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On the Relationship between Economic Dynamics and Female Entrepreneurship: Reflections for the Visegrad Countries

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Abstract: The gender gap in entrepreneurship has been observed for a long time, explained by both female-specific and gender-neutral factors, but none of these explanations is generally accepted. The aim of the paper is to assess the effect of internal economic dynamics on female entrepreneurship. Economic dynamics is a persistent process affected simultaneously by both endogenous and exogenous factors of a different time horizon, with the development trend and the business cycle as the most important time perspectives. The decomposition procedure of time series is implemented to extract trend and cyclical fluctuations, after which the Vector Error Correction Model (VECM) method is used to estimate models showing the impact of economic dynamics on female entrepreneurship in the long- and medium-run. The study concerns the countries of the Visegrad Group, including Czechia, Hungary, Poland, and Slovakia, and is based on quarterly data from the years 1998 to 2020. The results show that, although the economic dynamics impact female entrepreneurship, to some extent, it is not the most dominant factor. The impact of economic dynamics on female entrepreneurship is much stronger in the trend perspective than in the business cycle perspective. The nature of the effect of economic dynamics on female entrepreneurship is also country-specific.

Keywords: entrepreneurship; female entrepreneurship; economic dynamics; business cycle; trend; Visegrad Group countries

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1. Introduction

Female entrepreneurship represents one of the fastest-growing categories of entrepreneurship worldwide and has recently attracted the attention of many researchers (Elam et al. 2019; Byrne et al. 2018). The percentage of women who choose entrepreneurial careers is, however, lower than that of men. The gender gap in entrepreneurship is significant in Europe as female entrepreneurship rates are half that of males (Ester and Román 2017; Anambane and Adom 2018). In view of the principles of equal opportunities, promoted as basic rights, and the elimination of the gender gap in access to education and the labor market, it seems natural to raise the issue of the gender gap among entrepreneurs. According to Estrin and Mickiewicz (2011), the theoretical framework that could ground this distinction underscores the role of economic, regulatory, and sociocultural conditions. While explaining the gender gap in entrepreneurship, various types of framework are explored, such as female individual characteristics (Williams 2004; Dutta and Mallick 2018; Bilan et al. 2020), cultural and social explanations within institutional theory (i.e., Estrin and Mickiewicz 2011; Chowdhury and Audretsch 2014; van Ewijk and Belghiti-Mahut 2019); gender inequality, discrimination against women or occupational female segregation (Estrin and Mickiewicz 2011; Berger and Kuckertz 2016; Damelang and Ebensperger 2020); both necessity-driven factors and opportunity-driven factors (Holmen et al. 2011; McGowan et al. 2012, Lawter et al. 2016; Ng and Fu 2018). Moreover, studies have shown that the entrepreneurial activities of women in developed countries differ from

that of women in developing countries and emerging economies (Kirby and Ibrahim 2011; Cardella et al. 2020).

The Visegrad countries are an example of countries from Central and Eastern Europe (CEE), united not only by geographic affiliation, but also by their historical and cultural past and common experiences of political transformation. They are an example of prosperous transition countries from socialist to market-oriented economies. For many years, these countries have been characterized by relatively high growth dynamics with tremendous progress in developing entrepreneurship (GEM 2020; World Economic Forum 2019; World Bank 2020), but still with the gender gap in entrepreneurship (GEM 2020). As previous studies have shown, this diversification applies not only to doing business, but also to attitudes toward entrepreneurship. It suggests a rather pessimistic outlook on narrowing the gender gap in entrepreneurship in the Visegrad countries in the future (Holienka et al. 2016).

Economies are hit by external and internal factors, which impact the dynamics of development. However, the problem linking female entrepreneurship and economic dynamics has been practically ignored (Minniti and Naudé 2010; Dutta and Mallick 2018). The economic dynamics may stimulate female entrepreneurship in different ways: for example, studies have shown that women become more entrepreneurial in crisis, determined by necessity factors. Martínez-Rodríguez et al. (2021, p. 1) explicitly state, "From 2021 onwards, female entrepreneurship is expected to grow very substantially as a result of the COVID-19 pandemic". It needs to be investigated—primarily since research into entrepreneurship, focusing on the region of the Visegrad Group, has been relatively recent, covering the last 10 years (Jaklič et al. 2020).

The aim of the article is to estimate the impact of economic dynamics on female entrepreneurship in the Visegrad Group countries (Czechia, Hungary, Poland, and Slovakia). The study considers dynamics from the perspective of the development trend and cyclical fluctuations associated with the business cycle. Theoretically, the economic dynamics could be an opportunity-driven factor for females to start their businesses in the times of prosperity and faster development trend; however, it could be also a necessity-driven factor during the crisis times and the slowdown of development trend.

The research concerns female entrepreneurship as expressed by two measures: proper entrepreneurship and self-employment. Proper entrepreneurship means entrepreneurs who employ workers (also named as female entrepreneurship) and the self-employed without workers (also named as female solo-entrepreneurship). There are several attitudes to define and measure entrepreneurship, among which the definition of entrepreneurs as people running their own businesses is accepted in the paper. However, there is a significant difference in the scope of entrepreneurship among self-employed without workers and entrepreneurs who are employers. To distinguish that, we implemented both forms of female entrepreneurship into the research.

Although the Visegrad countries share a geographic affiliation, historical, and cultural past, and more current experiences of political transformation, the level of female entrepreneurship varies significantly in these four countries (see details in part 4) to push the question of country specificity in female entrepreneurship reactions on economic dynamics.

Including these aspects and implementations of the research objective, the study allows us to answer the following research questions:

RQ1: does internal economic dynamics affect female entrepreneurship?

RQ2: does economic dynamics in the long-term trend and business cycle perspectives affect the proper entrepreneurship and solo entrepreneurship of women in the same way?

RQ3: does female entrepreneurship in the Visegrad countries respond to changes in economic dynamics in the same way or a country-specific manner?

This study provides several contributions to the extant literature. First, it addresses the problem of identifying and estimating dynamics in macroeconomic variables related to the trend and business cycle and their impact on female entrepreneurship. Our study is part of the research on earch domain recognized in the late 1980s, but its real development occurred a decade later (Wach 2018; McDougall and Oviatt 2003, 2005; Jones et al.

2011; Maciejewski and Wach 2019). Our study is part of international comparisons of entrepreneurship as one of the currents of international entrepreneurship, which is not very widespread and, as some authors say, is even in the infant phase (Engelen et al. 2009; Terjesen et al. 2013). Our investigation concerns female entrepreneurship (macro-level) in the Visegrad Group countries (comparative analysis) and its dependence on economic dynamics. Focusing research on the field of international entrepreneurship in post-communist countries is a way to fill the research gap. Including the economic dynamics aspect in women's entrepreneurship also stems from the economic theory of growth, an essential theoretical basis for international entrepreneurship comparisons. In this approach, the research on entrepreneurship is fundamentally related to determining the links between entrepreneurship and the development of the economy (van Stel et al. 2005; Terjesen et al. 2013).

Secondly, the paper concerns a specific and still unrecognized dimension of entrepreneurship, i.e., female entrepreneurship, which needs to be studied more extensively according to several authors (Minniti and Naudé 2010; Misra et al. 2014; Dvouletý and Orel 2020). The previous economic slowdown experience, as an example of economic dynamics, shows that female entrepreneurs react differently to this type of change than their male counterparts. Moreover, Cardella et al. (2020), in their review study on female entrepreneurship, note that most research was carried out in western and developed countries. They also suggest continuing with quantitative analysis using larger datasets. In our study, we met these demands.

The article is separated into substantive parts. First, the literature pertinent to changes of macroeconomic values in time and female entrepreneurship is summarized. Second, the study method is described, followed by the presentation of the research findings and discussion. The paper concludes with a summary of the main results, indicating limitations and suggestions for further research.

2. Literature Review

2.1. Economic Dynamics

To analyze the possible impact of economic dynamics on female entrepreneurship, it is necessary to take into account, on the one hand, variables expressing the ongoing macroeconomic changes in the economy; and on the other hand, variables reflecting the level of female entrepreneurship. It is known that the economy develops at a variable pace, and fluctuations in economic activity and economic processes occur almost from the very beginning of its operation (Barsky and Sims 2011). Estey (1959) was the first to attempt to systematize these fluctuations distinguishing: (i) long-term changes—trends; (ii) seasonal changes; (iii) cyclical fluctuations related to the business cycle; and (iv) various random fluctuations. Over the years, many theories have been developed to explain the essence of this phenomenon, as a result of which, various criteria for the classification of the indicated fluctuations in time and the effects of their impacts can be identified (Koellinger and Thurik 2012). First, they can be regular and irregular. The irregular changes include a developmental trend and random changes. On the other hand, changes of a regular nature are seasonal and cyclical fluctuations (the business cycle). Another classification relates to an impact horizon, where the trend indicates changes of a long-term nature, seasonal, and cyclical changes are medium-term changes, and accidental changes have a short-term impact. Moreover, the dynamics of economic processes result from the effects of external factors exogenous to the economy and from internal endogenous processes, where both exogenous and endogenous factors may affect the economy in a different time horizon. We assume that variations in economic dynamics are linked to the entrepreneurship dynamics, including woman entrepreneurship. From this perspective, i.e., possible changes in female entrepreneurship under the influence of economic dynamics, it seems that trends and business cycles are the most important. Our study addresses these two perspectives.

