administrative sciences

MDPI

Article

Analysing the Impact of Entrepreneurship Education on Early-Stage Entrepreneurship—Focusing on the Transitional Countries of Central and Eastern Europe

Judit Csákné Filep [1,2], Gigi Timár [1,3] and Áron Szennay [1,*]

[1] Office for Entrepreneurship Development, Budapest Business University, HU-1149 Budapest, Hungary; csaknefilep.judit@uni-bge.hu (J.C.F.); timar.gigi@uni-bge.hu (G.T.)
[2] Institute of Business and Management Sciences, University of Nyíregyháza, HU-4400 Nyíregyháza, Hungary
[3] Doctoral School, Moholy-Nagy University of Art and Design, HU-1121 Budapest, Hungary
* Correspondence: szennay.aron@uni-bge.hu

Abstract: Entrepreneurship is deeply rooted in tradition and culture in many countries; however, transitional market economies in Central and Eastern Europe (CEE) underwent 40–45 years of socialism, which disrupted these traditions by collectivising private property. Education is recognised as a key tool for regional development and restoring entrepreneurial knowledge and skills, potentially enhancing entrepreneurial intentions within society. This paper investigates the impact of entrepreneurial education on entrepreneurial activity in transitional CEE countries. Pearson's correlation analysis was conducted using a combined national-level dataset from the Annual Population Survey (APS) and the National Expert Survey of the Global Entrepreneurship Monitor (GEM) spanning 2021–2023. Results reveal inconsistent findings across the years. In 2021 and 2022, there was a significant moderate correlation between total early-stage entrepreneurial activity (TEA) and an indicator of entrepreneurial education at primary and secondary levels in CEE countries. In contrast, no such relationship was observed in other regions. In 2023, however, no significant correlations were identified for any country group. These results highlight the temporal variability of education's influence on entrepreneurship in transitional economies.

Keywords: entrepreneurship; entrepreneurship education; Central and Eastern Europe; transitional countries; Global Entrepreneurship Monitor

Received: 18 December 2024
Revised: 13 January 2025
Accepted: 23 January 2025
Published: 26 January 2025

Citation: Csákné Filep, J., Timár, G., & Szennay, Á. (2025). Analysing the Impact of Entrepreneurship Education on Early-Stage Entrepreneurship—Focusing on the Transitional Countries of Central and Eastern Europe. *Administrative Sciences*, *15*(2), 36. https://doi.org/10.3390/admsci15020036

1. Introduction

New venture creation stimulates economic development, and policymakers consider entrepreneurship a driver of employment and economic and regional development (Galvão et al., 2017; Huszák & Jáki, 2022; Urbano et al., 2019). Entrepreneurship education and training are possible instruments for facilitating entrepreneurship (Martínez-Gregorio et al., 2021). Countries that want to develop entrepreneurship need to focus on entrepreneurship education (Doan, 2022). "*Entrepreneurship education is considered one of the most innovative and influential forces that determine the health of the competitive economy of any country*" (Jena, 2020). For this reason, entrepreneurship education has been at the forefront of political agendas, with the European Commission launching the Entrepreneurship 2020 Action Plan in 2013 (European Commission, 2013). Fellnhofer's (2019) systematic literature review on entrepreneurship education shows increasing academic interest. According to Matlay's (2008) longitudinal study, which was carried out over ten years, entrepreneurship education

positively affects career aspirations and entrepreneurial outcomes. Onjewu et al. (2021) examined how entrepreneurship education affects nascent entrepreneurship, and they proved that simulations, workshops, and courses have positive effects.

Despite the growing policy and academic interest in the effect of entrepreneurship education on the stimulation of entrepreneurship and new venture creation, our knowledge on the topic could be more extensive. Nabi et al. (2018) suggest that a more comprehensive analysis is required to understand the relationship between entrepreneurship education and engagement in entrepreneurial activities. Confirming the positive impact of entrepreneurship education on an economy's entrepreneurial activity is challenging, and the situation of post-socialist economies in this respect is rather complex. Mitra and Matlay (2004, p. 61) stated, "*The overall success of socio-economic transition in Eastern and Central Europe appears to depend largely on the Western free-market model of entrepreneurship and SME development*". They also stressed the importance of entrepreneurship education and training while criticising early attempts to introduce it into university curricula. Recognising the opportunity created by regime change in Central and Eastern European countries, Boyle (2007) drew attention to creating new businesses and their impact on national economies. He argued that Central and Eastern European universities have a great opportunity to capitalise on the market economy through entrepreneurship education.

Quality and access to entrepreneurship education are parts of economies' entrepreneurial ecosystems, which are complex constructs with many interdependent elements. Measuring the isolated effect of these elements is a complicated task (Olutuase et al., 2018).

The experience of socialist regimes creates a lack of self-confidence that persists after the regime's collapse and hinders the development of entrepreneurial spirit (Bauernschuster et al., 2012). Therefore, we hypothesise that entrepreneurship education may make a difference in fostering entrepreneurship in post-communist countries, as entrepreneurship education can play an essential role in reducing the impact of cultural factors that inhibit entrepreneurship. Our work seeks to demonstrate that entrepreneurship education has a measurably more significant impact on early-stage entrepreneurship in the former socialist countries of Central and Eastern Europe (CEE).

To the best of the authors' knowledge, the impact of entrepreneurship education on entrepreneurship in post-communist Central and Eastern Europe has not been studied in a way that compares it with the characteristics of countries without a communist past. It is worth noting that studies on the relationship between entrepreneurship education and entrepreneurial propensity are usually conducted on samples of students in higher education (Anwar et al., 2023; Gubik & Farkas, 2019; Lesinskis et al., 2022; Szerb & Lukovszki, 2013). However, the entrepreneurial propensity measured during the university years may not translate into actual entrepreneurship later. Therefore, the present study, which examines the relationship between the actual entrepreneurial activity of the adult population aged 18–64 and the entrepreneurship pillar of the entrepreneurial ecosystem, is seen as a missing link. Our work is a contribution to the mapping of these research gaps.

