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MACRO-ECONOMIC DEVELOPMENT OF THE EU COUNTRIES IN THE CONTEXT OF PERFORMANCE AND COMPETITIVENESS OF SMES

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Abstract. *Purpose* – The paper focuses on the identification of disparities in the development of the macroeconomic environment across the member states of the European Union and problematic factors impacting the business environment's level.

Research methodology – To find the disparities in the development of the EU countries, the TOPSIS method was used. Based on this analysis, the crucial factors influencing the development of the macroeconomic environment were determined. The discriminant analysis was then used to form a model, which could help assess and examine the relationship between the business environment and significant determinants of development.

Findings – Based on the methods applied, the determinants influencing the development of the macroeconomic environment and key factors and aspects affecting the rate of development of the economic and business environment were identified and the analysis of the economic and business environment was performed through selected statistical techniques.

Practical implications – The analysis confirmed that some countries have certain gaps in its assessment of the dynamics of economic development in EU countries in terms of the sustainability and competitiveness of small and medium-sized businesses, and that the business climate is not entirely conducive to these businesses.

Originality/Value – The additional value of the paper is the formation of the model, which helps identify the countries with appropriate business environment and those where the economic development is not sufficiently developed which may be useful for enterprises, investors, and creditors.

Keywords: competitiveness, small and medium-sized enterprises, TOPSIS analysis, discriminant analysis, business environment.

JEL Classification: L25, F63, O11.

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Introduction

Competitiveness has become a much-discussed term in the past period. This term is often found in government program statements and other important documents. However, this concept is often understood differently and occurs in different dimensions (Valaskova et al., 2021a). The absence of a uniform definition of the term makes it impossible to understand the term well. The historical context of the concept of competitiveness differs considerably from period to period (Rajnoha & Lesnikova, 2022). In the past, this term was associated with an active balance of payments, productivity growth, or the use of basic production factors (labor, capital, and land). Currently, there are already several ways to evaluate the competitiveness of a country by different indicators – some measure competitiveness, some innovations,

others map the state of the business environment, and some contain entire complex factors that provide a comprehensive view on the country's competitiveness (Kiselakova et al., 2018).

According to Safar et al. (2018), small and medium-sized businesses have a significant global and regional economic influence, not only in Central Europe. These are the main pillars of a successful labor policy. The European Union offers a number of initiatives that might benefit businesses and works to make the environment in which they operate as favorable as possible. One of the key benefits of the European Union is the openness of its borders, which allows for the potential of expanding into new markets and the harmonization of the economic, social, and legal frameworks for businesses. Consequently, it may be claimed that this combination of social, economic, cultural, and political components produces an ecosystem that either supports or impedes entrance into undertaking commercial operations following first company failure (Guerrero & Espinoza-Benavides, 2021. Stam and van de Ven (2021) discovered a considerable correlation between the incidence of high-growth businesses and the strength of the entrepreneurial environment. Business units have the chance to expand and thrive in new areas and find their essential success elements thanks to the open community (Moktadir et al., 2020). The nations of Central Europe take advantage of this chance and set up shop wherever it is practical and profitable. It should be stressed, nonetheless, that the macroeconomic climate and business-friendly conditions do have an impact and must be accurately analyzed and assessed (Roszko-Wójtowicz & Grzelak, 2020). Thus, the article focuses on identifying differences in the macroeconomic environment among European Union member states as well as problematic elements that have an influence on the level of the business environment. Based on the calculations it would be possible to identify the most significant factors affecting the quality of the business climate and overall competitiveness of the countries.

The paper focuses on the identification of disparities in the development of the macroeconomic environment across the member states of the European Union and problematic factors impacting the level of the business environment. The paper is divided into the Literature review which summarizes the most important and up-to-date references to show the importance of the issue in the international context. The Research methodology describes the database od inputs used in the research as well as the methodological steps which were followed. The section focused of the Research results highlight the outputs of the calculations which are then discussed in the context of other relevant studies.

