FONDAZIONE ARISTIDE MERLONI

ECONOMIA MARCHE **Journal of Applied Economics**

Vol. XLII, No.2, Settembre 2023

Comparative Analysis of COVID-19 Pandemic Impact on Entrepreneurship in Selected Adriatic-Ionian Region and EU Countries

M. Ivanović-Đukić *University of Niš, Serbia*
S. Stefanović, *University of Niš, Serbia*
T. Rađenović, *University of Niš, Serbia*
T. Stevanović, *University of Niš, Serbia*

Abstract

This paper investigates the impact of the COVID-19 pandemic on total entrepreneurial activity (TEA) in selected countries of the Adriatic-Ionian Region in 2020 and 2021. The impact of the COVID-19 pandemic was measured through the following factors: a decrease in household income, starting a business is more difficult than a year ago, entrepreneurs pursuing new opportunities due to the pandemic, and increased use of digital technology to sell products or services. Using data for 13 EU countries, 4 in the Adriatic-Ionian Region and 9 in the other part of the EU, we found that changes in household income and recognized market opportunities have had a significant impact on total early-stage entrepreneurial activity (TEA) in the Adriatic-Ionian region, as well as in the other part of the EU during COVID-19 pandemic. Furthermore, this research pointed out, that decrease in household income encouraged entrepreneurship driven by necessity during the pandemic. Also, recognized market opportunities encouraged the establishment of a new business regardless of the difficulties caused by the pandemic. Recommendations are given on how to revive the economy by encouraging the development of entrepreneurship.

JEL Classification:

Keywords: *entrepreneurship, COVID-19 pandemic, post-pandemic recovery, Adriatic-Ionian Region*

Affiliations and attributions

Maja Ivanović-Đukić, Faculty of Economics, University of Niš, Serbia.
E-mail: maja.djukic@eknfak.ni.ac.rs

Suzana Stefanović**,** Faculty of Economics, University of Niš, Serbia.
E-mail: suzana.stefanovic@eknfak.ni.ac.rs

Tamara Rađenović, Faculty of Occupational Safety, University of Niš, Serbia.
E-mail: tamara.radjenovic@znrfak.ni.ac.rs

Tatjana Stevanović, Faculty of Economics, University of Niš, Serbia.
E-mail: tatjana.stevanovic@eknfak.ni.ac.rs

Acknowledgements

This research was financially supported by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia (Contracts No. 451-03-47/2023-01).

1. Introduction

The COVID-19 pandemic has been a great challenge for entrepreneurs and SMEs. Many small businesses were closed by December 2021, due to a decrease in household income and market demand changed individual's lifestyles, culture, and social interactions, as well as living and working conditions (Ratten, 2020). Especially firms in hospitality, retail, personal services, entertainment, and the arts industry, were affected due to close contact between individuals as part of their business models (Belitski et al., 2021). The changed circumstances in society, in times of pandemic, in many industries made it more difficult to start a business than a year ago. On the other hand, changes in the market provided new opportunities for entrepreneurs. For example, rapidly evolving medical technologies and new ways of handling the COVID-19 crisis offered opportunities for entrepreneurs to start new businesses (Kuckertz et al., 2020). Additionally, the emergence of digital technologies has significantly reduced the costs of entrepreneurs and offered opportunities for new businesses during the COVID-19 pandemic, due to the changes in people's lifestyles (Liguori & Winkler, 2020). This led to an increase in the number of entrepreneurs (Liguori & Winkler, 2020).

Bearing in mind the fact that the pandemic caused a large number of challenges in the development of entrepreneurship, but at the same time created numerous opportunities, it is still not completely clear what the overall effect of the pandemic on entrepreneurship is. At the time of the paper's release, the outlook for the pandemic and the situation in entrepreneurship remains highly uncertain. For this reason, it could be very important to identify factors that have a significant impact on entrepreneurial activity and propose measures whose implementation can encourage the development of entrepreneurship in the post-pandemic period, and this is the aim of the paper. The focus of the research in the paper will be the impact of the COVID-19 pandemic on entrepreneurship in the selected countries of Adriatic-Ionian Region, but the obtained results will be compared to the situation in the other part of the EU. The paper

supports these considerations with statistical analysis, based on cross-sectional analysis for 2020 and 2021 in the sample of 13 EU countries. The aim of the paper is to identify factors that can force the development of entrepreneurship and economic recovery in the Adriatic-Ionian Region in the post-pandemic period.

The paper first gives an overview of the literature that researches the development of entrepreneurship under the conditions of COVID-19. The next part of the paper presents the methodology, the obtained results, the discussion of results, and recommendations to macroeconomic policymakers. The final part of the paper presents concluding remarks.