The paper is structured as follows. First, in the next section, we explain the regional scope of the analysis and provide a brief theoretical summary. The methodology used is presented in Section 3, while the results are in Section 4. The paper ends with a discussion of the results, highlighting both practical and policy implications.

2. Theoretical Background

In the research on the process of becoming an entrepreneur, a significant and thus far unresolved question is the precise identification of the factors that determine entrepreneurial emergence and how entrepreneurial intentions translate into behaviour.

Among these, national and cultural aspects often play a role. The theory of planned behaviour emphasises attitudes, subjective norms, and perceived behavioural control as precursors of intentions, which can be shaped by cultural and geographical contexts (Ajzen, 1991, 2020). The institutional theory explores how formal institutions (such as laws and regulations) and informal institutions (such as cultural norms) within a geographical context influence entrepreneurial behaviour (Bruton et al., 2010; Su et al., 2017). Hofstede's framework identifies dimensions of national culture—such as individualism versus collectivism, uncertainty avoidance, power distance, and masculinity versus femininity—that can affect entrepreneurial intentions (Dubina & Ramos, 2013; Hofstede, 2011; Radziszewska, 2014). The cultural–cognitive approach examines how society's shared beliefs and mental models shape entrepreneurial behaviour (Alvarez & Urbano, 2012; Knörr et al., 2013). The social cognitive career approach (Lent et al., 2000) has its roots in Bandura's (1986) social cognitive theory and incorporates interest, values, abilities, and environmental factors (Santos & Liguori, 2019). Otache et al. (2024) claim that, based on this theoretical approach, if students expect to become entrepreneurs after graduation and believe that entrepreneurship education will help them achieve this goal, they will be more likely to engage in entrepreneurship courses.

The special focus on the CEE countries can be explained by their shared common past in the so-called Eastern bloc and their unique capitalist model that evolved since the fall of the Iron Curtain in 1989. Although CEE countries have significant population, culture, history, and economic development differences, each adopted a Soviet-type political and economic order. The situation worsened as socialist regimes emerged through radical reforms, irrespective of the former societal and economic order (Sýkora, 2009). Although the authors emphasise that socialist regimes were not uniform, they share essential attributes such as (1) collectivism, (2) a planning economy, and (3) marginalising individual incentives and entrepreneurship. After Gorbachev's reforms, however, the socialist regimes of the region collapsed, allowing free elections and a democratic turn.

Right after the regime changes, the discussion was only about the means of the transition and not about its goal, namely the adoption of a Western-style market economy (Sachs, 1990). Accordingly, CEE countries followed different transitional paths aligned with their unique characteristics. For example, Visegrad countries (Czech Republic, Hungary, Poland, and Slovakia) adopted an embedded market economy as they have a cheap but qualified workforce which could be employed by the manufacturing plants of foreign investors (Bohle & Greskovits, 2012). Based on similar premises but using the Varieties of Capitalism (VoC) theoretical framework, Nölke and Vliegenthart (2009) called this particular type of capitalism a *dependent market economy*. This means that as the headquarters of the most competitive firms, which employ a significant share of the population, are outside of the state border, the economic policy is somehow dependent on the transnational firms' decisions. This development path was, however, at least partly a determination, as large masses became unemployed after former state-owned companies went bankrupt (Csizmadia et al., 2016). The transition itself, however, also has some turbulences, which can be described with gates "*thrown wide open, resulting in some cases [in] rampant capitalism and illicit profiteering*" (Mosolygó-Kiss et al., 2019).

After the regime changes, policymakers in CEE countries have sought to support the transition to a market economy—and reduce soaring unemployment—by promoting entrepreneurship and business start-ups, in which entrepreneurship education may play a key role. Empirical research on the relationship between entrepreneurial education and the process of becoming an entrepreneur yields mixed results, with regional differences also observable.

Evidence shows that entrepreneurship education has a positive impact on students' entrepreneurial intention in high-income (e.g., Hungary, see Szerb & Lukovszki, 2013; Gubik & Farkas, 2019, or Trinidad and Tobago, see Mack et al., 2021), emerging (e.g., India, see Jena, 2020), and developing countries (e.g., Nigeria, see Ediagbonya, 2013). However, S. Gubik (2013) suggests that entrepreneurship education is effective only if the services (e.g., lectures, resources, mentoring) are highly utilised. This means that students' demands for utilisation should be incentivised. The findings of (Anwar et al., 2023) show both direct and indirect linkages between entrepreneurship education and entrepreneurial orientation in the case of students in Oman, as the former amplifies entrepreneurial intentions through entrepreneurial passion and entrepreneurial motivations (Anwar et al., 2023). Examining the effect of entrepreneurship education on business performance, Cho and Lee (2018) found no relationship and argued that entrepreneurship education is more effective for students than experienced entrepreneurs. According to the (European Commission, 2012), entrepreneurial skills development is significant as it contributes to establishing new businesses and the employability of young people. Similarly, a higher level of education may contribute to women's labour market participation and entrepreneurial activity (Chowdhury & Audretsch, 2014).

