has a positive impact on total entrepreneurial activity in CEE	Rejected
Regulation factor has a positive impact on total entrepreneurial activity in CEE	Accepted

Analysis of a model with a total level of opportunity-motivated entrepreneurial activity

Now it is necessary to conduct an analysis with another dependent variable - total entrepreneurial activity reporting opportunity as a major motive. Here we will follow the same logic and steps. We will select the appropriate model using paired tests.

After performing the Wald test, we determined that the fixed-effects model is preferable to the Pooled OLS model. The results of the test are presented in Appendix 2.

Then, using the Hausman test, we determined that the fixed-effects model is preferable to the random-effects model. The results of the Hausman test can be found in Appendix 3. Therefore, a fixed-effects model is best suited for analysis.

```
. xtreg opp lngdp area1 area2 area4 area5, fe
```

Fixed-effects (within) regression
Group variable: id

Number of obs = 75
Number of groups = 13

R-sq: within = 0.3513
between = 0.0018
overall = 0.0287

Obs per group: min = 1
avg = 5.8
max = 11

corr(u_i, Xb) = -0.7653

F(5,57) = 6.17
Prob > F = 0.0001

opp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lngdp	4.523212	1.51216	2.99	0.004	1.495163 7.551261
area1	-1.248991	.5659562	-2.21	0.031	-2.382299 -.115683
area2	-1.448748	.9164109	-1.58	0.119	-3.283829 .3863332
area4	.415675	.7974466	0.52	0.604	-1.181184 2.012534
area5	1.628061	.6515042	2.50	0.015	.3234468 2.932676
_cons	-38.91051	13.20377	-2.95	0.005	-65.35061 -12.47041

sigma_u	2.0071706				
sigma_e	1.1480042				
rho	.75350654	(fraction of variance due to u_i)			

F test that all u_i=0: F(12, 57) = 2.60 Prob > F = 0.0078

Figure 4 STATA output, regression model for Opportunity-motivated Entrepreneurial Activity

This results show that, again, the model as a whole is significant. The control variable and two factors were statistically significant and affected the dependent variable. The result of our analysis is shown in the table below.

Table 4 Accepted and rejected hypotheses for OPP model

Hypothesis	Status

Size of government factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE	Rejected
Legal System and Security of Property Rights factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE	Rejected
Sound Money factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE	Rejected
Freedom to Trade Internationally factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE	Rejected
Regulation factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE	Accepted

Analysis of a model with a total level of necessity-motivated entrepreneurial activity

Finally, we need to conduct an analysis with the last dependent variable - total entrepreneurial activity reporting necessity as a major motive. Here we will follow the same logic and steps. We will select the appropriate model using paired tests.

After performing the Wald test, we determined that the fixed-effects model is preferable to the Pooled OLS model. Then, using the Hausman test, we determined that the fixed-effects model is preferable to the random-effects model. The results of the Hausman test can be found in Appendix 3. Therefore, a fixed-effects model is best suited for analysis.


```

. xtreg nec lngdp area1 area2 area4 area5, fe

Fixed-effects (within) regression           Number of obs   =       75
Group variable: id                         Number of groups =       13

R-sq:                                       Obs per group:
    within = 0.1801                          min =           1
    between = 0.0578                         avg =          5.8
    overall = 0.0161                         max =          11

                                           F(5,57)         =       2.50
corr(u_i, Xb) = -0.8236                     Prob > F        =       0.0406

```

	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
nec						
lngdp	1.64566	1.095208	1.50	0.138	-.5474559	3.838776
area1	-.9286462	.4099034	-2.27	0.027	-1.749464	-.1078289
area2	.8465341	.6637261	1.28	0.207	-.4825545	2.175623
area4	-.57667	.5775642	-1.00	0.322	-1.733222	.5798824
area5	.5170907	.471863	1.10	0.278	-.4277986	1.46198
_cons	-12.78169	9.563056	-1.34	0.187	-31.93138	6.367999
sigma_u	1.5697446					
sigma_e	.83146144					
rho	.78090817	(fraction of variance due to u_i)				

F test that all u_i=0: F(12, 57) = 4.21 Prob > F = 0.0001

Figure 5 STATA output, regression model for Necessity-motivated Entrepreneurial Activity

This results show that again, the model as a whole is significant; the control variable and one factor were statistically significant and affected the dependent variable. The result of our analysis is shown in the table below.