2. Literature review and the hypotheses development

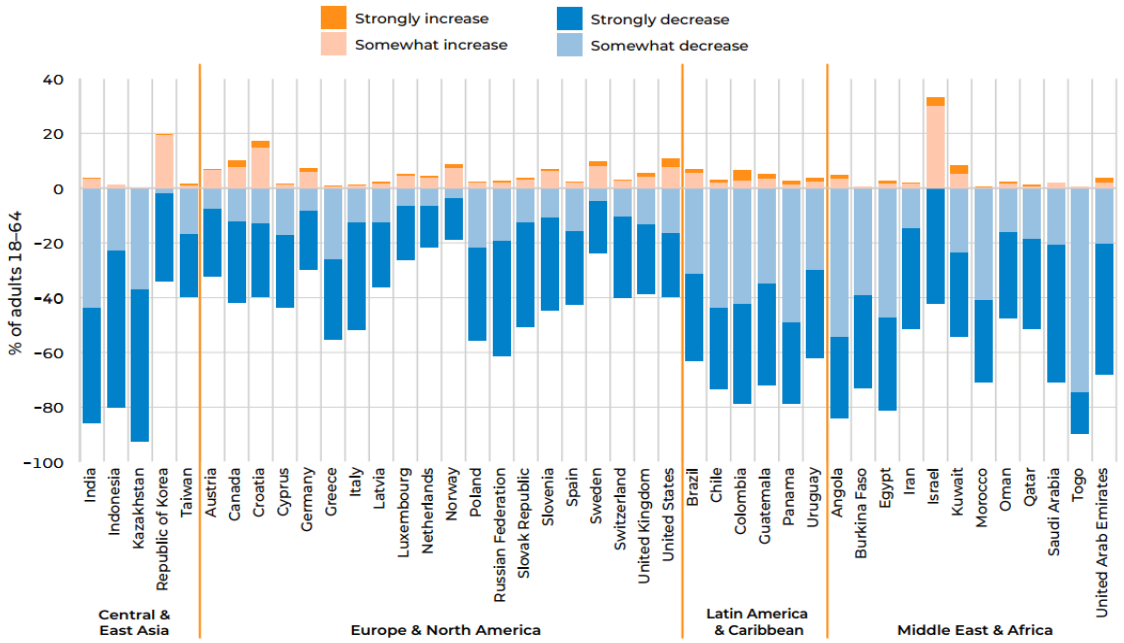
The COVID-19 pandemic has endangered the lives and well-being of millions on the planet (Worldometers, 2021) and has reshaped humanity as we know it (Parnell et al., 2020). The effects of this disease have caused the collapse of numerous healthcare systems around the globe and led the World Health Organization to declare a worldwide pandemic on the 11th of March 2020. As there was no known pharmaceutical cure or treatment for the disease, measures, such as social distancing, self-isolation, hand washing, personal hygiene, and lockdowns were promoted in many countries, in order to prevent the virus from spreading rapidly (Ratten, 2020). Such measures helped to stop the spread of the disease but, at the same time, they changed people's lifestyles significantly and caused a lot of restrictions (mobility restrictions, closures of playgrounds, schools, and universities).

The pandemic had flow-on effects on the whole society, as well as on the economy. Measures, promoted during the pandemic changed working conditions in all organizations –protective masks and social distance at workplaces were mandatory, and digital forms of communication and working from home were promoted (Kuckertz et al., 2020). Mobility restrictions, promoted during the pandemic and lockdowns in many countries had a great influence on the global economy, particularly on the tourism and hospitality industries. Due to travel restrictions (a lot of countries closed their borders) international travel stopped and a lot of SMEs were closed (in the areas of tourism, hospitality, transportation, services, etc.). Reduced travel and work-from-home decreased demand for many products (primarily clothing, footwear, cosmetics...), which reduced the operational activities of production companies (Ratten, 2020). Many companies had to restrain their business activities completely which caused a decrease in revenue and profit (Fairlie, 2020). Also, a lot of companies faced difficulties in accessing financial capital and often lacked physical resources (Belitski et al., 2021). Due to these and a large number of other problems, the pandemic has led to massive layoffs and closures in many countries, which caused a decrease in the economy, as well as in total early-stage entrepreneurial activity (TEA). According to Global Entrepreneurship Monitor (GEM) Reports (Bosma et al., 2020, p.16; Hill et al, 2021, p.17) the level of TEA has generally dropped during the pandemic. Some of the key factors that have been identified as causes of the decrease in TEA are the following: the pandemic has led household income to decrease and starting a business is more difficult due to the pandemic, than a year ago. On the other hand, some factors such as new opportunities due to the pandemic and intensive use of digital technology to sell products and services, encourage the development of entrepreneurship. We will analyse the impact of each of these factors in this paper.

Previous research shows that one of the key constraints to starting and developing new businesses is the lack of capital (Stefanovic et al., 2013). Entrepreneurs all over the world have traditionally been facing the problem of the provision of initial capital (Kerr & Nanda, 2009). Start-up bank loans are often seen as unfavourable because of the high risk that the entrepreneurial business involves and the long period of return on investment in innovation (Moskowitz, 2002). Besides, entrepreneurs' access to market capital

is difficult, which is why the provision of funding sources can be viewed as a serious problem in the development of entrepreneurship. A large number of entrepreneurs use their own funds to start their businesses (Bálint, 2013). Own funds are directly dependent on household income. According to GEM Reports (Bosma et al., 2020, p. 16), household income has taken a substantial knock-on hit – across the world – because of the pandemic. Out of 43 economies that carried out GEM's Adult Population Survey, there are only six, where less than one in three adults reported a decrease in household income due to the pandemic in 2020. It is shown in Figure 1.

Figure 1: The impact of the pandemic on household income in 2020 (% of adults aged 18-64 in each category)



Source: Bosma et al., (2020) Global Entrepreneurship Monitor Report, Global Entrepreneurship Research Association, p. 28

The situation was even worse in 2021. In 22 of the 47 economies, included in GEM research, more than one in two adults agreed that their household income had decreased (Hill et al., 2021, p.17). A decrease in household income caused a large number of businesses to exit. At the same time, due to the decrease in household income and the increase in fear and uncertainty during the pandemic, a large number of people gave up their entrepreneurial intentions.