Nascent enterprises have a relatively low survival rate. For example, 45 per cent of the 300 businesses analysed survived the 4 years between 2007 and 2010 in South Africa (Ligthelm, 2011), while 22.26 per cent of the 4745 random Hungarian business firms founded in 2007 or later closed their doors by 2017 (Csákné Filep et al., 2019). However, evidence shows that entrepreneurial acumen, namely (1) the ease of taking calculated risks, (2) not being afraid of risking funds in a new venture, and (3) the completion of a business plan, significantly and positively influence the survival chances of a new business venture (Ligthelm, 2011). Hungarian data from the Global Entrepreneurship Monitor (GEM), however, show that people who participated in entrepreneurship education (1) are more well-prepared for starting a business, (2) have a higher share who reported knowing somebody who started a new venture in the last 2 years, and (3) were less discouraged to start a business by the possibility of failure (Csákné Filep et al., 2023). In other words, entrepreneurship education can contribute to the survival and success of new enterprises. Nevertheless, entrepreneurial education programmes should be tailored to the different characteristics of entrepreneurs and industry needs (Ratten & Usmanij, 2021). For example, the findings of Rodríguez-López and Souto (2020) show that training in innovation and business ethics significantly positively affects training in entrepreneurship, but only in its later phases. In its initial stage, training should focus exclusively on entrepreneurship.

The comprehensive knowledge of the impact of entrepreneurship education in former socialist countries is, however, somewhat limited. Individuals' career decisions can be considered a function of risk-taking, income, and independence (Douglas & Shepherd, 2002). Entrepreneurial intention is determined, however, only by risk-bearing and independence, which means that individuals do not expect a higher income when they choose self-employment over employment. The results of Zhang and Cain (2017) show, however, that risk aversion indirectly impacts entrepreneurial intention. This means that risk propensity can shift over time because of external factors and stimuli. The authors suggest that more risk-averse individuals have a less favourable assessment of venturing and are less confident in their ability to recognise business opportunities. Nguyen (2020) found in her literature review that individuals from socialist countries have a higher level of fear of failure, prefer government intervention, and are less open to entrepreneurial activity. Using a sample from ex-socialist North Vietnam and non-socialist South Vietnam, she empirically demonstrated that individuals with a socialist past were less likely to enrol in entrepreneurship training programmes or take over an existing business. In addition, MBA students

from post-communist economies participating in entrepreneurship education require more intrapreneurial than entrepreneurial knowledge (Allan, 2020). Nowiński et al. (2019) investigated whether entrepreneurship education influences entrepreneurial intentions among university students in the Visegrad countries. Their results show that entrepreneurship education affects entrepreneurial intentions mainly through entrepreneurial self-efficacy. The cross-country comparison sheds light on the importance of entrepreneurship education in secondary schools. There is a direct link between entrepreneurship education and entrepreneurial intentions in Poland, as Polish high school graduates already have entrepreneurial knowledge when they enter higher education.

Given the different cultural backgrounds of the former socialist countries, Boyle (2007) proposed a model of entrepreneurship education for CEE universities, emphasising the importance of intellectual and practical experience, the role of professors as mentors, and the development of problem-solving and analytical skills. Guerrero and Marozau (2023) suggest that in implementing policy frameworks to cultivate pro-entrepreneurial values in post-socialist economies, policymakers should recognise that student entrepreneurship is a multi-level phenomenon influenced by individual, university, and country-level factors.

Change in the entrepreneurship ecosystem is a long process, and entrepreneurship education's impact on the growth of entrepreneurial activity can only be measured over many years. For a reliable assessment, Ratten and Usmanij (2021) call for longitudinal studies examining entrepreneurship education's impact on entrepreneurial ecosystems.

Based on the review of the literature, the regional examination of the relationship between entrepreneurial education and the choice of an entrepreneurial career emerges as a topic deserving deeper investigation, with a particular focus on highlighting the impact of cultural and social characteristics in former socialist countries compared to non-socialist ones. The objective of this study is to examine the following research question: Can the impact of entrepreneurship education as an element of the entrepreneurial ecosystem be detected in early-stage entrepreneurial activity in East–Central Europe, and is the effect the same in countries outside the region?

3. Methodology

For the analysis, both the National Expert Survey (NES) and Annual Population Survey (APS) datasets of the GEM were used for the years between 2021 and 2023. As part of the international consortium, national GEM teams collect and analyse data on entrepreneurship and the entrepreneurship ecosystem directly from individual entrepreneurs. The data collection of each national team is coordinated by the Global GEM Team, which conducts multiple checks and quality assurance from the beginning of the process, ensuring the harmonised use of a common methodology before publication (for example (Global Entrepreneurship Monitor [GEM], 2023)). In addition to GEM, the international comparison of entrepreneurial ecosystems is addressed by Doing Business (https://archive.doingbusiness.org/en/doingbusiness accessed on 20 December 2024) and the OECD (https://www.oecd.org/en/about/programmes/entrepreneurial-ecosystems.html accessed on 20 December 2024). However, the geographical and temporal scope of these surveys does not align with the GEM data collection, making a reliable comparison of results infeasible. The paper focuses on the Central and Eastern European region, from which the GEM datasets have data for at least one year in the following 11 countries: (1) Croatia, (2) Estonia, (3) Hungary, (4) Latvia, (5) Lithuania, (6) Poland, (7) Romania, (8) Serbia, (9) Slovakia, (10) Slovenia, (11) Ukraine. The number of countries available in the two datasets slightly varies for the years analysed (see Table 1).

Table 1. Number of countries with data in two datasets by year (source: own elaboration).