Table 5 Accepted and rejected hypotheses for NEC model

Hypothesis	Status
Size of government factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE	Rejected
Legal System and Security of Property Rights factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE	Rejected

Sound Money factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE	Rejected
Freedom to Trade Internationally factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE	Rejected
Regulation factor has a positive impact on opportunity-motivated entrepreneurial activity in CEE	Rejected

3 Analysis of the obtained results

3.1 Discussion of the results of the empirical study

In the previous chapter, we analyzed three dependent variables that describe different types of entrepreneurial activity: the total level (TEA), opportunity-motivated activity (OPP) and necessity-motivated activity (NEC). Now it is necessary to proceed to the discussion of the results obtained and to dwell in detail on the influence of each of the factors. The table below provides a brief description of the factors and their impact on various types of entrepreneurial activity.

Table 6 Economic Freedom factors and their impact on types of entrepreneurial activity

Factor	Total entrepreneurial activity	Opportunity-motivated entrepreneurial activity	Necessity-motivated entrepreneurial activity
Size of Government	Negative impact	Negative impact	Negative impact
Legal System and Security of Property Rights	No impact	No impact	No impact
Sound Money	No impact	No impact	No impact
Freedom to Trade Internationally	No impact	No impact	No impact
Regulation	Positive impact	Positive impact	No impact

The effects of each factor and possible reasons for such research results will be described below.

Size of Government

Surprisingly, the first factor - the size of the government had a negative impact on all three types of entrepreneurial activity. It is important to note that a higher size of the government size factor corresponds to a smaller size of the state's influence on economic policy

in the country. Thus, in our study, we came to the conclusion that a decrease in the actual size of the government leads to a decrease in entrepreneurial activity in the countries of the region.

This result is at odds with other works on the topic of the influence of this factor on the level of entrepreneurial activity. For example, a study on this topic in 25 countries of the European Union for the period from 2003 to 2014 (Bosma et al., 2018) concluded that this factor positively affects the level of opportunity-motivated entrepreneurial activity. The authors also concluded that an increase in the level of this factor by 10% will lead to an increase in GDP per capita growth by about 1 percentage point, respectively, due to an increase in overall business activity. An earlier study (Bjørnskov & Foss, 2008) also found the negative impact of the bigger size of government on the level of entrepreneurial activity. The authors concluded that the size of government is strongly negatively associated with the overall activity and both types of entrepreneurship, depending on motivation: opportunity and necessity entrepreneurship.

There are several explanations for this result. The first is that high government spending can generate the necessary resources to maintain a strong institutional environment, which can reduce barriers to entry into business, such as weak property rights or corruption that arise among low-paid government employees. The role of government support and investment programs is particularly important for the development of new and risky types of entrepreneurial activity. According to some researches (Obaji, 2014; Oni, 2012), it is easier for entrepreneurs to start a startup if there is an existing group of entrepreneurs nearby. In many ways, entrepreneurs and investors get substantial value from their peers. For example, if entrepreneurs are already active in the market, then investors, employees, intermediaries such as law firms and data providers, as well as the broader capital markets, are likely to be aware of the venture capital process and the necessary strategies, funding, support, and exit mechanisms. Thus, the activity of existing entrepreneurs with state support will have positive side effects for their colleagues. It is in such an environment that government action can often play a very positive role as a catalyst for the development of new markets for entrepreneurial activity. This observation is confirmed by numerous examples of government intervention, which often provoked the growth of the venture capital sector. There are several brightest examples of such programs in CEE: Start-up Estonia program, Scale Up program in Poland, The Innovation Fund of the Republic of Serbia and Internet Initiatives Development Fund in Russia. All of these programs have led to the formation of the infrastructure for much of the modern venture capital industry in CEE countries.