In addition to the decrease in household income, the COVID-19 pandemic has created a lot of other challenges for entrepreneurs. Many economies were in lockdown, with international travel restricted or banned, and many shops, restaurants, and hotels closed. This has created a huge number of problems for entrepreneurs in these areas. In addition, people were increasingly encouraged to work from home. For these reasons, many established businesses were hit hard, as orders drained away, and many new businesses were inevitably still born as markets evaporated (Ratten, 2020). Also, starting a new business has become more difficult compared to the situation before the pandemic. Due to all of the above mentioned, we assume that the decrease in family income and the worsening of the conditions for starting a business had a negative impact on entrepreneurship. Our first hypothesis is:

H1: Decrease in household income and bad conditions for starting a business significantly impacted the decrease in total early-stage entrepreneurial activity during the COVID-19 pandemic in selected countries of the Adriatic-Ionian Region.

At the same time, changes in people's lifestyles, during the pandemic, increase opportunities for some entrepreneurs (Parnell et al., 2020). As it is known, entrepreneurs are individuals who exploit a business opportunity through some form of innovation (Kirzner, 2009). It means that entrepreneurs foresee a gap in the market that can be filled by a new form of product, process, or service that will lead to profit (Williams et al. 2017). Entrepreneurs may introduce important innovations, by entering markets with new products or production processes; enhancing knowledge of what is technically viable and what consumers prefer; introducing variations of existing products and services in the market (Van Stel et al., 2018; Williams et al., 2017). The business creativity and innovations involved in agile and resilient new businesses can help entrepreneurs to find opportunities in the upheaval that the pandemic has caused globally (Zahra, 2021). Also, the resulting learning process can speed up the discovery of the dominant design for product-market combinations enabling knowledge spillovers, stimulating economic growth and revitalization of the economy in the post-COVID-19 period. During COVID-19 pandemic new opportunities emerged with initial and ongoing massive consumer demand for sanitizing products and protective personal equipment, followed rapidly by demand for online education and entertainment, then for online sales (Ivanović-Đukić et al., 2022). These new opportunities provided a chance for entrepreneurs to start new businesses or expand existing ones. Therefore, we assume that this factor had a positive impact on entrepreneurship. Our next hypothesis is:

H2: The recognition of new opportunities during the COVID-19 pandemic has had a positive impact on total early-stage entrepreneurial activity in the selected countries of the Adriatic-Ionian Region.

One of the special opportunities that has arisen in most industries during the pandemic is the use of digital technology to sell products and services or start completely new businesses (Meurer et al., 2021). Before the virus started there was already a trend toward digitalization. This trend was accelerated when the pandemic started. Entrepreneurs have begun to use the possibilities offered by digital technology to adapt their businesses to new consumer demands related to the changed lifestyle (for example, online shopping and home deliveries, takeaway food deliveries, online education, and entertainment) (Acs et al., 2021). During the pandemic, most of the existing entrepreneurs adopted digital technologies and developed strategic, managerial, and digital skills to increase their efficiency (Audretsch & Belitski, 2021). At the same time, the emergence of the use of digital platforms by customers during the pandemic has encouraged a lot of entrepreneurs to start a new business online (using social networks, online platforms for sale, or creating their own websites), taking advantage of the reduced costs of starting a business on the Internet (Liguori & Winkler, 2020), as well as digital communication and support of online communities in order to resolve problems, reframe problems, reflect on situations, refocus thinking and efforts (Meurer et al., 2021). Many entrepreneurs have even started online business, working from home, in order to get rid of frustration, loneliness, worry about the future, and improve financial performance (Banerjee & Rai, 2020; Zhang et al., 2022). In addition, the development of new technologies such as artificial intelligence, the Internet of Things, cloud computing, etc., have provided opportunities for entrepreneurs to offer completely new digital solutions and launch fast-growing innovative businesses. Entrepreneurs able to create a platform-based ecosystem, have become a force of "creative destruction" (Acs et al., 2021), very often working from home (Block et al., 2021). This has given rise to more location-independent entrepreneurs and digital nomads that can work from any location, which is also a stimulus for starting a new business and becoming an entrepreneur. Due to all the above, we believe that the use of digital technology has had a positive impact on the development of entrepreneurship. Our last hypothesis is:

H3: The usage of digital technology during the COVID-19 pandemic has had a positive impact on the total early-stage entrepreneurial activity in the selected countries of the Adriatic-Ionian Region.

3. Data and methodology

3.1. Research context

Adriatic-Ionian Region is a functional area primarily defined by the Adriatic and Ionian Sea basins, including more than 70 million people and 8 countries. There are very noticeable socio-economic differences across the countries in the Region between countries (in the level of unemployment; gross domestic product (GDP) per capita, road, rail, and maritime infrastructure, etc.). On the other side, there are numerous common needs of the region, such as energy networks to ensure a secure and efficient supply across the Region, protection of bio-ecosystems that are under intense pressure due to the ever-increasing human use of marine and coastal space, over-fishing, untreated waste, oil and gas pollution and the illegal hunting of migratory birds. In terms of economic potential, the tourism sector is not optimally managed or exploited and could benefit from better coordination. The region has great potential. For example, the sea basin provides a natural waterway penetrating deep into the EU, also, there are natural beauty and rich cultural, historic, and archaeological heritage (EU Regional Strategy, 2014, p. 3).