Region	2021		2022		2023	
	APS	NES	APS	NES	APS	NES
CEE	7	8	9	9	9	10
Not-CEE	39	43	42	43	35	40
Total	46	51	51	52	44	50

Experts interviewed in the NES answered 36 questions and, therefore, evaluated a particular aspect of the country's entrepreneurial ecosystem between 0 (completely false) and 10 (completely true). These questions are organised by 12 entrepreneurial environment conditions. Answers from the 36 experts are averaged for each question and then aggregated by entrepreneurial environment conditions. The National Entrepreneurship Context Index (NECI) is calculated for each GEM participant country based on these judgements as an arithmetic average of the 12 entrepreneurial environment conditions. This paper analysed the two entrepreneurship education-related entrepreneurial environment conditions and, thus, six expert questions (see Table 2).

Table 2. Variable descriptions—NES (source: own elaboration).

Variable Name	Variable Description
NES_D01_MEAN10	In my country, teaching in primary and secondary education encourages creativity, self-sufficiency, and personal initiative.
NES_D02_MEAN10	In my country, teaching in primary and secondary education provides adequate instruction in market economic principles.
NES_D03_MEAN10	In my country, teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation.
NES_D1SUM_MEAN10	Entrepreneurial level of education at primary and secondary
NES_D04_MEAN10	In my country, colleges and universities provide good and adequate preparation for starting up and growing new firms
NES_D05_MEAN10	In my country, the level of business and management education provides good and adequate preparation for starting up and growing new firms
NES_D06_MEAN10	In my country, the vocational, professional, and continuing education systems provide good and adequate preparation for starting up and growing new firms
NES_D2SUM_MEAN10	Entrepreneurial level of education at vocational, professional, college, and university
NECI3_MEAN10	NECI mean per country
NECI3_STD10	NECI standard deviation per country

The GEM terminology distinguishes four phases of entrepreneurship: (1) expects to start up a business in the next 3 years, (2) nascent entrepreneurship (SU), when no salaries or wages were paid for 3 months, (3) baby business (BB), when salaries or wages have been paid for between 3 and 42 months, and (4) established business (EB), for which salaries or wages have been paid for more than 42 months (for example (Global Entrepreneurship Monitor [GEM], 2023)). Nascent entrepreneurs and baby businesses are considered in total early-stage entrepreneurial activity (TEA). All data are expressed as a percentage of the working age (18–64 years old) population. To provide more detailed results, entrepreneurs are distinguished by the stage of entrepreneurship and gender (see Table 3).

Table 3. Variable descriptions—APS (source: own elaboration).

Variable Name	Variable Description
Estbbuyy	The percentage of all respondents (18–64) involved in an established firm as an owner and manager.
TEAyy	The percentage of all respondents (18–64) involved in a nascent firm, young firm, or both (if both, still counted as one active person).
TEAyymal	The percentage of all males (18–64) involved in a nascent firm, or young firm, or both.
TEAyyfem	The percentage of all females (18–64) involved in a nascent firm, or young firm, or both
EB_yymal	The percentage of all males (18–64) involved in an established business.
EB_yyfem	The percentage of all females (18–64) involved in an established business.

Since the sample comprises data on 44–51 countries, of which 7–9 are linked to the CEE subsample, sophisticated statistical methodologies cannot be applied. Furthermore, although policy changes in entrepreneurship education cannot be expected to immediately impact entrepreneurial activity, the societal context may change over the years, so subsequent years are treated separately, assuming only somehow consistent results indicate a real phenomenon that can be further analysed. For this purpose—as all variables are measured on a ratio scale—Pearson's correlation analysis is an adequate methodology to identify possible relationships between variables. Although correlation analysis cannot reveal the deeper context, it allows us to explore the relationships between variables in the three subsequent years.

4. Results

Our results show a significant correlation ($p < 0.01$) between the two entrepreneurship education-related variables and NECI in the analysed years in the case of both CEE and not-CEE countries. However, this finding is not unexpected as the former are components of the index. Nevertheless, there is a stronger than moderately significant correlation ($p < 0.05$) between TEA and entrepreneurship education in primary and secondary education in both 2021 and 2022, but only in the case of CEE countries, while there is no such relationship in not-CEE countries. This relationship, however, is not significant in 2023 in either group of countries. There is also no significant relationship between EB and other analysed variables in the analysed time frame (Table 4).

Table 4. Correlations between entrepreneurship education and entrepreneurial activity (source: own elaboration).

Indicator	Region		TEA			EB		
			2021	2022	2023	2021	2022	2023
Entrepreneurial level of education at primary and secondary	CEE	Pearson Corr.	0.850 *	0.693 *	0.361	−0.026	0.472	0.335
		Sig. (2-tailed)	0.015	0.039	0.340	0.956	0.200	0.378
	not-CEE	Pearson Corr.	−0.246	−0.138	−0.164	−0.015	−0.096	0.069
		Sig. (2-tailed)	0.132	0.382	0.346	0.926	0.546	0.693
Entrepreneurial level of education at vocational, professional, college, and university	CEE	Pearson Corr.	0.535	0.598	0.433	−0.051	−0.145	0.317
		Sig. (2-tailed)	0.216	0.089	0.244	0.913	0.379	0.406
	not-CEE	Pearson Corr.	−0.059	0.133	0.203	−0.243	0.491	0.000
		Sig. (2-tailed)	0.723	0.401	0.243	0.121	0.180	0.998

* $p < 0.05$.

The correlations between components of entrepreneurship education and entrepreneurial activity confirm these findings. Our results show that the three questions of entrepreneurship education at vocational, professional, college and university levels do not correlate with entrepreneurial activity in the years analysed. There is a significant ($p < 0.05$) and strong or stronger than a moderate correlation between entrepreneurship education at primary and secondary education that (1) encourages creativity, self-sufficiency, and personal initiative and (2) provides adequate instruction in market economic principles and early-stage entrepreneurship in the CEE countries, but only in 2021 and 2022 (Table 5). This finding shows that primary and secondary education may influence entrepreneurial activity in the CEE countries, but this impact is not consistent across the years.