A higher level of tax burden, which is part of the size of the government, can also partially stimulate the development of entrepreneurship. The reason for this is the frequent tax breaks for small and medium-sized businesses. In such a situation, the creation of smaller businesses can be used as a tax evasion strategy. High income taxes will motivate people to become entrepreneurs, as self-employment provides greater flexibility to generate and hide income (Kamleitner et al., 2012; Sobel & Hall, 2008; Ufere & Gaskin, 2021).

Legal System and Security of Property Rights

The second factor Legal System was insignificant in the course of our analysis. This result is consistent with earlier work on this issue (Bjørnskov & Foss, 2008). We believe that the main reason for this change may be the lack of significant changes in this parameter over the past 10 years. In 2008, the average value of this factor in the CEE region was 5.8, and 10 years later, the average value in the region remained the same. Thus, it can be concluded that in order to observe noticeable results, governments need to significantly strengthen their positions in such components as the independence of the judiciary system, the protection of property rights and the enforcement of contractual obligations (Ovaska & Takashima, 2020). It is important to take into account that such reforms can bring most of the effect not in the short term, but in the long term from 10 to 15 years due to the inertia of entrepreneurs who are suspicious of significant changes in the legal system.

Sound Money

The third factor Sound Money was excluded in the analysis due to multicollinearity. Thus, it is impossible to draw unambiguous conclusions about its impact on entrepreneurial activity. It is worth noting that previous studies have come to different results regarding the impact of this factor, it either had a positive impact on the total level of entrepreneurship, or had no impact at all (Bjørnskov & Foss, 2008; Nyström, 2008; Sobel et al., 2007).

Freedom to Trade Internationally

The fourth factor turned out to be insignificant. The main reason for that may be its bidirectional influence. On the one hand, the reduction of trade barriers and the reduction of customs tariffs should stimulate the development of entrepreneurship related to international trade or the production of complex products included in international logistics chains. Such a segment of entrepreneurs opens up new market opportunities and reduces their own costs along with the growth of the value of this factor (Brás, 2020). On the other hand, this factor reduces the attractiveness of entrepreneurial activity associated with the production of products within

the country. Low customs barriers can make competition with large international companies too difficult for domestic entrepreneurs, who may switch to other economic activities, such as working as an employee of large companies that are more resistant to market competitors. Such dynamics can lead to a situation where the factor does not have a significant impact on the overall level of entrepreneurial activity but stimulates a redistribution of entrepreneurs within different market segments.

Regulation

In our work, the hypotheses of the positive influence of the Regulation factor on total and opportunity-driven entrepreneurial activity were confirmed, this factor has no influence on the necessity-driven activity. This result is consistent with other works on this topic, where the factor also had a positive impact (Mcmullen et al., 2008; Sobel et al., 2007). The variable regulation consisted of three components, then we will describe the impact of each of the components on the level of entrepreneurial activity. The first component is the regulation of the credit market. Laws and regulations that protect investors and help them quickly resolve issues related to their business can be critical to the creation and survival of a business, as they encourage investment, facilitate ongoing business activities, and help viable firms recover if they become insolvent. It is also logical to have a higher level of entrepreneurial activity in countries with a higher percentage of private banks, since market competition leads to more attractive conditions for banking services. This factor is particularly important for the region, since most banks were state-owned at the end of the 20th century and the transition to a fully market-based banking system is not yet complete in many of the CEE countries.