1. Literature review

The notion of competitiveness has moved from the business level to the international level because of globalisation. However, many scholars see the idea of competition differently. Yumei et al. (2021) and Abdul-Rashid et al. (2017), for example, argue that competitiveness is a multifaceted term that allows for several interpretations. In the same breath, they say that technical competitiveness is the most important part of firm competitiveness. Belas et al. (2021) acknowledge that competitiveness is a complex concept and add that it must be viewed holistically; therefore, its evaluation should reflect the extent to which the country fosters a business environment in which businesses can grow at a sustainable rate, thereby

creating jobs and enhancing the well-being of its citizens. It follows from the preceding that company competitiveness is crucial. Since wealth is produced at the micro level, Brieger et al. (2020) and Buyukozkan et al. (2018) explore the idea of competition at this level. Based on the social and behavioural sciences, Teece (2007) and Zhang and Browne (2012) specify in greater detail the nature and particularly the micro foundations of capabilities that are required to maintain excellent business performance in an open economy, primarily through rapid innovation, globally dispersed sources of invention, and production capabilities. Thus, those are the dynamic skills that enable firms to generate, deploy, and safeguard intangible assets, hence supporting long-term business performance excellence. Evangelista et al. (2014) and Valaskova et al. (2021b) assert that the degree of profit achieved has a significant impact on the financial health and competitiveness of businesses. According to the research findings by Kiselakova et al. (2019), in the countries of the European Union, the micro level (business sector) is dominated by small and medium-sized enterprises (SMEs), which play a crucial role in the process of sustainable, competitive economic development. Furthermore, human resources are a significant factor in the internationalisation of European SMEs. Du et al. (2017) and Gajanova et al. (2020) claim, that small and medium-sized enterprises are the actual lifeblood of economies throughout the world, since they contribute to the creation of employment and the competitiveness of economies, particularly during times of economic crisis. A portion of the scientific-research basis supports the study of the notion of innovation-based competitiveness. In terms of Elkington (1994) and Grewal et al. (2021), the primary objective of creative acts by businesses is to increase their assortment, quality, and market share or competitiveness.

Cheng et al. (2022) stated that there is a substantial correlation between a state's degree of competitiveness and its investment in research and development, human capital development, innovation potential, and scientific research base strengthening. Jayarathna et al. (2022) and Kliestik et al. (2020) conducted research on the competitiveness of regions and reached the conclusion that uneven development of natural, human, financial, infrastructural, and security aspects can lead to regional differences in the country, resulting in uneven development of regions and a decrease in competitiveness regions, which can result in a lower standard of living for residents in less developed regions. Several authors have studied the interrelationships and interdependencies between competitiveness and quality of life. Valaskova et al. (2021b), who examined the multidimensional evaluation of competitiveness, well-being, and innovation, determined that there is a significant and direct relationship between competitiveness, innovation, and well-being. Governments and corporations that engage more in innovation-focused research to boost the competitiveness of their goods and services have a higher GDP and a more prosperous populace. Cieslik and Michalek (2018) identified the following as factors that increase well-being, prosperity, and economic growth: population growth, working time, technology, specialisation, capital, labour, and productivity, in addition to numerous institutional factors, such as political system, economic freedom, and development (Cantele & Cassia, 2020). Climate change and global warming have compelled economists and scientists to incorporate an environmental dimension into the idea of competitiveness. Porter (1998) presented the research in which he determined that environmental regulations raise expenses needlessly, hence retarding environmental progress. The industry's

competitiveness has suffered because of the disregard of innovation's advantages, which has led to a rise in compliance-related expenses and a decline in innovation's benefits. In the past, the term "eco-innovation" was also used. This phrase is associated with organisational innovations, creative goods or processes designed to decrease environmental costs, boost societal acceptability, and eventually achieve sustainable development (Isensee et al., 2020; Vatamanescu et al., 2021).