Table 5. Correlations between entrepreneurship education at primary and secondary education and entrepreneurial activity (source: own elaboration).

Indicator	Region		TEA			EB		
			2021	2022	2023	2021	2022	2023
Teaching in primary and secondary education encourages creativity, self-sufficiency, and personal initiative	CEE	Pearson Corr.	0.850 *	0.700 *	0.397	−0.038	0.410	0.339
		Sig. (2-tailed)	0.015	0.036	0.290	0.935	0.273	0.372
	not-CEE	Pearson Corr.	−0.255	−0.118	−0.176	−0.043	−0.123	0.024
		Sig. (2-tailed)	0.117	0.455	0.312	0.793	0.436	0.892
Teaching in primary and secondary education provides adequate instruction in market economic principles	CEE	Pearson Corr.	0.849 *	0.733 *	0.331	−0.110	0.470	0.311
		Sig. (2-tailed)	0.016	0.025	0.385	0.814	0.202	0.416
	not-CEE	Pearson Corr.	−0.237	−0.162	−0.166	0.025	−0.079	0.079
		Sig. (2-tailed)	0.147	0.304	0.341	0.880	0.620	0.651
Teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation	CEE	Pearson Corr.	0.742	0.645	0.387	0.120	0.514	0.315
		Sig. (2-tailed)	0.056	0.061	0.304	0.798	0.157	0.408
	not-CEE	Pearson Corr.	−0.236	−0.130	−0.149	−0.028	−0.087	0.097
		Sig. (2-tailed)	0.147	0.412	0.393	0.863	0.585	0.577

* $p < 0.05$.

The results do not change (Table 6) when the gender of the entrepreneurs is also considered, as there is a moderate or stronger than moderate positive and significant correlation ($p < 0.05$) between TEA and entrepreneurship education at the primary and secondary level in 2021 for both genders, but only for males in 2022. In not-CEE countries, there is a significant but weak negative correlation only in the case of female established business owners and entrepreneurship education at the vocational, professional, college, and university levels in 2022. However, the relationship between entrepreneurial activity and entrepreneurship education does not persist for the year 2023.

Table 6. Correlations between entrepreneurship education at primary and secondary education and entrepreneurial activity by gender (source: own elaboration).

Indicator	Region		Entrepreneurial Level of Education at Primary and Secondary			Entrepreneurial Level of Education at Vocational, Professional, College and University		
			2021	2022	2023	2021	2022	2023
TEA—male	CEE	Pearson Corr.	0.846 *	0.683 *	0.283	0.505	0.560	0.353
		Sig. (2-tailed)	0.017	0.042	0.461	0.248	0.117	0.351
	not-CEE	Pearson Corr.	−0.257	−0.135	−0.165	−0.070	0.118	0.184
		Sig. (2-tailed)	0.114	0.393	0.343	0.673	0.457	0.289
TEA—female	CEE	Pearson Corr.	0.813 *	0.660	0.456	0.555	0.622	0.528
		Sig. (2-tailed)	0.026	0.053	0.217	0.196	0.074	0.144
	not-CEE	Pearson Corr.	−0.290	−0.171	−0.166	−0.107	0.118	0.212
		Sig. (2-tailed)	0.073	0.278	0.340	0.518	0.458	0.222
EB—male	CEE	Pearson Corr.	0.236	0.632	0.344	0.222	0.656	0.401
		Sig. (2-tailed)	0.611	0.068	0.365	0.633	0.055	0.284
	not-CEE	Pearson Corr.	−0.079	−0.158	0.072	−0.208	−0.334 *	−0.002
		Sig. (2-tailed)	0.633	0.318	0.682	0.203	0.030	0.992
EB—female	CEE	Pearson Corr.	−0.392	0.192	0.288	−0.432	0.199	0.181
		Sig. (2-tailed)	0.384	0.621	0.452	0.333	0.608	0.641
	not-CEE	Pearson Corr.	−0.010	−0.025	0.031	−0.119	−0.108	−0.009
		Sig. (2-tailed)	0.954	0.877	0.860	0.472	0.495	0.958

* $p < 0.05$.

5. Discussion

The results show no consistent relationship between entrepreneurial activity and entrepreneurship education. On the one hand, there is a significant ($p < 0.05$) and stronger than moderate positive correlation between entrepreneurship education at primary and secondary education and TEA in the CEE countries in 2021 and 2022, a relationship which does not exist in the non-CEE countries. Deeper analyses show that this finding can be explained by two indicators, namely primary and secondary education, which (1) encourage creativity, self-sufficiency, and personal initiative and (2) provide adequate instruction in market economic principles. The findings are maintained when analysing genders, as there is a significant correlation ($p < 0.05$) between entrepreneurship education at primary and secondary education and the TEA of males in both years. Still, there is a similar relationship for females only in 2021. On the other hand, however, this correlation does not persist for the year 2023; there is no significant relationship between entrepreneurial activity and entrepreneurship education in either group of countries.

We suggest that this inconsistency of results may be explained by the multiple economic turbulences which affect the CEE region at the same time. First, the war in Ukraine has direct consequences on the country group. For example, Eastern EU member states are more reliant on the Russian gas supply, so high energy prices experienced since mid-2021 had a more severe economic impact (Kotek et al., 2023). As a result, inflation soared in the region, causing a significant drop in societal well-being. Second, contrary to fiscal stimulus, the EU's economy had not recovered from the COVID-19 crisis, as the GDP was still below the 2019 level in 2021 (Eurostat, 2022). Third, the pandemic and the war coincided with the EU's more ambitious plans for green transition (Mišík & Nosko, 2023), which means a further challenge for the CEE region. As moderating effects of the above-mentioned

external circumstances cannot be differentiated, further analyses are needed. Thus, we suggest conducting country-level investigations to understand better the relationship between entrepreneurial activity and entrepreneurship education in the CEE region.