In order to address a number of pressing socio-economic and environmental challenges, the European Commission adopted a macro-regional strategy for that region which was endorsed by the European Council in 2014. The aim was to promote economic growth and prosperity in the Region by improving its attractiveness, competitiveness, and connectivity, protecting the sea, coastal and inland environment, and ecosystems, and better integrating into the EU both candidate and potential candidate countries across the Region (EU Regional Strategy, 2014, p. 7).
The new EU Strategy for the Adriatic and Ionian Region (EUSAIR), facilitating the enlargement process of the Western Balkans, was adopted in 2020. One of the main aim of this strategy is to encourage research, innovation, entrepreneurship, and SMEs in the region (EU Strategy 2020, p. 20). A large number of action plans have been adopted in the direction of achieving this goal, which are expected to encourage the development of entrepreneurship, especially innovative ones in the region.

3.2. Sample characteristics

As stated above, Adriatic-Ionian Region includes 8 countries – four EU Member States: Croatia, Greece, Italy, and Slovenia, and four non-EU countries: Serbia, Bosnia and Herzegovina, Montenegro, and Albania. Given that the indicators on early-stage entrepreneurial activity (TEA) in the GEM Reports for the analysed years are available only for countries from the Region that are members of the EU, and not for Serbia, Bosnia and Herzegovina, Montenegro, and Albania, our sample will include only four countries of the Region that are EU members. On the other hand, we will also include in the research sample 9 other EU countries for which there are available data, which will be used as a basis for comparison. The list of selected countries is presented in Table 1.

Table 1: Countries included in the study and TEA in 2020 and 2021

EU countries from Adriatic-Ionian Region			Selected EU countries		
Country	**TEA 2020**	**TEA 2021**	**Country**	**TEA 2020**	**TEA 2021**
Italy	1.9	4.8	Cyprus	8.6	8.4
Slovenia	6	6.7	Germany	4.8	6.9
Croatia	12.7	12.4	Latvia	15.6	15.1
Greece	8.6	5.5	Luxembourg	8	7.3
			Netherlands	11.5	14.2
			Poland	3.1	2
			Slovakia	13.9	6.4
			Spain	5.2	5.5
			Sweden	5.3	9

Source: Bosma et al., (2020). Global Entrepreneurship Monitor Report, https://www.gemconsortium.org/

3.3. Research model and variables

In order to verify defined hypotheses, correlation and regression methods were applied. We examined the correlation between TEA on the one side and the impact of the COVID-19 pandemic on the other side in 2020 and 2021. The impact of the COVID-19 pandemic is measured through the following factors: a decrease in household income, starting a business is more difficult than a year ago, entrepreneurs pursue new opportunities due to pandemic, and increased use of digital technology to sell products or services. Models include the control variable National Entrepreneurship Context Index (NECI). The variables employed in the regression models are presented in Table 2.

Table 2: Variables employed in the correlation and regression models

Variable	Variable Type
Total early-stage entrepreneurial activity (TEA)	Dependent
National Entrepreneurship Context Index (NECI)	Control
Pandemic has led household income to decrease	Predictor
Starting a business is more difficult than a year ago	Predictor
Use more digital technology to sell products and services	Predictor
Pursue new opportunities due to pandemic	Predictor

Source: Authors' presentation

Entrepreneurship is measured as GEM total early-stage entrepreneurial activity rate (TEA), defined as the percentage of individuals aged 18-64, who are either nascent entrepreneurs or owner-managers of a new business – younger than 42 months (Hill et al., 2021). Although there are some methodological challenges and issues related to the use of the results of GEM research that would relate to the collection, measurement, time frame, and effects of entrepreneurship research, it is emphasized that GEM still represents the largest program for systematic research on the „prevalence, determinants and consequences of entrepreneurial activity on international level" (Bergmann et al., 2014, p. 3). Specifically, when it comes to the data provided by the GEM report, Bergmann et al. (2014, pp. 4-5) point out that some researchers have expressed concerns about the use of GEM data for micro-level analysis, the use of dichotomous variables and the transferability, in terms of content and validity, of questionnaires from

developed to underdeveloped countries. Although there are some other studies of entrepreneurship, the GEM project is currently the largest study of entrepreneurial activity covering more than 50 countries (Bosma and Levie, 2010), especially when early-stage entrepreneurial activity (TEA) is considered. Its purpose, as well as, the goal is to use empirical data to assess the level of entrepreneurial activity that enables comparison of regions and countries over time and to understand why some countries have better results in entrepreneurial activity compared to others (Álvarez et al., 2014) and, at the same time, to discover the factors that influence the level of entrepreneurial activity at the national level and identify policies that can affect its improvement (Bosma and Levie, 2010).

The consistency provided by the GEM research is relevant especially in contemporary conditions when there is a need to provide (Bosma et al., 2020, p. 13) a measurable and reliable assessment of how the pandemic has affected the attitudes, motivation, and activity of entrepreneurs, and to take adequate measures by policy makers.

The National Entrepreneurial Context Index (NECI) in 2020 is used as a control variable. NECI assesses the average condition of an economy's entrepreneurship environment on a national level. The NECI score for every economy is the arithmetic mean of that economy's Entrepreneurial Framework Condition (EFC) scores, therefore it is also assessed on a Likert scale from 0 to 10.