The concept of a trend is understood as the main development tendency of a given phenomenon or macroeconomic variables in the long term (Naoussi and Tripier 2013;

Stanišić et al. 2018). Business cycles are deviations from the long-term growth trend that encompasses periods of recession and economic boom (Koellinger and Thurik 2012). Cyclical fluctuations can be classified according to specific criteria (Saint-Paul 1997). The basic criterion seems to be the duration of the cycle and its fluctuation amplitude, and the range of its impact. Currently experienced the COVID-19 pandemic is an example of such an external factor hitting economies and societies on an irregular basis (Kitrar and Lipkind 2021), which has changed dramatically the economic dynamics of many countries in recent times. Many studies refer to it as a crisis (i.e., a phase of the business cycle), understood as a sudden threat to an individual, group, or organization, which is unable to deal with the situation using standard or routine procedures (Fabeil et al. 2020; Marjański and Sułkowski 2021). We already know that the effects of the COVID-19 should be considered not only in the short term, but above all in the medium and long term. Taking into account such aspects as the COVID-19 pandemic as, incidentally, a crisisogenic nature, and its medium- and long–term consequences, it seems reasonable to consider it from the perspective of a business cycle and development trend.

2.2. Explanations of Female Entrepreneurship

The entrepreneurship is widely understood the concept, grounded in many scientific disciplines (Gumbau Albert 2017; Guerrero et al. 2020). Narrow definition associates entrepreneurship with creation or/and running one's own business, while the broad understanding combines it with seeking and exploiting market opportunities, implementing innovations, or undertaking risk (i.e., Ferreira et al. 2017; Markowska et al. 2019). There are different levels of entrepreneurship analysis: the level of the individual, group—team, organization, industry, society (Low and MacMillan 1998). A typical division of entrepreneurship analysis levels is the micro, meso, and macro classification (Davidsson and Wiklund 2007). The choice of the level of entrepreneurship analysis determines the adoption of its definitional framework. The acceptance of a certain concept is the starting point of its operationalization. Research to date has been dominated by the micro dimension, i.e., firms. In our study, entrepreneurship is understood as a form of occupational choice, and entrepreneurs are individuals running their own companies (i.e., Hopp and Martin 2017; Larsson and Thulin 2019; Jovanovic 2019). Our approach deals with the macro level; thus, we study entrepreneurship understood in this way aggregated at the level of the selected countries. Female entrepreneurship is treated as a specific type of entrepreneurship. It occupies a special place in economic literature. In recent years, there has been a dynamic increase in entrepreneurial activity among women; however, there are significant differences in female entrepreneurship regarding the countries with different levels of development. In Europe, women are half as likely to enter entrepreneurship as men (Ester and Román 2017). The gender gap is characterized by lower rates of female entrepreneurship (Anambane and Adom 2018) and their poorer profitability or growth intentions compared to male entrepreneurs (Giotopoulos et al. 2017). In transition economics, similar to Europe, female entrepreneurship accounts for an average of one-third of all people involved in economic activity (Ramadani et al. 2015). However, in developing countries, the rate of female start-ups significantly exceeds the rate of male start-ups (Minniti and Naudé 2010; Dutta and Mallick 2018), but this applies to countries where the high rate of women entrepreneurship is motivated by necessity, as women are forced into entrepreneurship as a means of survival (Olarewaju and Fernando 2020).

In the Visegrad countries, female entrepreneurship is also low, and female entrepreneurial engagement is practically half that of men (GEM 2020). Decreasing gender gap in the labor market (Bieszk-Stolorz and Dmytrów 2020) and the entrepreneurial intentions of students not dependent on gender (Gubik and Farkas 2019) do not visibly impact female entrepreneurship and reduce the gender gap in entrepreneurship (Holienka et al. 2016; Rahman and Zbrankova 2019), which still exists. Rahman and Zbrankova (2019) mentioned a kind of gender gap discrimination in the context of running small-l and medium-sized enterprises. The disproportion in entrepreneurship between women and men applies to

all stages of entrepreneurial activity: setting up new companies, owning, and managing already existing companies, as well as in aggregate levels of attitudes towards entrepreneurship (Holienka et al. 2016). Women are more skeptical about emerging entrepreneurial opportunities and more conservative about potential risks. Their entrepreneurial decisions are influenced by many factors, not only economic, but, most important, cultural and social. Entrepreneurship is still seen as the domain of men. Women still own and manage a much smaller number of companies than men (Minniti and Naudé 2010; Holienka et al. 2016), and predictions of entrepreneurial success are closer for men than women (Dutta and Mallick 2018).

While explaining the gender gap in entrepreneurship, various frameworks are explored, such as female individual characteristics, their social capital, perception of social attitudes, and individual demographic characteristics (Williams 2004; Dutta and Mallick 2018; Bilan et al. 2020). Among individual features, the following are considered: age, education, entrepreneurial confidence, number of people living in the household, and earlier participation in entrepreneurial training (Dvouletý and Orel 2020). Institutional theory with cultural and social explanations is also frequently used (i.e., Estrin and Mickiewicz 2011; Chowdhury and Audretsch 2014), with norms, values, culture, stereotypes often listed as causes for gender gap (van Ewijk and Belghiti-Mahut 2019). The gender gap is also perceived as the result of gender inequality and discrimination against women (Estrin and Mickiewicz 2011; Berger and Kuckertz 2016), or occupational female segregation (Damelang and Ebensperger 2020), which reduces their entry to entrepreneurship. The rather conservative and traditional perception of a woman in society may, however, be perceived as a kind of risk, and the lack of support and cooperation from society members deters entrepreneurial women from starting a business (Cantú Cavada et al. 2017). Women are also influenced to become entrepreneurs by both necessity-driven factors, such as unemployment (McGowan et al. 2012; Ng and Fu 2018); and by opportunity-driven factors, such as the need for independence (Holmen et al. 2011; Lawter et al. 2016). More recently, Ughetto et al. (2019) saw, in new digital technologies, an opportunity for the development of women's entrepreneurship and, thus, the reduction of the disparity in entrepreneurship between men and women. Summing up, some of the factors explaining the gender gap in entrepreneurship are female-related and others are gender-neutral.

2.3. Female Entrepreneurship and Economic Dynamics

The impact of economic dynamics on female entrepreneurship is not clear-cut. Although the relationship seems obvious, there is little empirical evidence to support it. Research conducted to date are not consistent. For example, Buratti et al. (2018) studied the impact of the crisis (2008–2009) on female and male entrepreneurship in Italy, and proved that female entrepreneurs showed more resilience and coped better with crises (Buratti et al. 2018). In turn, Saumik and Vengadeshvaran (2013) focused on women's necessity-driven entrepreneurship as a kind of mechanism to counter the global crisis in 30 transition economies from Eastern Europe and Central Asia. The authors' analysis showed that, due to the crisis, women became more entrepreneurial and initiated the entrepreneurial process, which was interpreted as a contextual factor contributing to the growth of entrepreneurship among women. In other words, the authors showed that the likelihood of starting a business, as a result of losing a source of income during the crisis, is 1–2% higher for women than for men. This confirms that necessity-driven entrepreneurship by women may develop as a result of the crisis (Saumik and Vengadeshvaran 2013). Similar findings are presented by Martínez-Rodríguez et al. (2021) in the context of the crisis caused by COVID-19 pandemic. The authors further add that the level of economic development of the country under study does not matter, as women in both developed and less developed countries in crisis view entrepreneurship primarily as a necessity. On the other hand, Villaseca et al. (2020) address the issue of financing women's entrepreneurship during the crisis caused by COVID-19 pandemic. The authors point out that women have always been discriminated against in this area, which may mean that the pandemic situation

will further disqualify women as entrepreneurs. Similarly, Grandy et al. (2020) notes that growing female entrepreneurship in Canada has been drastically halted by the crisis caused by COVID-19. This is mainly due to problems in obtaining financing, the transition to digital business, which, according to the literature, is not the domain of women, or the reorganization of family life caused by the lockdown. The authors conclude that, in times of crisis, entrenched stereotypes and inequalities are reinforced, which have a negative impact on women's entrepreneurship (Grandy et al. 2020). Based on the theoretical discussion, the conceptual framework of the paper is developed and presented at Figure 1. In our study, the economic situation is expressed by the essential components of modern economic growth models, such as overall economic situation, labor market, international trade, and digitalization and new knowledge. Economic situation in these aspects is shaped by both trend and business cycle dynamics. Economic variables are assumed to directly impact females entrepreneurship expressed by both proper female entrepreneurship and solo female entrepreneurship in the development trend and cyclical fluctuation perspectives. Moreover, it is also assumed that there is a possible transition between both forms of female entrepreneurship, due to the impact of the indicated macroeconomic factors, as by hiring or dismissing employees, female entrepreneurs might shift between proper and solo entrepreneurship. The relationships discussed are presented on a conceptual model (Figure 1), which forms the basis for the empirical study.