The practical implications of the results are that introducing entrepreneurship education into the curriculum as early as possible may stimulate the creation of new businesses. When designing curricula, entrepreneurship education practitioners should aim to engage young individuals in entrepreneurship education at an early age. The skills development part of the curriculum in CEE countries should focus on creativity, self-sufficiency, and personal initiative. In contrast, the theoretical part should focus on the principles of the market economy.

Our results have two main limitations. First, the sample of CEE countries is relatively small (n = 7 in 2021 and n = 9 in 2022 and 2023). However, this sample can be considered large enough to represent the region as it consists of countries from each region (the Baltics, Visegrad countries, former Yugoslavia, etc.). Second, the analysis concerns only data from the years between 2021 and 2023.

6. Conclusions

The paper analyses the relationship between entrepreneurial activity and entrepreneurship education concerning CEE countries and the rest of the world. For this purpose, datasets from the Global Entrepreneurship Monitor were used for the years between 2021 and 2023.

The analysis reveals a significant correlation ($p < 0.01$) between entrepreneurship education-related variables and the National Entrepreneurship Context Index (NECI) in both CEE and non-CEE countries, reflecting their inclusion in the index. Notably, a stronger than moderate correlation ($p < 0.05$) exists between total early-stage entrepreneurial activity (TEA) and primary/secondary entrepreneurship education in 2021 and 2022, but only in CEE countries. This correlation disappears in 2023, indicating an inconsistent influence over time. No significant relationship is observed between entrepreneurial activity and entrepreneurship education at vocational, professional, or tertiary levels during the analysed period. Gender analysis shows a significant positive correlation between TEA and primary/secondary entrepreneurship education in 2021 for both genders in CEE countries but only for males in 2022. In contrast, non-CEE countries exhibit a weak negative correlation between female established business owners and tertiary-level entrepreneurship education in 2022. Overall, primary and secondary education encouraging creativity and economic understanding may influence entrepreneurial activity in CEE countries, albeit inconsistently over the years.

An important message for policymakers is that the role and impact of entrepreneurship education varies from region to region. In the post-communist countries of CEE, the quality of entrepreneurship education is correlated with the number of new business start-ups. Entrepreneurship education likely has a more significant and demonstrable impact on entrepreneurship than in Western countries by transforming the cultural legacy of the socialist past that hinders the intention to become an entrepreneur. Therefore, mainstreaming entrepreneurship education in the curriculum from primary and secondary education and implementing international best practices in entrepreneurship education are high priorities in developing the entrepreneurial ecosystem. Nonetheless, it should be emphasised that the effects of such measures can be assessed only in the long run.

Author Contributions: Conceptualization, J.C.F.; Methodology, J.C.F.; Validation, Á.S.; Formal analysis, Á.S.; Writing—original draft, Á.S.; Writing—review and editing, J.C.F., G.T. and Á.S.; Supervision, J.C.F.; Funding acquisition, G.T. All authors have read and agreed to the published version of the manuscript.

Funding: Project no. TKP2021-NKTA-44 has been implemented with the support provided by the Ministry of Innovation and Technology of Hungary from the National Research, Development and Innovation Fund, financed under the TKP2021-NKTA funding scheme.

Institutional Review Board Statement: Not applicable.

Data Availability Statement: The data presented in this study are available on request from the corresponding author due to data embargo policy of the Global Entrepreneurship Monitor consortium.

Conflicts of Interest: The authors declare no conflicts of interest.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. [CrossRef]

Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, *2*(4), 314–324. [CrossRef]

Allan, I. S. (2020). Entrepreneurship education and creation of postgraduate entrepreneurs in a post-socialist economy. *Papers in Education and Development*, *38*(1), 167–188.

Alvarez, C., & Urbano, D. (2012). Cultural-cognitive dimension and entrepreneurial activity: A cross-country study. *Revista de Estudios Sociales*, *44*(44), 146–157. [CrossRef]

Anwar, I., Ahmad, A., Saleem, I., & Yasin, N. (2023). Role of entrepreneurship education, passion and motivation in augmenting Omani students' entrepreneurial intention: A stimulus-organism-response approach. *The International Journal of Management Education*, *21*(3), 100842. [CrossRef]

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory* (pp. xiii, 617). Prentice-Hall, Inc.

Bauernschuster, S., Falck, O., Gold, R., & Heblich, S. (2012). The shadows of the socialist past: Lack of self-reliance hinders entrepreneurship. *European Journal of Political Economy*, *28*(4), 485–497. [CrossRef]

Bohle, D., & Greskovits, B. (2012). *Capitalist diversity on Europe's periphery*. Cornell University Press.

Boyle, T. J. (2007). A new model of entrepreneurship education: Implications for central and eastern European universities. *Industry and Higher Education*, *21*(1), 9–19. [CrossRef]

Bruton, G. D., Ahlstrom, D., & Li, H. (2010). Institutional theory and entrepreneurship: Where are we now and where do we need to move in the future? *Entrepreneurship Theory and Practice*, *34*(3), 421–440. [CrossRef]

Cho, Y. H., & Lee, J.-H. (2018). Entrepreneurial orientation, entrepreneurial education and performance. *Asia Pacific Journal of Innovation and Entrepreneurship*, *12*(2), 124–134. [CrossRef]

Chowdhury, F., & Audretsch, D. B. (2014). Institution as looting apparatus: Impact of gender equality and institutions on female entrepreneurship. *Eurasian Business Review*, *4*(2), 207–225. [CrossRef]

Csákné Filep, J., Radácsi, L., Szennay, Á., & Timár, G. (2023). *Taking initiative and earning a living—Entrepreneurial motivations and opportunity perception in Hungary*. Budapesti Gazdasági Egyetem. Available online: https://budapestlab.hu/wp-content/uploads/2023/08/GEM-BGE_beliv_2023_angol_webre.pdf (accessed on 28 June 2023).