Predictors were answers to pandemic-related questions, asked each adult respondent, introduced the first time by GEM in 2020: 1. The pandemic had decreased your household income; 2. Starting a business is more difficult than year ago due to pandemic; 3. The pandemic has provided new opportunities that you want to pursue with this business; 4. The pandemic encourage usage more digital technology to sell products and services. The response options were: 1."strongly agree", 2."somewhat agree", 3."neither agree nor disagree", 4. "somewhat disagree",5."strongly disagree". (Bosma et al., 2020). Of the offered answer options, only the first two (e.g., 1. "strongly agree", and 2. "somewhat agree") were considered a positive answer.

4. Results and discussion

4.1. Results

In Table 3 the descriptive statistics for the selected countries from Adriatic Ionian Region as well as selected EU countries are presented.

Table 3: Descriptive statistics

	Adriatic Ionian Region				*EU*			
Variable	Mean	Std. dev.	Min	Max	Mean	Std. dev.	Min	Max
Total entrepreneurial activity	7.32	3.77	1.9	12.7	8.38	4.12	2	15.6
Decrease in household income	43.44	9.96	26.8	55.1	35.22	13.77	18.1	59.5
Starting a business is difficult	22.71	15.06	6.4	47	25.14	16.29	6.3	57.5
Use more digital technology	45.06	10.77	25.4	57.4	34.47	12.95	17.2	50.3
Pursue new opportunities	34.35	8.79	20.6	46.3	36.67	8.19	17.2	57.4
NECI	4.25	0.33	3.7	4.7	4.95	0.69	4.1	6.3

Source: Authors' calculations

The average TEA during the pandemic in the selected countries of the Adriatic-Ionian Region was 7.32

(minimum was 1.9 in Italy, maximum 12.7 in Croatia). It was slightly smaller compared to the average TEA in the other EU countries which was 8.38 (minimum 2 in Poland, maximum 15.6 in Latvia). The average decrease in household income in the Adriatic Ionian Region countries was 43.44 (minimum was 26.8 in Croatia, maximum 55.1 in Greece). It was significantly larger compared to the average decrease in household income in the rest of EU which was 35.22 (the minimum was 18.1 in the Netherlands; the maximum was 59.5 in Poland). The average value of the use more digital technology to sell products or services was 45.06 in the selected Adriatic Ionian Region countries (minimum was 25.4 in Slovenia, maximum 57.4 in Greece). It was higher compared to the EU average of 34.47 (minimum of 17.2 in Luxemburg and Slovakia, maximum of 50.3 in Spain).

As we can see the descriptive statistics show that the data of "more use" of digital technologies in the countries of the Adriatic-Ionian Region is higher compared to the rest of EU countries, based on GEM Report data. This data may depend on the different starting levels of digital maturity of the selected countries. The use of digital technologies in developed and digitized counties is higher than in less developed and less digitized countries. This is the case with our sample countries since they have different levels of digitization. The European Commission monitors progress in the digitization of EU countries since 2014 (European Commission, 2022). Namely, the DESI Index ranks the Member States according to their level of digitization and analyses their relative progress over the last five years, considering their starting point. The data in the annual Digital Economy and Society Index (DESI) reports, show that selected countries from Adriatic-Ionian Region have lower DESI scores as well as ranks (Slovenia – score 53.4, rank 11, Italy – score 49.3, rank 18, Croatia – score 47.5, rank 21, Greece – score 38.9, rank 25) in comparison with the most of other selected EU countries (Netherlands – score 67.4, rank 3, Sweden – score 65.2, rank 4, Spain – score 60.8, rank 7, Luxemburg – score 58.9, rank 8, Germany – score 52.8, rank 13) (European Commission, 2022), since their lower level of digital maturity.

The method of correlation analysis is applied in order to examine the relationship between TEA on one side, and the decrease in household income, starting a business is more difficult than a year ago, entrepreneurs pursue new opportunities due to pandemic, increased use of digital technology to sell products or services, on the other. The results of the conducted correlation analysis are presented in Table 4.

Table 4: Correlation

	TEA	*Decrease in household income*	*Starting a business is difficult*	*Use more digital technology*	*Pursue new opportunities*	*NECI*
TEA	1.00					
Decrease in income	-0.42 (0.03)	1.00				
Starting a business is difficult	-0.19 (0.35)	0.16 (0.42)	1.00			
Use more digital technology	0.07 (0.73)	0.03 (0.89)	0.32 (0.11)	1.00		
Pursue new opportunities	0.13 (0.53)	-0.38 (0.05)	0.43 (0.03)	0.18 (0.37)	1.00	
NECI	0.22 (0.28)	-0.54 (0.00)	0.14 (0.49)	0.01 (0.96)	0.46 (0.02)	1.00
Note: p values in ( )						

Source: Authors' calculations

The correlation between TEA and a decrease in household income is negative, moderate (-0.42), and statistically significant (at the level of 5%). The correlation between TEA and the other three factors is not significant statistically. There is a moderate (-0.38), inverse, and statistically significant correlation between the decrease in household income and the recognition of new opportunities. In other words, a decrease in household income is correlated to the increase in recognition of new opportunities (probably the decrease in household income encourages entrepreneurship driven by necessity). The correlation between recognition of new opportunities and starting a business in the pandemic is also moderate, positive, and significant (0.43). It means that recognized market opportunities encourage the start of a new business, regardless of the difficulties caused by the pandemic.

The method of regression analysis is applied in order to examine the impact of the COVID-19 pandemic on TEA in the EU countries of the Adriatic-Ionian Region. The results of the conducted regression analysis are presented in Table 5 (Region).