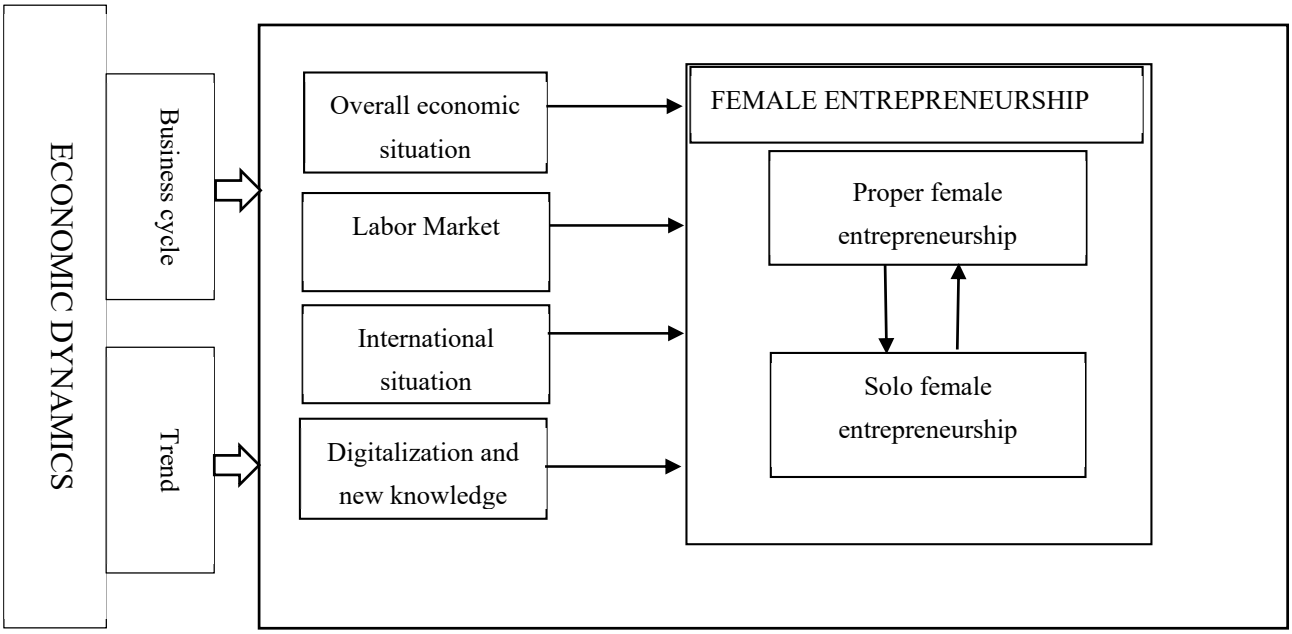

Figure 1. Conceptual framework.

3. Materials and Methods

To estimate the potential impact of economic dynamics on female entrepreneurship, time series data illustrating female entrepreneurship rates, as well as economic variables in the Visegrad Group countries (Czechia, Hungary, Poland, Slovakia), were adopted for the study. Two forms of female entrepreneurship are investigated in the research: proper entrepreneurship and self-employed. There are several methods for calculating rates of entrepreneurship in general and female entrepreneurship in particular, however, to make all estimations of changes in female entrepreneurship independent from changes in male entrepreneurship, the share of female entrepreneurs in the labor force, meaning the active population, is accepted in the paper. It means that the dependent variables are: the share of female entrepreneurs–employers in the active population (Fentre) and the share of female solo-entrepreneurs in the active population (Fsolo).

While selecting independent variables, assumptions were made to take into account in the analysis of development trends and cyclical fluctuations in economic values (Amorós et al. 2016) and we focus on prior studies in which the variables of various models of economic growth and business cycles are verified (Baumol 1968; Boldrin et al. 2001; Parker 2012; Koellinger and Thurik 2012; Thurik 2014; Amorós et al. 2016). Finally, we selected four independent variables: gross domestic product (GDP), unemployment rate, export and ICT employment, measured as the share in total employment. Each of these variables relates to the areas selected for the study. These areas can therefore be operationalized through the following variables: overall economic situation (GDP), labor market (unemployment), international trade (export), digitalization, and new knowledge (ICT employment). The links between GDP, unemployment, and entrepreneurship are explained in many research studies (Arin et al. 2015; Aparicio et al. 2016; Rusu and Roman 2017). Export constitutes the openness of the economy; it is related to globalization and often examined as a determinant of economic growth, as well as business cycles (Baxter and Kouparitsas 2004). Additionally, employment in ICT was taken into account, in line with the paradigm of economic growth based on knowledge and innovation. Initially, two other variables, the consumer expenditure of households and the gross fixed capital formation, were considered as independent ones, but they were finally rejected because of their co-linearity with GDP.

Quarterly timespans for years 1998–2020 are used, which provide the length of time series of 92 observations of each variable (T = 92). EUROSTAT is the source of all data used in the research. As the aim of the paper is to consider the impact of economic dynamics on female entrepreneurship, from the perspectives related to the business cycle, as a deviation from the trend and as a development trend itself, the time series of all variables were subject to the decomposition procedure to extract these components out of the raw data of the time series. The first step was to convert the raw time series into a natural logarithm to linearize further the investigated relationships and to get log–log models with constant elasticity, as economic theory assumes. Secondly, the time series, in the form of natural logarithms, were adjusted out of seasonal and irregular fluctuations with the use of Census 1 and an additive decomposition model in Statistica software, which led to the adjusted time series. Then, the adjusted time series were filtered with the use of the Hodrick–Prescott filter in Gretl software, to extract the development trend, as the Hodrick–Prescott filter is one of the commonly accepted methods for extracting long trend components of the time series. Data extracted with the Hodrick–Prescott filter were further defined as the trend and used for estimating trend models. Then, the percentage deviations of seasonally adjusted data from the trend were calculated and defined as cyclical fluctuation of business cycles.

Using this procedure led to the identification of two separate time series out of each piece of initial raw datum, with a different time horizon for each initial variable, representing the business cycle and trend. All of them were calculated separately for each of the four countries of the Visegrad group. The list and abbreviations of variables are presented in Table 1.

To estimate the potential impact of the economic dynamics of female entrepreneurship, the reactions of female entrepreneurship rates on the changes in independent variables, from the trend and business cycle perspectives, were estimated based on regression function. As the dynamic perspective of the research determined the use of time series data, we implemented the Vector Error Correction Model (VECM) method of regression estimations as one of the methods suitable for time series. Although in macroeconomic analysis, linear vector autoregression (VAR) estimations are used as the most common method, this method requires fulfilling several assumptions, which are usually unrealistic (Ulrichs 2018). The main requirement of the VAR method is that all data are stationary, meaning the statistical properties of time series do not change over time, thanks to constant mean and variance, and covariance independent of time. However, as the aim of the paper is to investigate the relationships of trends, which are not stationary, this assumption could be difficult to fulfil. In the case of non-stationary data, the usual procedure is to calculate differences of first, second, and following orders to gain stationary data or to use the Vector Error Correction

Model (VECM) method of estimation. In the paper, we implemented the VECM estimation of regression parameters with the use of Gretl software.

Table 1. List of variables.