The second component is the regulation of the labor market. As a result of our research, we can conclude that countries with a minimum level of regulation have a higher level of entrepreneurial activity. Overregulation of labor markets, like overregulation of business entry, can also lead to large informal economies and high unemployment, as they increase barriers to formal employment and make markets too rigid to adapt to changing economic conditions. This factor is of particular importance for the region, as it has historically had a high level of social protection of employees, which complicates the dynamics of hiring for entrepreneurs. In the last 20 years, however, CEE has consistently improved its position in this component, which has also led to an increase in entrepreneurial activity, especially opportunity-driven, which requires higher amount of skilled personnel, compared to necessity-driven

Finally, the third component is business regulation. It is certainly important for the development of entrepreneurship, since any barriers to entrepreneurs in the form of complex legislation, mandatory licensing or a high level of corruption reduces the level of those who want to start their own business and leads to an increase in shadow employment and an imbalance in the labor market (Chowdhury et al., 2019). The CEE region is characterized by a historically higher level of corruption, but this parameter varies greatly in different countries of the region, for example it is high in Russia, but it is at the level of developed countries in Estonia and Latvia. Thus, governments wishing to stimulate the development of entrepreneurship in the country should pay attention to this component.

3.2 Implications

The results obtained in this paper are of both theoretical and practical value. First, it is necessary to discuss how this work contributes to the development of the theoretical field. Further, based on the results obtained, several recommendations can be made for various stakeholders. First of all, implications for government agencies can be developed as the institutional environment is directly linked to this group of stakeholders. Second, it is vital to emphasize the management implications of this study.

Theoretical input

We have already mentioned in the first chapter that there is a gap in the literature regarding the impact of factors of economic freedom on the level of various types of entrepreneurial activity in the CEE. Most of the studies are devoted to the analysis of either all the factors of the institutional environment or the factors of economic freedom in a limited set of countries. However, as we noted earlier, the development of entrepreneurship is a key challenge for the region, since it can significantly increase the overall level of the economy and GDP per capita. Thus, this article partially covers this gap by providing a regional analysis of the set of factors of economic freedom and their impact on entrepreneurial activity. Although this article makes a significant contribution to the current literature, it is also worth taking into account some of the limitations of this study. First, this research relies only on the GEM dataset, which may not take into account the full picture of entrepreneurial activity in the region. Not all countries in the CEE region participate in the study every year, which leads to a situation where more active participants have more weight in the final results of the study. Future studies may use data on entrepreneurial activity from other sources, such as state registers of entrepreneurs. From the point of view of economic freedom, research relies only on Fraser

Institute research, so further research may take into consideration other sources, such as Heritage Index of Economic Freedom. Second, the data is limited to the national level, ignoring subnational differences that may be of interest for further study, especially in large countries in the region, such as Russia and Poland. Future research may also examine the impact of each of the components of economic freedom factors on the level of entrepreneurial activity in the CEE to identify the most significant components.

Policy implications

We can now continue and discuss the implications for the governments of the CEE region, as this study is primarily focused on this group of stakeholders. First of all, it is worth noting that this study is of increased value for the CEE, since it was based on the characteristics of the region and data from the countries of the region. In the course of the analysis, we came to the conclusion that policy makers should primarily focus on the development of the economic regulation. This conclusion is logical, but it is worth noting that the factor has the greatest impact on the entrepreneurial activity in the countries of the region. Another important feature of the study is the fact that the regulatory factor affects only the type of entrepreneurship that has the greatest impact on the growth of entrepreneurial activity – opportunity-driven. This means that the reforms aimed at improving this factor lead to an increase in productive entrepreneurship, focused on the use of existing opportunities. In terms of concrete measures, governments should focus on three areas. First, accelerate the transition of the banking industry to private ownership. It is also necessary to limit the control of interest rates by the state, since this distorts the market processes in the banking sector.

Secondly, it is necessary to pay attention to the simplification of labor legislation. Countries should allow market mechanisms to independently determine the wages and working conditions of workers, making legal restrictions only in cases of urgent need or state security.