The rise of the global economy, however, sparked a desire for indices that give a generally recognised assessment of competitiveness and construct a worldwide comparison of the competitiveness of national economies. The Global Competitiveness Index and the World Competitiveness Index are two indices that society considers to be the most significant and most acceptable. Several authors have done research on these indices, which may be interpreted separately or in line with other factors to produce a multidimensional model that can better characterise the business environments of nations (see Nogueira & Madaleno, 2021; Olczyk et al., 2022; Benítez-Márquez et al., 2022; Khazei et al., 2021; etc.). Lu et al. (2022) conducted a one-dimensional comparison of indices and mapping of the business environment, in which they identified the primary obstacles that prevent Slovak entrepreneurs from conducting business. Kiselakova et al. (2019) and Nagypal (2014) attempted to identify important interrelationships between the evaluation of global competitiveness, the business environment, and the human development index in EU nations by conducting a panel analysis and non-linear regression analyses with the ANOVA test. Their conclusion was that there is a correlation between the business environment and the calibre of human resources, which are regarded as a worldwide competitive advantage. Hajduova et al. (2021) and Virglerova et al. (2017) conducted a similar multivariate analysis using the TOPSIS method, which allowed them to categorise individual countries of the European Union and thus reveal individual disparities between EU countries, concluding that the least effective business environment is in Cyprus, the Czech Republic, Estonia, Hungary, Poland, Latvia, Lithuania, Slovakia, and Slovenia because they ranked below the EU average. Estonia, Malta, and Slovenia had the most improvement in their business climates among EU nations. This awareness of the reordering of indicators is also supported by the World Economic Forum, which in 2018 introduced a revised World Competitiveness Index that began to account for Industry 4.0. As a result of this small adjustment, Slovakia improved by up to 18 positions compared to the previous year. Despite these arguments and facts, there is a scientific basis for competitiveness indexes.

2. Research methodology

The study analyses the business climate of EU nations using appropriate mathematical and statistical techniques. In the context of global competition, the building of a foundation for successful appraisal of the economic environment becomes essential. To compare the business environment in the EU countries, the TOPSIS methods was used. Several important macroeconomic factors were considered, which adequately represent the business and macroeconomic climate of EU member states. These factors were determined as input factors of the TOPSIS method: f1 – gross domestic product (in billions of U.S. dollars), f2 – average annual unemployment rate (in percent), f3 – average annual inflation rate (in percent), f4 –

foreign direct investment (in billions of U.S. dollars), f5 – tax rate (in percent), f6 – openness of the economy (in percent), f7 – freedom of business (score), f8 – infrastructure (score), f9 – innovation level (score) and f10 – corruption rate (score).

After establishing the criteria, it was required to locate information for each European country (however, one country, Malta, was omitted from the analysis, as appropriate data were not available for the selected period). After collecting data for all 26 European countries for the period 2017–2021 and dividing it into two sections, the time before the COVID-19 pandemic till 2019 and the period after the pandemic, the average values were determined. Due to turbulent changes on the national markets and distorted development of all macroeconomic indicators caused by the COVID-19 pandemic, it was necessary to consider two periods when assessing the performance and competitiveness of enterprises. After gathering the data, the computations begin; initially, the preferences between the criteria are determined. The quantitative comparison was conducted using the Saaty's matrix, in which a pair of criteria is always compared, followed by the determination of the preference's magnitude. This matrix arranges the elements into a hierarchy using subjective judgments in order to assign numerical values based on the relative importance of these elements to the overall goals (Saaty, 1987). To eliminate the subjectivism in the calculation, the consistency ratio should be calculated, which is the ratio of a consistency index to the mean consistency index from a large sample of randomly generated matrices. If the consistency ratio is above 0.1, it is needed to reconsider the decision matrix for any inconsistent rating of factors (Pourghasemi et al., 2012). The recommended point scale for this method is as follows: 1 – The criteria are of equal importance, 3 – The criterion in the row is less significant than the criterion in the column, 5 – The criterion in the row is more significant than the criterion in the column, 7 – The criterion in the row is extremely more significant than the criterion in the column, 9 – The criterion in the row is absolutely more significant than the criterion in the column (Table 1). The calculated value of the consistency ratio was below the limit value of 0 indicating a reasonable level of consistency.

Table 1. Saaty matrix (source: authors' compilation)

	f1	f2	f3	f4	f5	f6	f7	f8	f9	f10
f1	1	1/3	1/4	5	1/4	5	2	1/5	1/5	1/5
f2	3	1	1/5	5	1/4	4	2	1/5	1/5	1/5
f3	4	5	1	5	1	4	3	1/5	1/5	1/5
f4	1/5	1/5	1/5	1	1/5	1/3	1/2	1/5	1/5	1/5
f5	4	4	1	5	1	5	5	1/4	1/4	1/4
f6	1/5	1/4	1/4	3	1/5	1	1	1/5	1/5	1/5
f7	1/2	1/2	1/3	2	1/5	1	1	1/5	1/5	1/5
f8	5	5	5	5	4	5	5	1	1	1
f9	5	5	5	5	4	5	5	1	1	1
f10	5	5	5	5	4	5	5	1	1	1