Variable	Abbreviation	Operationalization
		Entrepreneurship
Business cycle of female entrepreneurship	cycle_Fentre	Cyclical deviation from the trend of the natural logarithm of the share of female entrepreneurs being employers (%) in the active population
T rend of female entrepreneurship	trend_Fentre	Long-term trend of natural logarithm of the share of female entrepreneurs as employers (%) in the active population
Business cycle of female self-employed	cycle_Fsolo	Cyclical deviation from the trend of the natural logarithm of the share of female self-entrepreneurs without workers (%) in the active population
Trend of female self-employed	trend_Fsolo	Long-term trend of the natural logarithm of the share of female self-entrepreneurs without workers (%) in the active population
		Overall economic situation
Business cycle of GDP	cycle_GDP	Cyclical deviation from the trend of the natural logarithm of the gross domestic product (initially in current prices)
Long-term trend of GDP	trend_GDP	Long-term trend of the natural logarithm of the gross domestic product (initially in current prices)
		Labor market situation
Business cycle of unemployment	cycle_UE	Cyclical deviation from the trend of the natural logarithm of the unemployment rate
Trend of unemployment	trend_UE	Long-term trend of the natural logarithm of the unemployment rate
		International trade
Business cycle of export	cycle_EX	Cyclical deviation from the trend of the natural logarithm of export of goods and services (initially in current prices)
Trend of export	trend_EX	Long-term trend of the natural logarithm of the export of goods and services (initially in current prices)
		Digitalization and new knowledge
Business cycle of ICT employment share	cycle_ICTE	Cyclical deviation from the trend of the natural logarithm of ICT employment share in the total employment
Trend of ICT employment share	trend_ICTE	Long-term trend of the natural logarithm of ICT employment share in the total employment

In VECM estimations, dependent and independent variables are introduced as first differences (Δ), with time lags of independent variables. The VECM estimations also assume the inertia of dependent variables, so the previous changes of dependent variables are added as independent ones. The time lag of independent variables could be estimated-based on econometrical tests of Akaike Information Criterion (AIC) or Bayesian Information Criterion (BIC); however, in the research, we assumed a time lag of one quarter a priori, based on theoretical justification, not on econometrical tests. There were several reasons for that. On the one hand, the changes in economic situations do not influence decisions to enter or exit entrepreneurship immediately, but with some time lag, such as the establishing of a new company, or its closing, are time-consuming processes. On the other hand, to avoid the apparent relationships, the time lag could not be too long. The next reason for the a priori attitude is to obtain results comparable across countries by using the same time lag in all regression functions. Those reasons let us assume one quarter of lag for all independent variables.

4. Results

To realize the big picture of female entrepreneurship in the Visegrad countries, descriptive statistics for raw data, in the years 1998–2020, concerning the rates of female entrepreneurs–employers in the active population (Fentre) and the rates of female solo-entrepreneurs in the active population (Fsolo) are presented in Table 2. Average females active as, together, proper and solo entrepreneurs, make up 4.25% of the labor force in Czechia (CZ), 3.51% in Hungary (HU), 5.75% in Poland (PL), and 3.06% in Slovakia (SK). Female proper entrepreneurship rates are about 2–3 times smaller than solo entrepreneurs, as female proper entrepreneurship rates vary between 0.66% to 1.27% of the active population and female solo entrepreneurship rates—between 2.24% to 4.70%. Poland is the country in the Visegrad Group with the highest rate of female entrepreneurs in the active population, while Slovakia has the lowest share of female entrepreneurship. The variation measures show that, on average, entrepreneurship rates in Poland are characterized by the least variability, while in Slovakia, they are characterized by the highest. The proportion of women's proper entrepreneurship in Poland is the least varied, while the index of solo entrepreneurship in Slovakia is the most varied. General observations of these data show the relatively high level of female entrepreneurship differentiation in the Visegrad countries, geographical, historical, and institutional proximity of these countries is not reflected in the level of female entrepreneurship. It must therefore be presumed that there are very different conditions for the development of female entrepreneurship in these countries.

Table 2. Descriptive statistics of female entrepreneurship rates in the active population, in the Visegrad countries, in 1998–2020.

	Average Rates (% in Active Population)	Standard Deviation of Entrepreneurship Rates	% of Standard Deviation in Average	Minimum of Entrepreneurship Rates	Maximum of Entrepreneurship Rates
Fentre in CZ	0.76	0.10	12.54	0.53	0.95
Fsolo in CZ	3.48	0.62	17.94	2.35	4.50
Fentre in HU	1.27	0.16	12.72	0.71	1.61
Fsolo in HU	2.24	0.38	17.17	1.70	3.59
Fentre in PL	1.06	0.09	8.55	0.88	1.22
Fsolo in PL	4.70	0.54	11.39	3.96	6.16
Fentre in SK	0.66	0.09	14.04	0.42	0.85
Fsolo in SK	2.40	0.89	36.97	0.91	3.56

To answer the research questions on the potential impact of the economic dynamics on female entrepreneurship, the selected time series were decomposed to extract the time series reflecting trends and the time series reflecting business cycle. All following research parts are based on the trends and business cycle components extracted out of raw data.

After decomposing the time series, all independent variables were checked in order to avoid co-linearity (see Table 3) with the calculation of variance inflation factor (VIF). Among the time series showing the business cycle perspective, no independent variables for the Visegrad countries were co-linear, as their values were below 10, so they were accepted in the estimation of regression function parameters. Among time series reflecting trends, the variable showing the export of goods and services (trend_EX) was excluded in the cases of Hungary and Slovakia, as VIF values were above 10, suggesting collinearity problems. After excluding the trend of export, the VIF values of all other independent trend variables were below 10, meaning that the collinearity does not exist between them.

Table 3. Variance inflation factor (VIF) values of independent variables.

	Czechia (CZ)	Hungary (HU)	Poland (PL)	Slovakia (SK)
Cyclical fluctuations				
Δcycle_GDP$_{t-1}$	3.149	2.057	3.092	2.791
Δcycle_UE$_{t-1}$	2.442	1.123	1.401	1.709
Δcycle_EX$_{t-1}$	1.743	1.962	3.494	2.475
Δcycle_ICTE$_{t-1}$	1.044	1.055	1.032	1.358
Trends				
Δtrend_GDP$_{t-1}$	4.957	1.254	3.870	1.791
Δtrend_UE$_{t-1}$	1.690	1.147	2.827	1.211
Δtrend_EX$_{t-1}$	6.378	X	4.070	X
Δtrend_ICTE$_{t-1}$	1.182	1.258	3.198	2.041

The first time perspective in the parameters of regression function estimations is the business cycle perspective. The results of estimations with the use of the VECM method are presented in Table 4.

Table 4. Parameters of regression function estimations of cyclical fluctuations.

	Δcycle_Fentre$_t$ in CZ	**Δcycle_Fsolo$_t$ in CZ**	**Δcycle_Fentre$_t$ in HU**	**Δcycle_Fsolo$_t$ in HU**	**Δcycle_Fentre$_t$ in PL**	**Δcycle_Fsolo$_t$ in PL**	**Δcycle_Fentre$_t$ in SK**	**Δcycle_Fsolo$_t$ in SK**
Constant	0.0002 (0.001)	−0.0001 (0.033)	0.0002 (0.002)	−0.0005 (0.001)	0.00001 (0.001)	−0.0001 (0.0005)	0.0005 (0.001)	0.0005 (0.001)
Δcycle_Fentre$_{t-1}$	0.988 *** (0.044)	−0.018 (0.032)	0.659 *** (0.088)	0.086 ** (0.038)	0.579 *** (0.091)	−0.070 (0.043)	0.860 *** (0.039)	−0.036 (0.001)
Δcycle_Fsolo$_{t-1}$	0.039 (0.082)	0.833 *** (0.060)	0.140 (0.117)	0.867 *** (0.051)	0.148 (0.134)	0.923 *** (0.063)	−0.011 (0.072)	0.834 *** (0.069)
Δcycle_GDP$_{t-1}$	−0.132 (0.138)	0.265 ** (0.102)	−0.394 ** (0.159)	−0.200 ** (0.069)	−0.134 (0.108)	−0.012 (0.051)	−0.141 (0.152)	0.008 (0.144)
Δcycle_UE$_{t-1}$	−0.031 (0.038)	0.009 (0.028)	0.075 (0.061)	−0.043 (0.027)	−0.079 (0.055)	−0.021 (0.026)	−0.144 ** (0.056)	−0.175 *** (0.053)
Δcycle_EX$_{t-1}$	0.042 (0.060)	−0.106 ** (0.044)	0.243 ** (0.121)	0.046 (0.053)	0.014 (0.103)	−0.038 (0.048)	0.269 *** (0.075)	0.035 (0.071)
Δcycle_ICTE$_{t-1}$	−0.367 (0.040)	0.138 *** (0.050)	0.033 (0.085)	-0.060 (0.037)	-0.075 (0.094)	−0.206 *** (0.044)	0.039 (0.062)	−0.016 (0.059)
EC1	−0.311 *** (0.026)	0.044 ** (0.019)	−0.0003 (0.006)	−0.025 *** (0.003)	−0.032 * (0.017)	−0.058 *** (0.008)	−0.236 *** (0.019)	−0.023 (0.018)
Adj. R^2	0.881	0.737	0.636	0.857	0.398	0.760	0.901	0.772

Note: Standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$, * $p < 0.1$.