Finally, the third component is the simplification of business regulation. It is important to reduce the legal barriers to entry into all markets, especially in the market with the most acute deficit and a large share of state participation. Entrepreneurial activity can reduce the cost of goods and services in such markets, as well as redistribute inefficiently used resources to other segments of the economy.

The factor size of the government has a negative impact on the level of business activity in the region. This is an important finding, as it suggests that short-term actions to improve this factor will not lead to a significant increase in business activity. It can also be noted that

targeted public investment in the development of new sectors of the economy contributes to the development of entrepreneurship in these areas. At the same time, it is important to keep in mind that most studies of other regions of the world have concluded that the large size of the government has a negative impact on the level of entrepreneurial activity. Thus, the decrease in this factor should also not be considered as a long-term tool for increasing entrepreneurial activity.

The factor of legal system can be one of the ways to increase entrepreneurial activity. At the moment, the region leaves this factor at the stable level without changes, but the experience of research in other countries shows that significant improvements in this factor can lead to an increase in entrepreneurial activity.

The factor of international trade also does not have a significant impact on the level of entrepreneurial activity in the region, but it can be used as a way to redistribute entrepreneurs within economic segments due to the different impact of this factor on different segments.

Thus, the states of the CEE should focus primarily on improving the regulation, but do not forget about maintaining other factors at the current level or even improving their positions in order to increase opportunity-driven entrepreneurial activity.

Managerial implications

Having discussed the implications of the current study for government agencies, we can now move on to the managerial implications of this article. In the previous part of the study, we concluded that the level of regulatory barriers in the country has the greatest impact on the level of entrepreneurial activity. This information can be used primarily by investors who are associated with the region. Investors who decide to enter the region should pay attention to the countries with the best results in the field of regulatory policy. By opening an office in such a country in the CEE, the company can gain enough resources for further expansion to other countries in the region, if necessary.

The second recommendation is related to the characteristics of the region, in which the growth of the size of the government leads to an increase in entrepreneurial activity. Communities of entrepreneurs and various public organizations associated with entrepreneurial activity can create a request for state assistance in new innovative sectors of the economy, in which the state can act as a catalyst for the start of business development. Entrepreneurs need to realize the value of such state activity, and engage in lobbying for their needs through various legal mechanisms. As part of this activity, it is also important to keep in mind the limits of the

state's participation in economic activities, the state's share should not exceed the amount necessary to help develop the industry, and after achieving sufficient dynamics in the development of the industry, the state should curtail its programs and redistribute its resources in other directions. These features should be taken into account by entrepreneurs.

4 Conclusion

Entrepreneurship plays a significant role in the economic development and economic growth of society. Many researchers have paid a lot of attention to this area to find out what types of entrepreneurship exist and what factors are most favorable for certain groups of entrepreneurs. Such studies have led to an analysis of the features of the institutional environment of the whole world and its specific regions. In the course of research, it was found that entrepreneurship is one of the drivers of economic growth, especially the type of entrepreneurs who are motivated by market opportunities rather than material necessity. In addition, the researchers concluded that entrepreneurship can be most important for regions with a transitional type of economy, since this driver can accelerate the transition of such economic systems. Thus, the development of entrepreneurship, especially such entrepreneurship, is a key goal of the economic policy of the region.

In the course of the analysis of the articles, the region of Central and Eastern Europe (CEE) was selected, which unites the countries that began the transition from a centralized economic system to a market at the end of the 20th century. This region is of particular interest because of its similar characteristics to the developed countries of Europe and its hidden potential for economic growth. The peculiarities of the region's institutional environment are the imperfect legality of the system, which made it difficult to switch to private ownership, the lack of sufficient experience of entrepreneurial activity, the lack of business infrastructure and business support programs, as well as a relatively high level of corruption.