Table 5: The impact of the COVID-19 pandemic on TEA

	Adriatic-Ionian Region	EU
Constant	34.68**	-0.01
	(3.99)	(-0.00)
Decrease in household income	-0.335**	-0.14*
	(-4.23)	(-1.85)
Starting a business is difficult	0.033	0.008
	(0.36)	(0.10)
Use more digital technology	0.015	0.06
	(0.12)	(0.08)
Pursue new opportunities	0.37**	0.31*
	(3.61)	(1.94)
R –squared	0.59	0.36
Adj. R –squared	0.37	0.16
Prob F	0.07	0.09

Note: t values in ( )
**, ** 0.1 and 0.05 significance levels respectively*
Dependent Variable: TEA

Source: Authors' calculations

Model 1 shows that TEA in Adriatic-Ionian Region increases if household income increases as well as if entrepreneurs pursue new opportunities during the pandemic. If the household income increases by 1%, TEA will increase by 0.33%, holding all other variables constant. This impact is statistically significant at the level of 5%. It means that changes in household income can significantly impact TEA in selected countries of the Adriatic-Ionian Region. This proves our first hypothesis. An increase in the number of recognized opportunities by 1% will increase TEA by 0.37%, holding all other variables constant. This impact is statistically significant at the level of 5%. It means that changes in a number of recognized opportunities can significantly impact TEA in Adriatic-Ionian Region countries. This proves our second hypothesis. The impact of more intensive use of digital technology on TEA during the pandemic was statistically insignificant. Our third hypothesis is not proven. The estimated model explains a 59 percent change in TEA and this model is statistically significant as confirmed by the F test.

According to Model 2, the situation is similar in the other countries of the EU. Significant impact on the increase in TEA during the COVID-19 pandemic has had an increase in household income and

recognized opportunities. The estimated model explains a 36 percent change in TEA and this model is statistically significant as confirmed by the F test.

4.2. Discussion and policy recommendations

The analysis of the data from GEM on a sample of 13 countries (4 in the Adriatic-Ionian Region and 9 in other parts of the EU) confirms that entrepreneurship was significantly influenced by changes in household income and recognized market opportunities, during the COVID-19 pandemic. This is in accordance with GEM research (GEM, 2020; GEM, 2021), as well as with our expectations. We also found a statistically significant inverse correlation between household income and the recognition of new opportunities – a decrease in household income encourages entrepreneurship driven by necessity during the pandemic. Besides, the correlation between recognition of new opportunities and starting a business in a pandemic was also significant and positive, meaning that recognized market opportunities encourage the start of a new business regardless of the difficulties caused by the pandemic. The use of digital technology for online sales of products and services, during the COVID-19 pandemic, was insignificant in both the Adriatic-Ionian Region EU countries as well as in the other countries in the EU.

The importance of identified factors for encouraging entrepreneurship was understood by the creators of economic policies in a lot of countries. Their government offered different packages of financial support to entrepreneurs during the pandemic. The 2020 GEM report mentions that 54 national governments made emergency policy decisions and actions in order to support entrepreneurs in response to the COVID-19 pandemic (Bosma et al., 2020). For example, the German government's intent to protect new businesses and startups included taxation support, and state-supported short-time work compensation schemes (Block et al., 2020). In a lot of EU countries, there have been programs providing loans to entrepreneurs and small businesses through banks, credit unions, and other financial institutions to start new businesses and keep existing businesses open and retain (Fairlie & Fossen, 2021). For example, a lot of governments presented a package to support the digitalization of SMEEs in the context of the crisis and a wide range of policy measures for startup stimulation, including deferred tax payments for SMEs, reduced rent costs, waived administrative fees, subsidized R&D costs for SMEs, social insurance subsidies, subsidies for training and purchasing teleworking services, and additional funding to spur SME loans (KPMG, 2020).

Many empirical studies, proved that the governmental response has had positive effects on TEA. For example, a study conducted in the US found a positive relationship between loan receipts per business and the number of businesses (Fairlie & Fossen, 2021). A study examining the effects of governmental policies on 42401entrepreneurs and SMEs in the UK demonstrated that government financial support may reduce the number of small businesses with negative earnings and allow extending the residual life of small businesses with negative earnings up to 194 days (Belghitar et al., 2021). Similar effects were found in Germany (Block et al., 2020). It can be recommended to implement similar measures in the post-pandemic period in order to revive the economy as quickly as possible through the development of entrepreneurship.

In order to overcome the consequences of the pandemic and further support the development of entrepreneurship, it is desirable to implement additional measures. Although the results in our sample of countries did not prove the significant impact of digital technologies on TEA, the opportunities offered by digital technologies should not be neglected. For example, the use of digital technology can help entrepreneurs to increase the sale of their products on digital platforms, use digital tools like TikTok for marketing, and rely on platforms such as Kickstarter for funding. The use of online community support, can develop opportunities and help entrepreneurs to get assistance with problems, and find collaborators. Working together with entrepreneurs and experts from other countries, through digital social networks,

can help entrepreneurs gain valuable experience, find business partners and expand the market. The use of the latest technologies of the so-called Industry 4.0 and robots can help entrepreneurs to offer radically new innovative products and business models, adapted to the changed needs of consumers in the context of the COVID-19 pandemic and improve their business. Finally, digital technology and robots can reconfigure production and service systems, which could be useful even long after the crisis is over (Meurer et al., 2021).