As the data in Table 4 show, in the case of both forms of female entrepreneurship in all Visegrad countries, the inertia of female entrepreneurship is the most important and statistically-significant variable. The current cyclical changes in both kinds of female entrepreneurship rates are explained by their previous changes. In all cases, the cyclical changes of rate of solo entrepreneurs, as an independent variable, do not explain the changes in the rate of proper entrepreneurs, and vice versa, meaning that switching from one form of entrepreneurship to another, resulting from employing or dismissing workers, or co-movements of these two forms, is not observed in the cyclical fluctuations. The impact of other independent variables on female entrepreneurship was rather limited. The impact of cyclical changes in the GDP was only statistically significant for cyclical changes in both female entrepreneurship rates in Hungary and for solo female entrepreneurs in Czechia, so in three out of eight estimated regression functions. The cyclical changes in unemployment rates impacted changes in female entrepreneurship in both types of female

entrepreneurship in Slovakia, as well as in two out of eight estimated regression functions. The cyclical changes in the export of goods and services were statistically significant in explaining only three functions: the Czech female solo entrepreneurship, the Hungarian, and Slovakian proper entrepreneurship rates. The last analyzed independent variable, the cyclical changes in ICT employment, was significant in explaining two functions: cyclical changes of female solo entrepreneurship in Czechia and in Poland as dependent variables.

From the business cycle perspective, according to first reactions (Table 3), the economic cyclical dynamics should not highly impact cyclical changes in female entrepreneurship in Visegrad countries, as inertia is the most significant force of change. The lowest impact of cyclical economic dynamics is observed in the case of Poland, as female proper entrepreneurship depends on inertia, while the female solo entrepreneurship rate depend on inertia and cyclical changes in employment in ICT. Cyclical changes in female proper entrepreneurship rate in Czechia also depend on inertia, not on cyclical dynamics in economy; however, the cyclical fluctuations in Czech female solo entrepreneurship is more related to economic dynamics. A cyclical decrease of GDP might influence the reduction of the solo entrepreneurship rate in Czechia; however, this reduction caused by GDP should be modified by inertia and by the development of new knowledge, represented by ICT employment. In the medium-term, the economic business cycle impacts female entrepreneurship in Hungary the most. As the impact of cyclical changes in the GDP is a negative one, it might be a factor, which pushes women to enter entrepreneurship as a necessity-driven response. However, in the case of proper female entrepreneurs, on the one hand, it could be reinforced by a rise in unemployment; but on the other hand, it could be reduced by the impact on changes in export and inertia. Cyclical changes in unemployment impact the reduction of female entrepreneurship in Slovakia; however, this impact should be modified by inertia, and in the case of proper entrepreneurs, also by reaction to changes in export.

The second perspective of economic dynamics, accepted in the paper, is related to long-term changes in the economic trends. To assess it, the second round of estimations were conducted based on data showing long-term trends in female entrepreneurship rates and independent variables. The results of the estimations of the parameters of regression functions are presented in Table 5.

Table 5. Parameters of regression function estimations of long-term trends.

	Δtrend_Fentre$_t$ in CZ	**Δtrend_Fsolo$_t$ in CZ**	**Δtrend_Fentre$_t$ in HU**	**Δtrend_Fsolo$_t$ in HU**	**Δtrend_Fentre$_t$ in PL**	**Δtrend_Fsolo$_t$ in PL**	**Δtrend_Fentre$_t$ in SK**	**Δtrend_Fsolo$_t$ in SK**
Constant	−0.004 *** (0.001)	0.013 *** (0.001)	0.003 *** (0.0002)	−0.001 *** (0.0001)	0.007 *** (0.0003)	0.003 *** (0.0002)	−0.009 *** (0.0006)	−0.010 *** (0.0007)
Δtrend_Fentre$_{t-1}$	0.941 *** (0.023)	−0.089 *** (0.025)	0.934 *** (0.01)	0.022 *** (0.011)	1.026 *** (0.0002)	−0.077 *** (0.006)	0.947 *** (0.016)	−0.100 *** (0.018)
Δtrend_Fsolo$_{t-1}$	0.086 *** (0.010)	0.988 *** (0.011)	0.016 (0.010)	0.980 *** (0.008)	0.025 (0.025)	0.770 *** (0.023)	0.106 *** (0.016)	0.939 *** (0.018)
Δtrend_GDP$_{t-1}$	0.008 (0.009)	−0.129 *** (0.010)	−0.022 *** (0.006)	0.012 ** (0.005)	−0.089 *** (0.011)	0.044 *** (0.010)	−0.026 ** (0.010)	0.114 *** (0.012)
Δtrend_UE$_{t-1}$	−0.003 (0.003)	−0.054 *** (0.003)	0.014 *** (0.003)	−0.023 *** (0.002)	−0.019 *** (0.002)	−0.010 *** (0.002)	0.010 *** (0.002)	0.027 *** (0.003)
Δtrend_EX$_{t-1}$	0.033 *** (0.005)	−0.007 (0.006)	X	X	−0.015 (0.014)	0,015 (0.012)	X	X
Δtrend_ICTE$_{t-1}$	−0.032 (0.009)	0.136 *** (0.010)	−0.015 (0.013)	0.016 (0.010)	−0.104 *** (0.014)	0.105 *** (0.013)	−0.076 *** (0.010)	−0.147 *** (0.011)
EC1	−0.0003 *** (0.000)	0.001 *** (0.000)	−0.009 *** (0.0005)	0.003 *** (0.0004)	−0.010 *** (0.0005)	0.007 *** (0.0004)	−0.013 *** (0.0008)	−0.015 *** (0.001)
Adj. R^2	0.996	0.999	0.999	0.999	0.999	0.999	0.998	0.999

Note: Standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$.

Similarly, the business cycle perspective, and in the long-term trends perspective, the inertia of female entrepreneurship in all the Visegrad countries is the most important and statistically significant variable. The impact of economic dynamics on female

entrepreneurship is higher in long-term trends then in a medium-term cycle. The impact of long-term GDP trends indicates some pattern, at least in the case of Hungary, Poland, and Slovakia, as it is positive in the case of the trends of solo female entrepreneurship rates, while it is negative in the case of the female proper entrepreneurship rate in these countries. In the case of Czechia, long-term dynamics of GDP affects negatively the female solo entrepreneurship. The impact of unemployment rates also depends on the country and type of entrepreneurs. The negative value of the regression function parameters appears with both types of entrepreneurship in Poland, and with female solo entrepreneurship rates in Czechia and Hungary, while positive ones appear in the case of proper female entrepreneurship rates in Hungary and both types of female entrepreneurship in Slovakia. The impact of export long-term dynamics is quite limited, as it affects only the proper female entrepreneurship rate in Czechia. Employment in ICT as an indicator of new knowledge and digitalization also has different impacts, depending on the country and form of entrepreneurship. A positive influence can be observed in solo female entrepreneurship in Czechia and Poland, while negatively impacting female proper entrepreneurship in Poland and both entrepreneurship rates in Slovakia.

By comparing the cyclical and trend perspectives, it can be observed that, the usual situation is that the impacts of medium-term and long-term economic dynamics on female entrepreneurship in the Visegrad countries do not support each other in time.

5. Discussion

The results indicate that the economic dynamics have an impact on female entrepreneurship in the Visegrad countries, in both the medium- and long-term. However, it should be strongly emphasized that this impact is not radical, as in all cases, inertia is the most important factor impacting the female entrepreneurship rates, not economic variables. Moreover, a diverse impact can be observed, in terms of both time horizon and type of entrepreneurship, as well as the direction and strength of the impact. One may wonder whether such a state of affairs should not be sought in the very diversity of the level of female entrepreneurship in the Visegrad countries. The geographical and historical community of the Visegrad countries is not the same as the level of female entrepreneurship in these economies. Indeed, differences in both the level of proper entrepreneurship and individual entrepreneurship are apparent. Moreover, it is consistent with the literature presenting the results of research on the determinants of female entrepreneurship in the Visegrad countries. It demonstrates that female entrepreneurship in these countries is driven by both opportunity-driven and necessity-driven factors. Additionally, these two motivators are filtered by economic, social, institutional, and cultural drivers (Holienka et al. 2016; Martínez-Rodríguez et al. 2021).

Previous studies also indicate differential impacts of the crisis on entrepreneurship (Davidsson and Gordon 2016; Amorós et al. 2019). On this basis, for example, the differential impact of unemployment on female entrepreneurship levels in the Visegrad countries can be explained. Increased unemployment may have a de-stimulating effect on female entrepreneurship in the long run due to the lack of financial resources to start their own business. On the other hand, it can also have a stimulating effect by increasing the number of ventures, especially in an income-substituting nature. Such a process was described by Davidsson and Gordon (2016).