Csákné Filep, J., Szennay, Á., & Radácsi, L. (2019). *A magyar startup vállalkozások nyomában* (2nd ed.). BGE Budapest LAB—Working Paper Series; Budapesti Gazdasági Egyetem Budapest LAB. Available online: https://budapestlab.hu/wp-content/uploads/2019/03/WP_2_2019_zart.pdf (accessed on 2 October 2023).

Csizmadia, P., Makó, C., & Heidrich, B. (2016). Managing succession and knowledge transfer in family businesses: Lessons from a comparative research. *Vezetéstudomány/Budapest Management Review*, *47*(11), 59–69. [CrossRef]

Doan, K. H. (2022). The differences in the impact of entrepreneurship education on entrepreneurial knowledge: A cross-country analysis. *Management & Marketing*, *17*(1), 73–97. [CrossRef]

Douglas, E. J., & Shepherd, D. A. (2002). Self-employment as a career choice: Attitudes, entrepreneurial intentions, and utility maximization. *Entrepreneurship Theory and Practice*, *26*(3), 81–90. [CrossRef]

Dubina, I. N., & Ramos, S. J. (2013). Entrepreneurship and national culture (According to Hofstede's model). In E. G. Carayannis (Ed.), *Encyclopedia of creativity, invention, innovation and entrepreneurship* (pp. 634–638). Springer. [CrossRef]

Ediagbonya, K. (2013). The roles of entrepreneurship education in ensuring economic. *Journal of Business Administration and Education*, *4*(1), 35–46.

European Commission. (2012). *Rethinking education: Investing in skills for better socio-economic outcomes* (COM(2012) 669). Available online: https://www.cedefop.europa.eu/files/com669_en.pdf (accessed on 29 September 2023).

European Commission. (2013). *Entrepreneurship 2020 action plan reigniting the entrepreneurial spirit in Europe* (COM(2012) 795 final). Available online: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0795:FIN:en:PDF (accessed on 25 May 2021).

Eurostat. (2022). *EU's GDP up by 5.4% in 2021 but still below 2019 level*. Available online: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20220629-2 (accessed on 12 December 2023).

Fellnhofer, K. (2019). Toward a taxonomy of entrepreneurship education research literature: A bibliometric mapping and visualization. *Educational Research Review*, *27*, 28–55. [CrossRef]

Galvão, A., Ferreira, J. J., & Marques, C. (2017). Entrepreneurship education and training as facilitators of regional development: A systematic literature review. *Journal of Small Business and Enterprise Development*, *25*(1), 17–40. [CrossRef]

Global Entrepreneurship Monitor [GEM]. (2023). *Global Entrepreneurship Monitor 2022/2023 global report: Adapting to a "new normal"*. Available online: https://gemconsortium.org/file/open?fileId=51147 (accessed on 22 February 2023).

Gubik, A. S., & Farkas, S. (2019). Entrepreneurial intention in the visegrad countries. *DANUBE*, *10*(4), 347–368. [CrossRef]

Guerrero, M., & Marozau, R. (2023). Assessing the influence of institutions on students' entrepreneurial dynamics: Evidence from European post-socialist and market-oriented economies. *Small Business Economics*, *60*(2), 503–519. [CrossRef]

Hofstede, G. (2011). Dimensionalizing cultures: The hofstede model in context. *Online Readings in Psychology and Culture*, *2*(1). [CrossRef]

Huszák, L., & Jáki, E. (2022). Perspectives of entrepreneurship education in the Danube region. *Köz-Gazdaság—Review of Economic Theory and Policy*, *17*(3), 3–11. [CrossRef]

Jena, R. K. (2020). Measuring the impact of business management Student's attitude towards entrepreneurship education on entrepreneurial intention: A case study. *Computers in Human Behavior*, *107*, 106275. [CrossRef]

Knörr, H., Alvarez, C., & Urbano, D. (2013). Entrepreneurs or employees: A cross-cultural cognitive analysis. *International Entrepreneurship and Management Journal*, *9*(2), 273–294. [CrossRef]

Kotek, P., Selei, A., Takácsné Tóth, B., & Felsmann, B. (2023). What can the EU do to address the high natural gas prices? *Energy Policy*, *173*, 113312. [CrossRef]

Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology*, *47*(1), 36–49. [CrossRef]

Lesinskis, K., Carvalho, L., Mavlutova, I., & Dias, R. (2022). Comparative analysis of students' entrepreneurial intentions in Latvia and other CEE countries. *WSEAS Transactions on Business and Economics*, *19*, 1633–1642. [CrossRef]

Ligthelm, A. (2011). Survival analysis of small informal businesses in South Africa, 2007–2010. *Eurasian Business Review*, *1*(2), 160–179. [CrossRef]

Mack, A. J., White, D., & Senghor, O. (2021). The benefits of exposing post-secondary students to entrepreneurship training in Trinidad and Tobago. *Humanities and Social Sciences Communications*, *8*(1), 223. [CrossRef]

Martínez-Gregorio, S., Badenes-Ribera, L., & Oliver, A. (2021). Effect of entrepreneurship education on entrepreneurship intention and related outcomes in educational contexts: A meta-analysis. *The International Journal of Management Education*, *19*(3), 100545. [CrossRef]