Working from home, as a new business practice, can help entrepreneurs to reduce costs, but also have a positive impact on the psychological state of their employees during the COVID-19 pandemic. A company's positive psychological state directly influences creative innovation during a crisis. Due to innovation and flexibility, they can quickly engage and implement small-scale creative innovations and thus adapt to the fast-changing circumstances arising from the COVID-19 pandemic (Kuckertz et al., 2020). Also, cooperation with other economic entities could be useful. Positive effects of the cooperation, like information and knowledge gathering (Wall & Bellamy, 2019), mobilization of bricolage (Kuckertz et al., 2020), and joint efforts (Markman et al., 2019), are visible.

5. Conclusions

The health pandemic caused by COVID-19 has dramatically changed society and posed huge challenges to the economy. Policymakers are persistently looking for appropriate economic solutions that will enable them to get out of the crisis and encourage sustainable development. Numerous previous studies show that entrepreneurship has a significant contribution to sustainable development, but entrepreneurship was significantly impacted by the COVID-19 pandemic. We empirically examined the impact of the COVID-19 pandemic on TEA in 2020 and 2021. The impact of the COVID-19 pandemic was measured through the following factors: a decrease in household income, starting a business is more difficult than a year ago, entrepreneurs pursuing new opportunities due to the pandemic, and increased use of digital technology to sell products or services.

Using data from 13 EU countries, 4 in the Adriatic-Ionian Region and 9 in the other part of the EU, during the COVID-19 pandemic, the paper identified changes in household income and recognized market opportunities during the COVID-19 pandemic as the most important among identified factors, which was the original goal of the paper. Also, we propose a number of measures in all areas (financial support by the state, a wide range of policy measures for startup stimulation, including deferred tax payments for SMEs, reduced rent costs, waived administrative fees, subsidized R&D costs for SMEs, social insurance subsidies, subsidies for training and purchasing digital technologies, etc.).

There are not many research papers that analyse the comprehensive impact of different factors (financial resources of entrepreneurs, difficulties in starting a business, use of digital technologies as well as search for new opportunities) on early-stage entrepreneurial activity in the conditions of the COVID-19 pandemic, especially in a cross-country context. Our paper fills this gap in the literature, which reflects a certain added value of the paper. One of the strengths of the paper is the use of data from the GEM report, which allows for a comparison of country data over time (e.g., in 2020 and 2021) as well as spatially between countries in the Adriatic-Ionian Region and other European countries. At the same time, a limitation of the analysis is that only factors introduced in the GEM report after the pandemic were considered. It would be interesting to assess other variables that may affect TEA and to compare them between the pre-pandemic and post-pandemic periods, which is the goal for future research of the authors. Another strength of the paper is the use of the National Entrepreneurship Context Index (NECI) as a control variable; this indicator allows considering the condition of the economy's entrepreneurial environment at a national level.

Bearing in mind that a large part of the economic effects of the pandemic is still unknown and that there is a fear of a serious economic recession, there is a need for science, government, and social leaders to provide a timely response. In this paper, recommendations are given on how to revive the economy by encouraging the development of entrepreneurship. Besides, the paper contributes to raising the awareness of entrepreneurs to recognize risks and opportunities, which will enable them to understand the social and market needs of society.

References

Acs, Z.J., Song, A., Szerb, L., Audretsch, D.B. & Komlosi, E. (2021). The Evolution of the Global Digital Platform Economy: 1971-2021. Small Business Economics, 57(2):1-31.

Álvarez, C., Urbano, D. & Amorós, J.E. (2014). GEM research: achievements and challenges. Small Bus Econ, 42, 445–465. https://doi.org/10.1007/s11187-013-9517-5

Audretsch D.B. & Belitski, M. (2021). Knowledge Complexity and Firm Performance: Evidence from the European SMEs. Journal of Knowledge Management, 25(4): 693-713.

Bálint Á. & Horváthné Kökény A. (2013). Saving Habits of Hungarian College Students. European Scientific Journal, 9(34): 83-92.

Banerjee, D. & Rai, M. (2020). Social isolation in COVID-19: The impact of loneliness. International Journal of Social Psychiatry, 66(6): 525-527.

Belghitar, Y., Moro, A. & Radic, N. (2021). When the Rainy Day is the Worst Hurricane Ever: The Effects of Governmental Policies on SMEs during COVID-19. Small Business Economics, 58: 943-961.

Belitski, M., Guenther, C., Kritikos, A.S. & Thurik, R. (2021). Economic Effects of the COVID-19 Pandemic on Entrepreneurship and Small Businesses. IZA Institute of Labor Economics, Discussion Paper Series, IZA DP No. 14630.

Bergmann, H., Mueller, S., & Schrettle T. (2014). The use of global entrepreneurship monitor data in academic research: a critical inventory and future potentials. International Journal of Entrepreneurial Venturing, 6 (3).

Block, J.H., Fisch, C. & Hirschmann, M. (2021). The Determinants of Bootstrap Financing in Crises: Evidence from Entrepreneurial Ventures in the COVID-19 Pandemic. Small Business Economics, 58: 867-885.

Bosma, N. and Levie, J. (2010) Global Entrepreneurship Monitor 2009 Global Report, Babson Park, MA/London

Bosma, N., Hill, S., Ionescu-Somrs, A., Kelley, D., Guerrerro, M. & Schott, T. (2020). Global Entrepreneurship Monitor – 2020/2021 Global Report. London NW1 4SA, UK: Global Entrepreneurship Research Association, London Business School, Regents Park.