Another issue to consider is the determinants of female entrepreneurship, with the role of macroeconomic factors at the forefront. Amorós et al. (2019) find that a country's level of economic development can affect both the rates of entrepreneurial activity and the type of that activity. The minimal number of such studies limits the possibility of confronting research findings. However, it can be assumed that female entrepreneurship is determined by different factors in the Visegrad countries. Zygmunt (2018) notes that the structure of the economy is of great importance. Llopis et al. (2015) notes that the strength of financial constraints probably plays a crucial role in the interaction between business cycles and entrepreneurial activity. Kobus-Ostrowska (2013) adds that an important factor creating

entrepreneurship in Poland in times of crisis and economic slowdown is the availability of financial resources for entrepreneurial activity.

Based on the obtained results, we assume that the recent fluctuations in economic dynamics under the COVID-19 pandemic will not bring drastic changes in female entrepreneurship. Indeed, female entrepreneurship in the Visegrad countries will not be characterized by the same volatility due to the pandemic. It can be expected that female entrepreneurship will be the least affected in Poland. In turn, it can be supposed that the gender gap in entrepreneurship in Hungary will decrease under the COVID-19 influence. It is consistent with what we see from the change in economic dynamics under the COVID-19 pandemic, e.g., economic dynamics between 2019 and 2020. There was a slight decrease in GDP in Poland, a minor reduction in unemployment compared to other Visegrad countries, and an increase in export and employment in ICT. This will likely contribute to relatively small changes in female entrepreneurship in Poland under the COVID-19 pandemic.

On the other hand, Hungary recorded the most significant decline in GDP in relation to other analyzed countries, a decrease in export, and a relatively high increase in unemployment. These more pronounced changes in the dynamics of macroeconomic variables likely contributed to more extensive changes in female entrepreneurship in Hungary due to the COVID-19 pandemic. The effect of inertia shown in the study is also not irrelevant. It can be assumed that it also contributes to mitigating the impact of the COVID-19 pandemic on female entrepreneurship in the Visegrad countries.

Immediate government support programs for entrepreneurs and their effectiveness are also crucial in the time of the crisis (Kinnunen et al. 2021). Each of the Visegrad countries proposed an aid package for entrepreneurs based on tax, monetary, and macro-financial assistance (International Monetary Fund 2021). The scale and type of this assistance varied. This undoubtedly could have cushioned the impact of economic dynamics during the crisis on women's entrepreneurship. Nevertheless, government support for entrepreneurs in the Visegrad countries has not differentiated between the businesses based on their owner's gender. An opportunity, therefore, arises for policymakers to support strictly female entrepreneurship in the time of COVID-19. The strategic priorities initiated by the World Economic Forum and World Bank should therefore be aligned with current needs arising from economic dynamics resulting from the COVID-19 pandemic (World Economic Forum 2019; World Bank 2020). This may include entrepreneurship training, network development, public procurement, and business incubator. Programs offering preferential credit conditions for women starting entrepreneurial activities could be crucial, as access to finance is one of the most important barriers to female entrepreneurship. However, the most important issue seems to be assistance programs that support the reconciliation of women's work lives with their families and social roles.

6. Conclusions

We discussed the impact of the economic dynamics on female entrepreneurship in the form of proper entrepreneurship and self-employment, based on the perspectives of development trends and business cycles in the Visegrad Group countries.

In regard to RQ1, we observed that the economic dynamics, to some extent, impact female entrepreneurship in the Visegrad countries, but it is not a dominant factor as in the cases of all models, with inertia being the most important independent variable. Differentiation is visible in terms of the time horizon, the statistical importance of independent variables, proper or solo entrepreneurship rates as dependent variables, and the analyzed countries. Concerning the statistical significance of the independent variables, it should be concluded that their impacts on female entrepreneurship are more significant in the trend than from a business cycle perspective. It can be assumed that in the business cycle, female entrepreneurship in Poland, as well as proper entrepreneurship in Czechia, are not significantly affected by economic variables, but it may harm solo-entrepreneurship in Czechia. Female entrepreneurship is more affected by economic factors in the business cycle in Slovakia and in Hungary, but proper entrepreneurship, more than solo entrepreneurship,

in both countries. Comparing the values of models, from the business cycle perspective, economic dynamics act as a push factor in response to the necessity on Hungary's female entrepreneurship and as an opportunity-driven factor on Slovak female entrepreneurship. Female entrepreneurship is impacted more by economic dynamics in the trend perspective. However, in the Visegrad countries, changes connected with the business cycle often have a different direction than in the development trend. It means that the influence of economic factors on female entrepreneurship may cancel each other out over time. It is noted that the inertia of female entrepreneurship is most relevant for all Visegrad countries in both the trend and cyclical perspectives.

RQ2 involved assessing whether economic dynamics in the long-term trend and business cycle perspectives affect the proper entrepreneurship and solo entrepreneurship of women in the same way. We observed that the proper entrepreneurship and self-employment of women do not react equally to the changes related to the impact of economic dynamics. However, the greater consistency of results in all analyzed countries is visible from the trend perspective than in the cyclical fluctuation. In the cyclical perspective, there are only two examples of the same reactions of proper and solo entrepreneurship on economic changes, a negative reaction between cyclical changes in GDP, and both forms of female entrepreneurship in Hungary, and a negative relationship between unemployment and both types of female entrepreneurship in Slovakia. In contrast, in the long-term economic dynamics representing the development trend, both types of female entrepreneurship react in the same manner on unemployment in Poland and Slovakia, and on ICT employment in Slovakia. In all countries, the inertia of female entrepreneurship impacts changes in the same way for both types of entrepreneurship and in both time perspectives.

The last RQ3 was to assess whether female entrepreneurship in the Visegrad countries responds to changes in the economic values of a medium- and long-term nature in the same way. Answering this question, we assumed that female entrepreneurship is affected by the economic dynamics in different ways in each of the Visegrad countries. It is evident from the answers to previous questions. It can be seen that economic dynamics has the least impact on female entrepreneurship in Poland, and the greatest changes in Hungary. The included economic variables determining female entrepreneurship in the Visegrad Group countries have a different impact on it, implying the existence of various factors determining female entrepreneurship in the analyzed economies. All of these observations indicate the country-specific reaction of female entrepreneurship on business dynamics for all four Visegrad countries.

Summing up the discussion, although the economic dynamics impact female entrepreneurship to some extent, it is not the most dominant factor. The impact of economic dynamics on female entrepreneurship is much more substantial in the trend perspective than in the business cycle perspective. The nature of the effect of economic dynamics on female entrepreneurship is also country-specific.

The study is not without limitations. The analysis of economic fluctuations in the long-term perspective and international cross-section requires the collection of a large amount of data. However, the availability and completeness of statistical data are subject to limitations. The substantive justification of the use of a larger number of explanatory variables cannot therefore be implemented, due to technical and formal restrictions. This results in some further limitations of the study: the ones concerning the problem of the endogeneity of independent variables. Another difficulty was that research on female entrepreneurship, in the context of economic fluctuations, was practically non-existent in the prior literature.

On the other hand, our study shows the need for conducting further scrutiny in this area. One should bear in mind that our study concerns only four countries, so we cannot generalize the findings. In the future, it is worth considering a wider group of countries in the study, comparing the research results for economies at different stages of economic development. Then, further investigation should study the impact of economic changes

on both female and male entrepreneurship in the medium- and long-term to compare the extent to which results are female-specific or similar to all entrepreneurs as gender-neutral. Therefore, further research at the industry level is required, which will provide us with valuable (and more detailed) information.

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References

Amorós, José, Fernando Borraz, and Leonardo Veiga. 2016. Entrepreneurship and Socioeconomic Indicators in Latin America. *Latin American Research Review* 51: 186–201. [CrossRef]

Amorós, José, Luciano Ciravegna, Vesna Mandakovic, and Pekka Stenholm. 2019. Necessity or Opportunity? The Effects of State Fragility and Economic Development on Entrepreneurial Efforts. *Entrepreneurship: Theory and Practice* 43: 725–50. [CrossRef]

Anambane, Golda, and Kwame Adom. 2018. Assessing the Role of Culture in Female Entrepreneurship in Contemporary Sub-Saharan Society: Insights From The Nabadam District of Ghana. *Journal of Developmental Entrepreneurship* 23: 1–26. [CrossRef]

Aparicio, Sebastian, David Urbano, and David Audretsch. 2016. Institutional factors, opportunity entrepreneurship and economic growth: Panel data evidence. *Technological Forecasting and Social Change* 102: 45–61. [CrossRef]

Arin, Peren, Victor Huang, Maria Minniti, Anump Nandialatch, and Otto Reich. 2015. Revisiting the Determinants of Entrepreneurship: A Bayesian Approach. *Journal of Management* 41: 607–31. [CrossRef]

Barsky, Robert, and Eric Sims. 2011. News shock and business cycles. *Journal of Monetary Economics* 58: 273–89. [CrossRef]

Baumol, J. William. 1968. Entrepreneurship in Economic Theory. *The American Economic Review* 58: 64–71.