The analysis of the articles revealed that one of the key aspects influencing the quality of the institutional environment is the factors of economic freedom. Previous studies have revealed the beneficial effect of a high level of economic freedom on the economic development of countries, but the relationship between economic freedom and entrepreneurial activity, especially its types, has been less studied. Thus, in the course of the literature analysis, the level of economic freedom was chosen to assess the quality of the institutional environment. During the analysis of studies on the topic of economic freedom, five factors of economic freedom were identified: Size of Government, Legal System and Security of Property Rights, Sound Money, Freedom to Trade Internationally and Regulation. After studying the previous works, we formulated five groups of hypotheses - three for each factor with each type of entrepreneurial activity: total entrepreneurial activity, opportunity-driven and necessity-driven.

To test the hypotheses, we chose a quantitative method of regression analysis. As a dependent variable, we used data from the Global Entrepreneurship Monitoring (GEM), which conducts an annual survey of entrepreneurial activity across a wide range of countries. The survey is consistent in terms of methodology, so the results of different years of this survey can be analyzed together. We used national-level data and used the total level of entrepreneurial activity, opportunity-motivated entrepreneurial activity and necessity-motivated entrepreneurial activity, as dependent variables. We used data from the Fraser Institute's Economic Freedom Index as independent variables. This study is the most popular analysis of economic freedom in the world and analyzes this metric by five factors. We used GDP per capita as a control variable.

As a result of the quantitative analysis, two factors of economic freedom were recognized as significant, namely, the size of the government (positive impact, three types of business activity) and regulation (positive impact, total activity and opportunity-driven). The influence of the first factor can be interpreted as follows: with the growth of the size of the government, the level of entrepreneurial activity increases. Influence of the second factor: as the regulatory burden decreases, the level of entrepreneurial activity increases. Since some of the results contradicted the hypotheses presented in the first part of the paper, the differences obtained were discussed in detail in this research. It is worth noting that the results of this work correspond to previous studies on this topic, but also reveal regional peculiarities.

Summing up, we can conclude that, first, the negative impact of reducing the size of the government on total entrepreneurial activity is a unique feature of this region, since in the developed countries of the world this factor has the opposite effect. This result may be due to the fact that large public investments in new areas of the economy act as a catalyst for entrepreneurial activity, especially in regions with a low initial level of entrepreneurship. Secondly, regulation is a key driver of increasing entrepreneurial activity in the region, meaning that CEE governments should first focus on reducing regulatory barriers that will lead to increased opportunity-driven entrepreneurial activity.

From a theoretical point of view, the analysis partially covers the gap in research on the impact of economic freedom on the level of entrepreneurial activity in Central and Eastern Europe. However, there are a few limitations to this work that need to be taken into account. First, we used data obtained only from the Fraser Economic Freedom dataset, which may not contain comprehensive information on this topic. Second, only data at the national level was examined, leaving room for further study of subnational differences.

In general, we can conclude that the goal of the study was achieved and the questions posed at the beginning of the study were answered.

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6 Appendices

Appendix 1. Covariance matrices

```
. correl lngdp area1 area2 area3 area4 area5  
(obs=75)
```

	lngdp	area1	area2	area3	area4	area5
lngdp	1.0000					
area1	-0.1652	1.0000				
area2	0.5017	0.2436	1.0000			
area3	0.6932	-0.0667	0.4158	1.0000		
area4	0.1927	0.4879	0.2522	0.2477	1.0000	
area5	0.1712	0.5063	0.4203	0.2196	0.2009	1.0000

```
. correl lngdp area1 area2 area4 area5  
(obs=75)
```

	lngdp	area1	area2	area4	area5
lngdp	1.0000				
area1	-0.1652	1.0000			
area2	0.5017	0.2436	1.0000		
area4	0.1927	0.4879	0.2522	1.0000	
area5	0.1712	0.5063	0.4203	0.2009	1.0000

Appendix 2. Regression models (STATA output)