Subsequently, the criteria were arranged into Saaty's matrix, to which the following applies:

$$s_{ij} \approx \frac{v_i}{v_j}, i, j = 1,2,3\ldots n. \tag{1}$$

To calculate the weights, Saaty created an eigenvector corresponding to the largest eigenvalue of the matrix *A*, the solution is then the normalized geometric mean of the matrix *S*, where v_i is the weight of the *i*-th criterion (Wong et al., 2021).

$$v_i = \frac{\left[\Pi_{i=1}^{k} j\right]^{\frac{1}{k}}}{\sum_{i=1}^{k}\left[\Pi_{j=1}^{k} s_{ij}\right]^{\frac{1}{k}}}. \tag{2}$$

Using a scale ranging from one to nine, the relationships between the chosen criteria were identified. The subjective evaluation of the significance of specific criteria is, of course, one of the downsides of this technique (which was eliminated calculating the consistency index). As the comparison of the criteria with itself equals to one, this matrix is consequently reciprocal; there are always units on the major diagonal. Above this diagonal, the sorted values are ranked according to the subjective opinion of their relevance. Underneath this diagonal are their inverse values. The selected unput criteria domestic product, foreign direct investment, freedom of entrepreneurship, openness of the economy, infrastructure, innovation level, and degree of corruption were set as the maximising criteria for the application of the TOPSIS technique and unemployment, inflation, and taxation as minimising criteria. Maximization criteria are required for the TOPSIS analysis, thus, in the following stage, the minimization criteria must be replaced by maximisation criteria. In the subsequent phase, a weighted criteria matrix was created by multiplying each *j*-th column of the normalised criterion matrix by its respective weight v_i. Following this, the ideal and baseline variants for each criterion can be calculated. The authors established the upper limit as the column's maximum and the lower limit as its minimum. In the last phase, the Euclidean distance between the ideal d_i^+ variation and the base d_i^- variant was calculated. Using the following formulas, the ideal and baseline variations were determined:

$$d_i^+ = \left(\sum_{i=1}^{k}\left(w_{ij} - H_j\right)^2\right)^{\frac{1}{2}} i = 1,2,3\ldots n; \tag{3}$$

$$d_i^- = \left(\sum_{i=1}^{k}\left(w_{ij} - D_j\right)^2\right)^{\frac{1}{2}} i = 1,2,3\ldots n. \tag{4}$$

After calculating the ideal and base variants, the relative indicators of the distance of variations from the base variant c_i (0;1) were measured.

$$c_i = \frac{d_i^-}{d_i^- + d_i^+}. \tag{5}$$

After calculating the relative indicators, variations were obtained and sorted in descending order based on the decreasing values of the ci indicator, resulting in a comprehensive arrangement of all variants.

The identification of these criteria and ordering the countries according to the level of the national competitiveness and development of the macroeconomic environment, the discriminant analysis was used, using the same input variables, to find a linear combination of features that characterizes or separates two groups of countries – with developed and competitive business environment and those with the deficient one. This method comprises a discriminant function that is premised on linear combinations of the predictor variables that offer the best discrimination between the groups of European countries. To use the discriminant analysis, the basic assumptions of the input data must be met in our study: i) samples should be independent and unconnected to one another; ii) the variance-covariance matrices for each group should be the same, and the predictor variables should have a multivariate normal distribution; iii) as a group membership is assumed to be mutually exclusive (no case belongs to more than one group), it is presumed that cases cannot correspond to more than one group.

3. Research results and discussion

To reach the main aim of the paper and following the methodological steps, the ci indicator was calculated for both periods (pre-pandemic and pandemic) using the selected macro-economic indicators which appropriately assess the quality and attractiveness of the business environment. As indicated in the methodology section of the paper, the analytical calculus is focused on ten important indicators which allow determining the development of the macroeconomic environment across the member states. Table 2 summarizes the results, based on the calculated ci indicator in the first analysed period.