Matlay, H. (2008). The impact of entrepreneurship education on entrepreneurial outcomes. *Journal of Small Business and Enterprise Development*, *15*(2), 382–396. [CrossRef]

Mišík, M., & Nosko, A. (2023). Post-pandemic lessons for EU energy and climate policy after the Russian invasion of Ukraine: Introduction to a special issue on EU green recovery in the post-Covid-19 period. *Energy Policy*, *177*, 113546. [CrossRef] [PubMed]

Mitra, J., & Matlay, H. (2004). Entrepreneurial and vocational education and training: Lessons from eastern and central Europe. *Industry and Higher Education*, *18*(1), 53–61. [CrossRef]

Mosolygó-Kiss, Á., Heidrich, B., & Chandler, N. (2019). *Ready or not here I come! A study of human capital in family business to guage successors' readiness for intra-family takeover*. Available online: https://www.researchgate.net/publication/332556057_Ready_or_not_here_I_come_A_study_of_human_capital_in_family_business_to_guage_successors'_readiness_for_intra-family_takeover (accessed on 29 September 2023).

Nabi, G., Walmsley, A., Liñán, F., Akhtar, I., & Neame, C. (2018). Does entrepreneurship education in the first year of higher education develop entrepreneurial intentions? The role of learning and inspiration. *Studies in Higher Education*, *43*(3), 452–467. [CrossRef]

Nguyen, L. T. (2020). *Socialism and entrepreneurship* [Ph.D. thesis, Universität Trier].

Nowiński, W., Haddoud, M. Y., Lančarič, D., Egerová, D., & Czeglédi, C. (2019). The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries. *Studies in Higher Education*, *44*(2), 361–379. [CrossRef]

Nölke, A., & Vliegenthart, A. (2009). Enlarging the varieties of capitalism: The emergence of dependent market economies in east central Europe. *World Politics*, *61*(4), 670–702. [CrossRef]

Olutuase, S., Brijlal, P., & Yan, B. (2018). Entrepreneurial orientation and intention: Impact of entrepreneurial ecosystem factors. *Journal of Entrepreneurship Education*, *21*(3), 1–14.

Onjewu, A.-K. E., Haddoud, M. Y., & Nowiński, W. (2021). The effect of entrepreneurship education on nascent entrepreneurship. *Industry and Higher Education*, *35*(4), 419–431. [CrossRef]

Otache, I., Edopkolor, J. E., Sani, I. A., & Umar, K. (2024). Entrepreneurship education and entrepreneurial intentions: Do entrepreneurial self-efficacy, alertness and opportunity recognition matter? *The International Journal of Management Education*, *22*(1), 100917. [CrossRef]

Radziszewska, A. (2014). Intercultural dimensions of entrepreneurship. *Journal of Intercultural Management*, *6*(2), 35–47. [CrossRef]

Ratten, V., & Usmanij, P. (2021). Entrepreneurship education: Time for a change in research direction? *The International Journal of Management Education*, *19*(1), 100367. [CrossRef]

Rodríguez-López, Á., & Souto, J. E. (2020). Empowering entrepreneurial capacity: Training, innovation and business ethics. *Eurasian Business Review*, *10*(1), 23–43. [CrossRef]

Sachs, J. (1990). *What is to be done? The Economist*. Available online: https://www.economist.com/europe/1990/01/13/what-is-to-be-done (accessed on 29 September 2023).

Santos, S. C., & Liguori, E. W. (2019). Entrepreneurial self-efficacy and intentions: Outcome expectations as mediator and subjective norms as moderator. *International Journal of Entrepreneurial Behavior & Research*, *26*(3), 400–415. [CrossRef]

S. Gubik, A. (2013). A magyar hallgatók vállalkozásindító szándékát befolyásoló tényezők modellje—Ajzen tervezett magatartás elméletének kiterjesztése (Model of the Hungarian students' business start-up intention influencing factors—Extending of Ajzen's Theory of Planned Behavior). *Vezetéstudomány—Budapest Management Review*, *44*(7–8), 19–29. [CrossRef]

Su, J., Zhai, Q., & Karlsson, T. (2017). Beyond red tape and fools: Institutional theory in entrepreneurship research, 1992–2014. *Entrepreneurship Theory and Practice*, *41*(4), 505–531. [CrossRef]

Sýkora, L. (2009). Post-Socialist Cities. In R. Kitchin, & N. Thrift (Eds.), *International encyclopedia of human geography* (pp. 387–395). Elsevier. Available online: https://www.sciencedirect.com/science/article/pii/B9780080449104010725 (accessed on 3 March 2022).

Szerb, L., & Lukovszki, L. (2013). Magyar egyetemi hallgatók vállalkozási attitűdjei és az attitűdöket befolyásoló tényezők elemzése a GUESSS-felmérés adatai alapján—Kik is akarnak ténylegesen vállalkozni? (Entrepreneurial attitudes of the Hungarian students and the analysis of the factors influencing attitudes based on the datas of GUESSS survey—Who want to undertake really?). *Vezetéstudomány—Budapest Management Review*, *44*(7–8), 30–40. [CrossRef]

Urbano, D., Aparicio, S., & Audretsch, D. (2019). Twenty-five years of research on institutions, entrepreneurship, and economic growth: What has been learned? *Small Business Economics*, *53*(1), 21–49. [CrossRef]

Zhang, P., & Cain, K. W. (2017). Reassessing the link between risk aversion and entrepreneurial intention: The mediating role of the determinants of planned behavior. *International Journal of Entrepreneurial Behavior & Research*, *23*(5), 793–811. [CrossRef]