EU Regional Strategy (2014). FOR A PROSPEROUS AND INTEGRATED ADRIATIC AND IONIAN REGION, https://www.adriatic-ionian.eu/wp-content/uploads/2018/04/For-a-prosperous-and-integrated-Adriatic-and-Ionian-region.pdf (04.07.2022)

European Commission (2022). Digital Economy and Society Index (DESI) 2022. Retrieved from https://digital-strategy.ec.europa.eu/en/policies/countries-digitisation-performance, (05.05.2023)

EU Strategy for the Adriatic and Ionian Region (EUSAIR) facilitating the enlargement process of Western Balkans (2020). Retrieved from https://ec.europa.eu/regional_policy/sources/cooperate/adriat_ionian/pdf/eusair_enlarg_west_balkans.pdf (04.07.2022)

Fairlie, R. & Fossen, F.M. (2021). Did the Paycheck Protection Program and Economic Injury Disaster Loan Program Get Disbursed to Minority Communities in the Early Stages of COVID-19? Small Business Economics, 58(2):1-14.

Fairlie, R. W. (2020). The impact of COVID-19 on small business owners: Evidence from the first three months after widespread social-distancing restrictions. Journal of Economics & Management Strategy, 29: 727-740.

Hill, S., Ionescu-Somers, A., Coduras, A. (2021) Global Entrepreneurship Monitor – 2021/2022 Global Report. London NW1 4SA, UK: Global Entrepreneurship Research Association, London Business School, Regents Park.

Ivanovic-Djukic, M., Radjenovic, T. & Veselinovic, N. (2022). Impact of Entrepreneurship on Sustainable Development in Emerging Markets under the Conditions of COVID-19. Problemy ekorozwoju – Problems of Sustainable development, 2022, 17(2): 47-58.

Kerr, W. & Nanda, R. (2009). Financing Constraints and Entrepreneurship. Journal of Corporate Finance, 6 (2): 241-289.

Kirzner, I.M. (2009). The Alert and Creative Entrepreneur: A Clarification. Small Business Economics, 32: 145–52.

KPMG (2020). Government and institution measures in response to COVID-19. Retrieved from https://home.kpmg/xx/en/home/insights/2020/04/china-government-andinstitution-measures-in-response-to-covid.html (04.07.2022.)

Kuckertz, A., Brandle, L., Gaudig, A., Hinderer, S., Reyes, C.A.M., Prochotta, A., Steinbrink, K.M. & Berger, E.S. (2020). Startups in Times of Crisis – A Rapid Response to the COVID-19 Pandemic. Journal of Business Venturing Insights, 13, e00169.

Lastauskas, P. (2021). Lockdown, employment adjustment, and financial frictions. Small Business Economics, 58(2):919-942.

Liguori, E. & Winkler, C. (2020). From Offline to Online: Challenges and Opportunities for Entrepreneurship Education following the COVID-19 Pandemic. Entrepreneurship Education and Pedagogy, 3(4): 346-351.

Liu, Y., Zhang, Y., Fang, H., & Chen, X. (2021). SMEs' line of credit under the COVID-19: evidence from China. Small Business Economics, 58(1):807-828.

Markman, G.D., Waldront, T.L., Giadionis, P.T. & Espina, M.I. (2019). E Pluribus Unum: Impact Entrepreneurship as a Solution to Grand Challenges. Academy of Management Perspectives, 33(4): 371-382.

Meurer, M.M., Waldkirch, M., Schou, P.K., Bucher, E.L. & Burmeister-Lamp, K. (2022). Digital Affordances: How Entrepreneurs Access Support in Online Communities during the COVID-19 pandemic. Small Business Economics, 58: 637-663.

Moskowitz, T. J. & Vissing-Jorgensen, A. (2002). The returns to entrepreneurial investment: A private equity premium puzzle? American Economic Review, 92: 745-78.

Parnell, D., Widdop, P., Bond, A. & Wilson. R. (2020). Covid-19, Networks and Sport. Managing Sport and Leisure, 1-7.

Ratten, V. (2020). Coronavirus (covid-19) and entrepreneurship: changing life and work landscape. Journal of Small Business & Entrepreneurship, 32(5): 503–516.

Stefanović, S, Ivanović-Djukić, M. & Janković-Milić, V. (2013). The analysis of key challenges and constraints to the stability and growth of an entrepreneurial sector in Serbia. Journal of Balkan and Near

Eastern Studies, Routledge London, 15(3): 346-365.

Van Stel, A., Concepcion, R. & Jose, M. (2018). The Relationship Between Start-Up Motive and Earnings Over the Course of the Entrepreneur's Business Tenure. Journal of Evolutionary Economics, 28(1): 101-123.

Wall, T. & Bellamy, L. (2019). Redressing Small Firm Resilience: Exploring Owner-Manager Resources for Resilience. International Journal of Organizational Analysis, 27(2): 269-288.

Williams, T.A., Gruber, D.A., Sutcliffe, K.M., Sheperherd, D.A. & Zhao, E.Y. (2017). Organizational Response to Adversity: Fusing Crisis Management and Resilience Research Streams, Academy of Management Annals, 11(2): 733-769.

Worldometers (2021). COVID-19 Coronavirus pandemic. Retrived from http://www.worldometers.info/coronavirus/ (03.07.2022.).

Zahra, S.A. (2021). International Entrepreneurship in the post Covid World. Journal of World Business, 56(1): 101143.

Zhang, T., Gerlowski, D. & Acs, Z. (2022). Working from home: Small Business Performance and the COVID-19 Pandemic. Small Business Economics, 58: 611-636.