Table 2. Ranking of the EU countries in the period 2017–2019 (source: authors' compilation)

Ranking	Country	c_i indicator	Ranking	Country	c_i indicator
1.	Ireland	0.61724	14.	Slovenia	0.42455
2.	Denmark	0.61133	15.	Spain	0.41637
3.	Finland	0.60264	16.	Poland	0.41341
4.	Germany	0.58997	17.	Hungary	0.41209
5.	Sweden	0.58442	18.	Czech Republic	0.41184
6.	Netherlands	0.57102	19.	Bulgaria	0.39413
7.	France	0.52004	20.	Latvia	0.39178
8.	Austria	0.48961	21.	Estonia	0.38611
9.	Luxembourg	0.48335	22.	Croatia	0.36243
10.	Cyprus	0.48294	23.	Greece	0.35218
11.	Italy	0.45153	24.	Lithuania	0.34163
12.	Portugal	0.45028	25.	Romania	0.30783
13.	Belgium	0.42984	26.	Slovak Republic	0.30055

The study indicates that Ireland is the country with the most appropriate business environment. Consequently, Denmark, Finland, Germany and Sweden outperform in terms of competitiveness, economic freedom, innovation, corruption, and environmental performance. Comparing the top countries with those at the end of the ranking, the problematic characteristics of the Slovak Republic include economic growth, employment, inflation, tax policy, inadequate infrastructure, a low degree of innovation, and relatively high levels of corruption. Comparing Ireland and the Slovak Republic across the competitiveness pillars (International Institute for Management Development [IMD], 2022) reveals that company efficiency is the most problematic aspect (Figure 1).

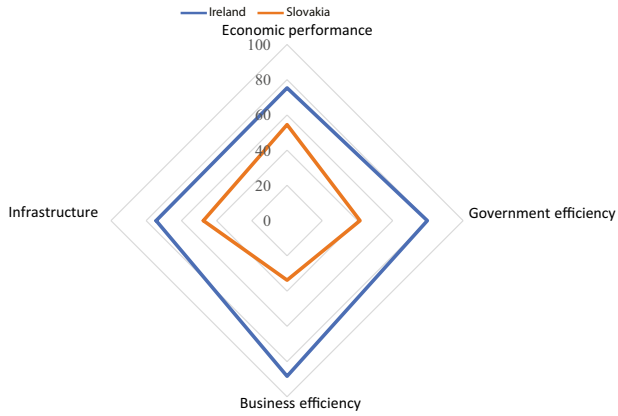

Figure 1. Radar diagram for Ireland and Slovakia (source: authors' compilation)

The same procedure was followed for the calculation in the years 2020 and 2021. By calculating the relative indicators, the variants were obtained, which were arranged in descending order according to the decreasing values of the ci indicator, thereby achieving a complete arrangement of all variants (Table 3).

Table 3. Ranking of the EU countries in the period 2020–2021 (source: authors' compilation)

Ranking	Country	c_i indicator	Ranking	Country	c_i indicator
1.	Sweden	0.60850	14.	Slovenia	0.43584
2.	Denmark	0.60266	15.	Portugal	0.42301
3.	Finland	0.59755	16.	Hungary	0.41219
4.	Ireland	0.58733	17.	Spain	0.41161
5.	Netherlands	0.56231	18.	Lithuania	0.40713
6.	Germany	0.56158	19.	Bulgaria	0.39388
7.	France	0.54987	20.	Czech Republic	0.39119
8.	Austria	0.49602	21.	Latvia	0.36868
9.	Luxemburg	0.48031	22.	Greece	0.36485
10.	Cyprus	0.46389	23.	Croatia	0.32744
11.	Belgium	0.46119	24.	Poland	0.32275
12.	Italy	0.44027	25.	Romania	0.30812
13.	Estonia	0.43758	26.	Slovak Republic	0.28781

Table 3 presents similar results compared to the outputs in the pre-pandemic period, but there were some shifts, Sweden took the first place. Germany dropped out of the top five and was replaced by the Netherlands. If the country with the most and least appropriate business environments, Sweden and Slovakia, are compared, the areas of improvement can be determined (economic growth, employment, inflation, tax policy, insufficient infrastructure, problems with innovation potential, and high corruption). Even in this analysis, it is appropriate to create a radar diagram (Figure 2) to reveal the weak points of Slovak business environment (IMD, 2022).