Baxter, Marianne, and Michael Kouparitsas. 2004. *Determinants of Business Cycle Comovement: A Robust Analysis*. NBER Working Paper No 10725. National Bureau of Economic Research. Available online: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=601101 (accessed on 13 July 2020).

Berger, S. C. Elisabeth, and Andreas Kuckertz. 2016. Female entrepreneurship in startup ecosystems worldwide. *Journal of Business Research* 69: 5163–68. [CrossRef]

Bieszk-Stolorz, Beata, and Krzysztof Dmytrów. 2020. Influence of Accession of the Visegrad Group Countries to the EU on the Situation in Their Labour Markets. *Sustainability* 12: 6694. [CrossRef]

Bilan, Yuriy, Halyna Mishchuk, Natalia Samoliuk, and Viktoriia Mishchuk. 2020. Gender discrimination and its links with compensations and benefits practices in enterprises. *Entrepreneurial Business and Economics Review* 8: 189–204. [CrossRef]

Boldrin, Michele, Fabio Canova, Jörn-Steffen Pischke, and Diego Puga. 2001. Inequality and convergence in Europe's regions: Reconsidering European regional policies. *Economic Policy* 16: 205–53. [CrossRef]

Buratti, Andrea, Francesca Maria Cesaroni, and Annalisa Sentuti. 2018. Does Gender Matter in Strategies Adopted to Face the Economic Crisis? A Comparison between Men and Women Entrepreneurs. In *Entrepreneurship—Development Tendencies and Empirical Approach*. Edited by Ladislav Mura. London: InTechOpen, pp. 393–412.

Byrne, Janice, Salma Fattoum, and Maria C. Diaz Garcia. 2018. Role models and women entrepreneurs: Entrepreneurial superwoman has her say. *Journal of Small Business Management* 57: 154–84. [CrossRef]

Cantú Cavada, Martha, Vito Bobek, and Anita Maček. 2017. Motivation Factors for Female Entrepreneurship in Mexico. *Entrepreneurial Business and Economics Review* 5: 133–48. [CrossRef]

Cardella, M. Giuseppina, Brizeida R. Hernández-Sánchez, and Joseé C. Sánchez-García. 2020. Women Entrepreneurship: A Systematic Review to Outline the Boundaries of Scientific Literature. *Frontiers in Psychology* 11: 1–18. [CrossRef] [PubMed]

Chowdhury, Farzana, and David Audretsch. 2014. Institution as looting apparatus: Impact of gender equality and institutions on female entrepreneurship. *Eurasian Business Review* 4: 207–25. [CrossRef]
Damelang, Andreas, and Sabine Ebensperger. 2020. Gender composition of occupations and occupational characteristics: Explaining their true relationship by using longitudinal data. *Social Science Research* 86: 102394. [CrossRef] [PubMed]
Davidsson, Per, and Johan Wiklund. 2007. Levels of analysis in entrepreneurship research: Current research practice and suggestions for the future. In *Entrepreneurship: Concepts, Theory and Perspective*. Edited by Álvaro Cuervo, Domingo Ribeiro and Salvador Roig. Berlin: Springer, pp. 245–65.
Davidsson, Per, and Scott R. Gordon. 2016. Much ado about nothing? The surprising persistence of nascent entrepreneurs through macroeconomic crisis. *Entrepreneurship Theory and Practice* 40: 915–41. [CrossRef]
Dutta, Nabamita, and Sushanta K. Mallick. 2018. Enabling Women Entrepreneurs: Exploring Factors that Mitigate the Negative Impact of Fertility Rates on Female Entrepreneurship. *Kyklos* 71: 402–32. [CrossRef]
Dvouletý, Ondřej, and Marko Orel. 2020. What drives Female Entrepreneurship in African developing countries? In *Enterprising Africa*. Edited by Stephen Dobson, Paul Jones, Daniel Agyapong and Gideon Maas. London: Routledge.
Elam, B. Amanda, Candida G. Brush, Patricia G. Greene, Benjamin Baumer, Monica Dean, and René Heavlow. 2019. *Global Entrepreneurship Monitor 2018/2019 Women's Entrepreneurship Report*. Wellesley: Babson College.
Engelen, Andreas, Florian Heinemann, and Malte Brettel. 2009. Cross-cultural entrepreneurship research: Current status and framework for future studies. *Journal of International Entrepreneurship* 7: 163–89. [CrossRef]
Ester, Peter, and Amelia Román. 2017. A Generational Approach to Female Entrepreneurship in Europe. *Journal of Women's Entrepreneurship and Education* 3–4: 1–27.
Estey, J. Arthur. 1959. *Business Cycles*, 2nd ed. New York: Prentice-Hall.
Estrin, Saul, and Tomasz Mickiewicz. 2011. Institutions and female entrepreneurship. *Small Business Economics* 37: 397–415. [CrossRef]
Fabeil, F. Noor, Khairul H. Pazim, and Juliana Langgat. 2020. The Impact of COVID-19 Pandemic Crisis on Micro-Enterprises: Entrepreneurs' Perspective on Business Continuity and Recovery Strategy. *Journal of Economics and Business* 3: 837–44. [CrossRef]
Ferreira, J. João, Alain Fayolle, Cristina Fernandes, and Mário Raposo. 2017. Effects of Schumpeterian and Kirznerian entrepreneurship on economic growth: Panel data evidence. *Entrepreneurship and Regional Development* 29: 27–50. [CrossRef]
GEM. 2020. Global Entrepreneuship Monitor 2019/2020 Global Report. Available online: https://www.gemconsortium.org/file/open?fileId=50443 (accessed on 20 September 2020).
Giotopoulos, Ioannis, Alexandra Kontolaimou, and Aggelos Tsakanikas. 2017. Drivers of high-quality entrepreneurship: What changes did the crisis bring about? *Small Business Economics* 48: 913–30. [CrossRef]
Grandy, Gina, Wendy Cukier, and Suzanne Gagnon. 2020. (In)visibility in the margins: COVID-19, women entrepreneurs and the need for inclusive recovery. *Gender in Management* 35: 667–75. [CrossRef]
Gubik, S. Andrea, and Szilveszter Farkas. 2019. Entrepreneurial Intention in the Visegrad Countries. *DANUBE: Law, Economics and Social Issues Review* 10: 347–68. [CrossRef]
Guerrero, Maribel, Francisco Liñán, and Rafael F. Cáceres-Carrasco. 2020. The influence of ecosystems on the entrepreneurship process: A comparison across developed and developing economies. *Small Business Economics*. [CrossRef]
Gumbau Albert, M. 2017. Entrepreneurship, innovation and regional performance: Application for the Spanish regions. *Entrepreneurship and Regional Development* 29: 271–91. [CrossRef]
Holienka, Marian, Zuzana Jančovičová, and Zuzana Kovačičová. 2016. Drivers of women entrepreneurship in Visegrad countries: GEM evidence. *Procedia-Social and Behavioral Sciences* 220: 124–33. [CrossRef]
Holmen, Magnus, Thaw T. Min, and Emilia Saarelainen. 2011. Female Entrepreneurship in Afghanistan. *Journal of Developmental Entrepreneurship* 16: 307–31. [CrossRef]
Hopp, Christian, and Johannes Martin. 2017. Does entrepreneurship pay for women and immigrants? A 30 year assessment of the socio-economic impact of entrepreneurial activity in Germany. *Entrepreneurship and Regional Development* 29: 517–43. [CrossRef]
International Monetary Fund. 2021. Policy Responses to COVID-19. Available online: https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19 (accessed on 10 October 2020).
Jaklič, Andreja, Krzysztof Obloj, Marjan Svetličič, and Luka Kronegger. 2020. Evolution of Central and Eastern Europe related international business research. *Journal of Business Research* 108: 421–34. [CrossRef]
Jones, V. Marian, Nicole Coviello, and Yee K. Tang. 2011. International entrepreneurship research (1989–2009): A domain ontology and thematic analysis. *Journal of Business Venturing* 26: 632–59. [CrossRef]
Jovanovic, Boyan. 2019. The entrepreneurship premium. *Small Business Economics* 53: 555–68. [CrossRef]
Kinnunen, Jani, Irina Georgescu, Zahra Hosseini, and Ane.-Mari Androniceanu. 2021. Dynamic indexing and clustering of government strategies to mitigate COVID-19. *Entrepreneurial Business and Economics Review* 9: 7–20. [CrossRef]
Kirby, A. David, and Nagwa Ibrahim. 2011. Entrepreneurship education and the creation of an enterprise culture: Provisional results from an experiment in Egypt. *International Entrepreneurship and Management Journal* 7: 181–93. [CrossRef]
Kitrar, Liudmila, and Tamara Lipkind. 2021. The relationship of economic sentiment and GDP growth in Russia in light of the COVID-19 crisis. *Entrepreneurial Business and Economics Review* 9: 7–29. [CrossRef]
Kobus-Ostrowska, Dorota. 2013. Entrepreneurship in Poland in Times of Crisis and Economic Slowdown. *Optimum. Studia Ekonomiczne* 5: 73–86. [CrossRef]