Total Entrepreneurial Activity model

```
. xtreg tea lngdp area1 area2 area4 area5, fe
```

```
Fixed-effects (within) regression      Number of obs   =       75
Group variable: id                    Number of groups =       13

R-sq:                                  Obs per group:
    within = 0.2748                    min =          1
    between = 0.0144                   avg =         5.8
    overall = 0.0050                   max =         11

corr(u_i, Xb) = -0.8369                F(5,57)         =       4.32
                                          Prob > F        =     0.0021
```

tea	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lngdp	6.167054	2.280646	2.70	0.009	1.60014	10.73397
area1	-2.040482	.8535772	-2.39	0.020	-3.74974	-.3312228
area2	-.4125008	1.382134	-0.30	0.766	-3.180177	2.355175
area4	-.1393172	1.202712	-0.12	0.908	-2.547706	2.269072
area5	2.034293	.982601	2.07	0.043	.0666681	4.001917
_cons	-52.78588	19.91398	-2.65	0.010	-92.66293	-12.90883
sigma_u	2.8145769					
sigma_e	1.7314239					
rho	.7254653 (fraction of variance due to u_i)					

```
F test that all u_i=0: F(12, 57) = 3.23                Prob > F = 0.0014
```


Opportunity-motivated Entrepreneurial Activity model

```
. xtreg opp lngdp area1 area2 area4 area5, fe
```

```
Fixed-effects (within) regression      Number of obs   =       75
Group variable: id                    Number of groups =       13

R-sq:                                  Obs per group:
    within = 0.3513                    min =          1
    between = 0.0018                   avg =         5.8
    overall = 0.0287                   max =         11

corr(u_i, Xb) = -0.7653                F(5,57)         =       6.17
                                          Prob > F        =       0.0001
```

opp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lngdp	4.523212	1.51216	2.99	0.004	1.495163	7.551261
area1	-1.248991	.5659562	-2.21	0.031	-2.382299	-.115683
area2	-1.448748	.9164109	-1.58	0.119	-3.283829	.3863332
area4	.415675	.7974466	0.52	0.604	-1.181184	2.012534
area5	1.628061	.6515042	2.50	0.015	.3234468	2.932676
_cons	-38.91051	13.20377	-2.95	0.005	-65.35061	-12.47041
sigma_u	2.0071706					
sigma_e	1.1480042					
rho	.75350654	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(12, 57) = 2.60                Prob > F = 0.0078
```


Appendix 3. Hausman test

Total Entrepreneurial Activity model

. hausman fe re

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fe	(B) re		
lngdp	6.167054	1.106293	5.060761	1.898325
area1	-2.040482	-.2462197	-1.794262	.683831
area2	-.4125008	.4106823	-.8231831	1.131889
area4	-.1393172	.0673046	-.2066219	.748295
area5	2.034293	2.317323	-.2830306	.5278264

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
 = **18.69**
 Prob>chi2 = **0.0022**

Opportunity-motivated Entrepreneurial Activity model

. hausman fe re

	— Coefficients —			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
lngdp	4.523212	1.127396	3.395816	1.380886
area1	-1.248991	.139024	-1.388015	.5035004
area2	-1.448748	.6581418	-2.10689	.8044959
area4	.415675	.4265903	-.0109152	.5782957
area5	1.628061	1.487879	.1401826	.4555809

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
 = **31.58**
 Prob>chi2 = **0.0000**

Necessity-motivated Entrepreneurial Activity model

. hausman fe re

	—— Coefficients ——		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fe	(B) re		
lngdp	1.64566	-.3371261	1.982786	.8462795
area1	-.9286462	-.3282733	-.6003729	.3040981
area2	.8465341	.0190941	.82744	.5169433
area4	-.57667	-.6659418	.0892719	.3291867
area5	.5170907	.7817763	-.2646855	.2226959

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
 = **11.91**
 Prob>chi2 = **0.0360**