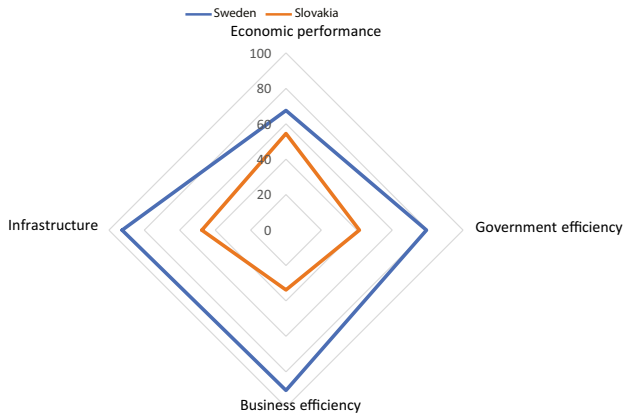

Figure 2. Radar diagram for Sweden and Slovakia (source: authors' compilation)

After a better analysis of business-related indicators, Slovakia should increase overall labour productivity in all areas, increase the efficiency of small and medium-sized businesses, make greater use of digital tools and technologies, increase financial skills, attract, and retain talent, prevent brain drain (which hinders economic growth), attract talents from abroad, or open the national culture to new ideas. The analysis realized in the pandemic period shows, that Slovakia should primarily improve three of the four evaluated areas of government effectiveness, such as the level of debt, increasing transparency, reducing bureaucracy, addressing corruption, strengthening the rule of law, mitigating protectionist measures, implementing solutions in the parallel economy, and streamlining the operation of businesses. Regarding infrastructure: completion of road infrastructure, energy infrastructure, increasing digital and technological skills, increasing expenditures on research and development, increasing the transfer of knowledge, reducing the ecological footprint, utilising renewable resources, increasing expenditures on education, increasing the quality of higher education, and increasing literacy and language skills knowledge. However, these are the areas to be improved not only in Slovakia, but also other countries with deficiencies in the development and competitiveness of their business environment. Moreover, the economic impacts of the pandemic also had an effect on global competition as the overall calculated values of the ci indicator are lower (reflecting the overall macroeconomic development of the national business environment) in the second analyzed period. Nonetheless, raising long-term economic growth rates and rising living standards require improving national competitiveness. Together with macroeconomic variables, the business environment, and customer demand, competitiveness

factors alter (Boikova et al., 2021). The rising significance of digitization for businesses across all industries is indicative of these shifts (Gavurova & Megyesiova, 2022; Markova et al., 2022).

The results achieved may be also confirmed by different world competitiveness rankings that measure the competitiveness performance (Zahorskyi et al., 2020) on a basis of various pillars (e.g. Global Competitiveness Index, Doing Business Index, World Competitiveness Ranking, Environmental Performance Index, etc.). Contrary to the critique that has frequently been made in the academic literature, competitiveness rankings are quite popular. Rankings presuppose that there are no regional variations in the factors that affect competitiveness. The list of determinants is supplied, and although each determinant's weight is given, it is assumed that all nations would perform similarly despite the fact that a country's real performance may differ for each factor. Thus, the use of macro-economic indicators to assess the national business environment seems to be a relevant measure. The study of Simionescu et al. (2021) on the EU countries in the period 2004–2018 indicated that the level of research and development expenditure, gross domestic product (GDP), foreign direct investments (FDI) and the innovation processes are the most significant drivers of the competitiveness which is in line with the indicators used in this study. Roszko-Wójtowicz and Grzelak (2020) in their study focused on the macro-economic stability and competitiveness of EU member states confirmed the importance of the DGP, FDI, registered unemployment rate and inflation rate in the assessment of the economic situation of EU countries. Dima et al. (2018) compared the global competitiveness index with selected macro-economic indicators and highlighted the role of innovation and research and development activities which significantly develop the competitiveness of EU countries. Moreover, the empirical analyses by Simionescu et al. (2017) proved that FDI promoted economic growth in all Central European countries as well as the expenditures on research and development. The amount of foreign direct investment (FDI) demonstrates the attractiveness of particular nations to foreign direct investors. Foreign direct investment is regarded as advantageous for host nations because it fills up the capital gap left by insufficient national savings. It introduces or spreads contemporary management systems and impacts an economy's technological modernization. Foreign direct investment (FDI) is also seen to be a means of promoting economic development in impoverished areas, such as through the creation of new employment by foreign investors (Petricevic & Teece, 2019; Su et al., 2018; Altomonte & Ottaviano, 2011).