Koellinger, Philipp, and Roy A. Thurik. 2012. Entrepreneurship and the Business Cycle. *The Review of Economics an Statistics* 94: 1134–56. [CrossRef]
Larsson, P. Johan, and Per Thulin. 2019. Independent by necessity? The life satisfaction of necessity and opportunity entrepreneurs in 70 countries. *Small Business Economics* 53: 921–34. [CrossRef]
Lawter, Leanna, Tuvana Rua, and Jeanine Andreassi. 2016. The Glass Cage: The Gender Pay Gap and Self-Employment in the United States. *New England Journal of Entrepreneurship* 19: 23–38. [CrossRef]
Llopis, A. Juan Sanchis, Jose M. Millán, Rui Baptista, Andrew Burke, Simon C. Parker, and Roy Thurik. 2015. Good times, bad times: Entrepreneurship and the business cycle. *International Entrepreneurship and Management Journal* 11: 243–51. [CrossRef]
Low, B. Murray, and Ian. C. MacMillan. 1998. Entrepreneurship: Past research and future challenges. *Journal of Management* 35: 139–61.
Maciejewski, Marek, and Krzysztof Wach. 2019. International Startups from Poland: Born Global or Born Regional? *Journal of Management and Business Administration* 27: 60–83. [CrossRef]
Marjański, Andrzej, and Łukasz Sułkowski. 2021. Consolidation strategies of small family firms in Poland during COVID-19 crisis. *Entrepreneurial Business and Economics Review* 9: 167–82. [CrossRef]
Markowska, Magdalena, Dietmar Grichnik, Jan Brinckmann, and Diana Kapsa. 2019. Strategic orientations of nascent entrepreneurs: Antecedents of prediction and risk orientation. *Small Business Economics* 53: 859–78. [CrossRef]
Martínez-Rodríguez, Isabel, Consolación Quintana-Rojo, Pedro Gento, and Fernando-Evaristo Callejas-Albinana. 2021. Public policy recommendations for promoting female entrepreneurship in Europe. *International Entrepreneurship and Management Journal*. [CrossRef]
McDougall, P. Patricia, and Benjamin M. Oviatt. 2003. Some fundamental issues in international entrepreneurship. *Entrepreneurship Theory & Practice* 8: 1–27. [CrossRef]
McDougall, P. Patricia, and Benjamin M. Oviatt. 2005. Defining international entrepreneurship and modelling the speed of internationalization. *Entrepreneurship Theory and Practice* 29: 537–54. [CrossRef]
McGowan, Pauric, Caroline L. Redeker, Sarah Y. Cooper, and Kate Greenan. 2012. Female entrepreneurship and the management of business and domestic roles: Motivations, expectations and realities. *Entrepreneurship & Regional Development* 24: 53–72. [CrossRef]
Minniti, Maria, and Wim Naudé. 2010. What Do We Know About The Patterns and Determinants of Female Entrepreneurship Across Countries? *The European Journal of Development Research* 22: 277–93. [CrossRef]
Misra, Kaustav, Ersa Memili, Dianne Welsh, and Hanqing Fang. 2014. The Impact of Foreign Direct Investment (FDI) on Women's Entrepreneurship. *Journal of Small Business Strategy* 24: 45–59.
Naoussi, F. Claude, and Fabien Tripier. 2013. Trend shocks and economic development. *Journal of Development Economics* 103: 29–42. [CrossRef]
Ng, S. Kit, and Ping P. Fu. 2018. Factors Driving Foreign Women Entrepreneurship in China. *Entrepreneurial Business and Economics Review* 6: 49–69. [CrossRef]
Olarewaju, Tolu, and Julia Fernando. 2020. Gender Inequality and Female Entrepreneurship in Developing Countries. In *Decent Work and Economic Growth*. Edited by Walter Leal Filho, Anabela M. Azul, Luciana Brandli, Amanda Lange Salvia and Tony Wall. Berlin: Springer, pp. 1–9.
Parker, C. Simon. 2012. Entrepreneurship and the Business Cycle: Evidence and Implications for Policy Makers. In *Entrepreneurship, Norms and the Business Cycle*. Edited by Pontus Braunerhjelm. Stockholm: Swedish Economic Forum Report, pp. 35–52.
Rahman, Ashiqur, and Hana Zbrankova. 2019. Female Borrowers and Credit Constraints in SME Loan Market: An Analyses from the Visegrad Countries. *Polish Journal of Management Studies* 20: 426–40. [CrossRef]
Ramadani, Veland, Shqipe Gërguri-Rashiti, and Alain Fayolle, eds. 2015. *Female Entrepreneurship in Transition Economies: Trends and Challenges*. London: Palgrave Macmillan.
Rusu, D. Valentina, and Angela Roman. 2017. Entrepreneurial Activity in the EU: An Empirical Evaluation of Its Determinants. *Sustainability* 9: 1679. [CrossRef]
Saint-Paul, Gilles. 1997. Business cycles and long-run growth. *Oxford Review of Economic Policy* 13: 145–53. [CrossRef]
Saumik, Paul, and Sarma Vengadeshvaran. 2013. *Economic Crisis and Female Entrepreneurship: Evidence from Countries in Eastern Europe and Central Asia*. Discussion Papers 13/08. Nottingham: University of Nottingham, CREDIT.
Stanišić, Nenad, Nikola Makojević, and Tijana Tubić Ćurčić. 2018. The EU Enlargement and Income Convergence: Central and Eastern European Countries vs. Western Balkan Countries. *Entrepreneurial Business and Economics Review* 6: 29–41. [CrossRef]
Terjesen, Siri, Jolanda Hessels, and Dan Li. 2013. Comparative international entrepreneurship: A review and research agenda. *Journal of Management* 42: 299–34. [CrossRef]
Thurik, A. Roy. 2014. *Entrepreneurship and the Business Cycle*. Working Paper. Rotterdam: IZA World of Labor, Erasmus School of Economics. [CrossRef]
Ughetto, Elisa, Mariacristina Rossi, David Audretsch, and Erik E. Lehmann. 2019. Female entrepreneurship in the digital era. *Small Business Economics* 5: 305–12. [CrossRef]
Ulrichs, Magdalena. 2018. Identification of financial and macroeconomic shocks in a VAR model of the Polish economy. A stability analysis. *Economics and Business Review* 18: 29–43. [CrossRef]
van Ewijk, Aanne, and Sophia Belghiti-Mahut. 2019. Context, gender and entrepreneurial intentions. How entrepreneurship education changes the equation. *International Journal of Gender and Entrepreneurship* 11: 75–98. [CrossRef]

van Stel, André, Martin Carree, and Roy Thurik. 2005. The Effect of Entrepreneurial Activity on National Economic Growth. *Small Business Economics* 24: 311–21. [CrossRef]

Villaseca, David, Julio Navío-Marco, and Ricardo Gimeno. 2020. Money for female entrepreneurs does not grow on trees: Start-ups' financing implications in times of COVID-19. *Journal of Entrepreneurship in Emerging Economies*. Ahead-of-Print. [CrossRef]

Wach, Krzysztof. 2018. Theoretical foundation for international entrepreneurship. In *Internationalization of Firms in the Perspective of International Entrepreneurship*. Edited by K. Wach. Warszawa: PWN, pp. 63–95.

World Economic Forum. 2019. The Global Competitiveness Report 2019. Available online: http://reports.weforum.org/global-competitiveness-report-2019/ (accessed on 10 September 2020).

Williams, R. Donald. 2004. Effects of childcare activities on the duration of self-employment in Europe. *Entrepreneurship Theory and Practice* 28: 467–85. [CrossRef]

World Bank. 2020. *Doing Business 2020*. Available online: https://www.doingbusiness.org/en/reports/global-reports/doing-business-2020 (accessed on 10 September 2020).

Zygmunt, Justyna. 2018. Entrepreneurial activity drivers in the transition economies. Evidence from the Visegrad countries. *Equilibrium. Quarterly Journal of Economics and Economic Policy* 13: 89–103. [CrossRef]