Based on the analysis, the crucial factors (same input variables as in the TOPSIS method) influencing the development of the macroeconomic environment were set and determined. The discriminant analysis was then used to form a model, which could help assess and examine the relationship between the business environment and significant determinants of development and, thus, determine the countries with developed and competitive business environment and those with the deficient one. After gathering all the data, a model was developed using the SPSS Statistics. As indicated in the methodology section, the basic assumptions should be considered. Tests of equality of group means revealed, that out of all ten input variables only one of them is an appropriate discriminant – the volume of foreign direct investments (p-value 0.038). The results of the Box's M test verify that the variance-covariance matrices for each group of countries is the same (p-value 0.073). The overall quality of the discriminant model was verified by the canonical correlation (0.873) and its test of the

statistical significance (p-value 0.007). Using the unstandardized coefficients of the canonical discriminant function, it is possible to set the resulting discriminant function of the prediction model for EU countries, which has the form:

$$Z = -30.4 + 0.035 \cdot FDI. \quad (5)$$

The SPSS program uses the model constant to calculate the centroids, thereby making a targeted correction so that the weighted average of the centroids (weighted by the number of countries in each group) is equal to zero. The result is then determined by comparing the Z-score values with zero, a positive value represents a developed business environment, and a negative value is for the business environment with some deficiencies. The results of the discriminant analysis proved the importance of the foreign direct investments in the development of the competitive business environment within the EU countries. Horobet et al. (2021) identified FDI as the most important predictor form a set of 15 macro indicator in the Central European countries which shapes the competitiveness in this environment. The same result was achieved in the study by Majeed et al. (2021) who claimed that FDI influence financial development and has significant implications on the competitiveness of an economy which was proved on a data from 1990 to 201 using the method of panel cointegration and causality analysis. Hakhverdyan and Shahinyan (2022) affirmed that FDI and import trade are major aspects of the technological diffusion. Based on the observations of macroeconomic variables in more than 50 countries in the 20-year period they confirmed the influence of FDI on country competitiveness. Nonetheless, FDI seem to be a source of national competitiveness (Gugler & Brunner, 2007).

The TOPSIS investigation determined that Ireland and Sweden offer the most suited business environments, compared to the business environment in Slovakia, which should be significantly improved in specific aspects. Based on the selected data, discriminant analysis revealed that the level of the foreign direct investments is the most appropriate macro-economic parameter to determine the performance and competitiveness of the business environment.

Conclusions

As part of the assessment of the dynamics of economic development in the countries of the European Union in the context of the sustainability and competitiveness of small and medium-sized enterprises, the analysis of the business environment led to the conclusion that Slovakia has certain competitiveness gaps and that the business environment is not wholly favourable for small and medium-sized enterprises.

The competitiveness of the economy, economic freedom, innovation, corruption, environmental performance, and population contentment are the primary determinants of the growth of the economic and commercial environment. A lot of elements determine the business environment; on the one hand, there are individual characteristics that disclose the company's competitive edge. In addition to external variables affecting the business, the government primarily impacts the business through the enactment of pro-business laws. Regarding global issues, it is the capacity of businesses to adapt to foreign situations. Foreign direct investments are a crucial factor in influencing the quality of the business climate. Via

direct foreign investments, the standard of life of the populace rises; through the expansion of employment, there is an infusion of new technology; and so forth. The contribution of corporate income taxes to the state budget is an indirect advantage of direct foreign investments. Foreign direct investments have a significant impact on the macroeconomic environment, as well as on the business environment of European countries, which should not be omitted. If states want to improve their performance and competitiveness in the global market, it is necessary to increase the level of foreign direct investment, which is a challenge for the policy maker within the country's economic policy, while their management requires a long-term plan. The availability of an educated, qualified, productive and flexible domestic workforce has a significant impact on attracting foreign direct investment with a positive impact on the development of the economy. The increase and maintenance of foreign direct investments depends mainly on the improvement of the business environment, its immutability and transparency.

The unavailability of newer and more thorough sources that may improve and deepen the analysis is one of the limits of this study. There is also potential for a broader comparison of nations, even though the comparison of the entire European Union can be considered a representative sample. Therefore, the future of this research may include non-EU countries as well as other indicators, also under the influence of the evolution of the world's most recent technological achievements – Industry 4.0 and its transition to phase 5.0, the comprehension and application of which would be extremely beneficial for the countries with some deficiencies in the competitive business environment.

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Conflicts of interest

The authors declare no conflict of interest.

Author contributions

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

Data availability statement

The data presented in this study are available on request from the corresponding author.

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