"Challenges and opportunities in the development of micro, small, and medium-sized enterprises (MSMEs) in Central and West Asia"

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# CHALLENGES AND OPPORTUNITIES IN THE DEVELOPMENT OF MICRO, SMALL, AND MEDIUM-SIZED ENTERPRISES (MSMES) IN CENTRAL AND WEST ASIA

## Abstract

The study aims to analyze the impact of challenges and opportunities related to corruption, regulatory barriers to doing business, innovativeness of the business environment, and development of institutions and policies that ensure economic prosperity on the development of MSMEs in Central-Western Asia countries. The paper chooses seven Central-West Asian countries using Asian Development Bank statistics for 2010–2021. Based on eleven indicators of the Asian Development Bank (the absolute values and dynamics of the number of MSMEs, their employees, their contribution to GDP, financing by banks and non-banking financial institutions) and factor analysis, the composite indicator of MSMEs' development was calculated. The highest levels of the composite indicator in 2021 were observed for Kazakhstan (1.248), Uzbekistan (1.120), and Azerbaijan (1.043), and the lowest values for the Kyrgyz Republic (0.676). Employing a panel regression analysis with time-fixed effects (for all countries), connections between composite indicators of MSMEs' development and the Corruption Perceptions Index, Ease of Doing Business Index, Global Competitiveness Index, and Global Innovation Index were explored. The greatest impact was in 2019 – with an increase in the Corruption Perceptions Index by one unit (the higher it is, the less corruption is considered by experts), the MSME development indicator increased by 0.26 units. With an increase in the Ease of Doing Business, Global Competitiveness, and Global Innovation Indices by one unit (growth indicates deterioration of the country's rating position), the composite indicator of MSMEs' development decreases by 0.68, 0.69, and 0.67 units, respectively.

## INTRODUCTION

Micro, small, and medium-sized enterprises (MSMEs) play a crucial role in the economic development of Central and West Asia. According to the Business and Sustainable Development Commission (2017), by 2030, due to the use of business models of sustainable development, more than 380 million new small and medium-sized enterprises may appear, 50% of which will be located in developing countries. The preliminary profit that newly created jobs can bring is 12 trillion dollars.

These enterprises contribute significantly to employment generation, innovation, and poverty alleviation. However, despite their potential, MSMEs in Central and West Asia face numerous challenges that impede their growth and sustainability: limited access to finance, inadequate infrastructure, cumbersome regulations, lack of access to markets, skills gaps, and limited technological adoption. Addressing

these challenges is essential to unleash the full potential of MSMEs and promote inclusive and sustainable economic growth. Building the capacity of MSMEs is essential to enhance their competitiveness and sustainability. This includes providing training and technical assistance to improve management skills, enhance productivity, adopt new technologies, and comply with quality and safety standards. Regional cooperation can play a vital role in promoting MSME development in Central and West Asia. Collaboration among countries in the region can facilitate knowledge sharing, foster innovation, create economies of scale, and enhance market access for MSMEs. The Asia Pacific Association of Small and Medium Enterprises (APASME) is one of the regional organizations that currently includes more than 30 Asian countries, whose activities aim to form and redistribute investment flows between participating countries to support small and medium enterprises.

MSMEs' development is a key priority for Central and West Asian countries seeking to foster inclusive and sustainable economic growth. By addressing the challenges faced by MSMEs and implementing supportive policies and initiatives, governments and stakeholders can unlock the full potential of these enterprises to drive economic development and create prosperity in the region.

# 1. LITERATURE REVIEW

MSMEs in Central and West Asia constantly face several different challenges. One of the most critical challenges for MSMEs in this region is access to finance (Zham et al., 2023; Bekhouche & Boukhedimi, 2023). Limited access to credit and financial services limits their ability to invest in technology, expand, and innovate.

One obstacle is the regulatory environment. A complex regulatory framework, bureaucratic hurdles, and inconsistent application of laws create a challenging business environment for MSMEs. Compliance costs are often high, especially for small businesses, leading to inefficiencies and inhibiting growth (Melnyk et al., 2019). In turn, this creates the basis for the transition of MSMEs toward the development of shadow schemes, which increases the degree of uncertainty in the business environment (Mursalov et al., 2023a) Njegovanović, 2023; Ogar et al., 2023).

Infrastructural deficiencies (inadequate infrastructure, including transport networks, power supply, and telecommunications) hinder the operational efficiency of MSMEs (Dotsenko et al., 2023). Poor infrastructure increases production costs and limits market access, especially for enterprises in remote areas, which is particularly felt during periods of economic crisis (Bensadok & Abid, 2023). An equally important modern infrastructural threat to the development of MSMEs is the spread of cybercrime (Kuzior et al., 2023a),

which can completely block almost all infrastructural flows. COVID-19 has also become one of the additional barriers for many small and medium-sized enterprises not only in Central and Western Asian countries but also around the world (AL-Hashimi et al., 2023; Kazeem et al., 2022).

MSMEs in Central and West Asia often need help accessing skilled labor. The mismatch between the skills required by businesses and those possessed by the workforce limits productivity and innovation in the sector (Skrynnyk, 2023; Hossain et al., 2023; Shvindina et al., 2022).

Limited market access creates obstacles for MSMEs to entering domestic and international markets due to a variety of barriers. They include trade restrictions and high target costs (Musa & Ibrahim, 2023), environmental constraints on operations, lack of market information, competition from larger enterprises (Malyarets et al., 2021; Koibichuk et al., 2022), low labor productivity and significant tax burden (Vytvytska et al., 2023; Ratnawati et al., 2023). Limited access to the market limits their growth prospects, reduces competitiveness, and, as a result, levels the implementation of a culture of corporate responsibility (Kuzior et al., 2021; Cherep et al., 2023).

In contrast to the challenges discussed, MSMEs in Central and Western Asia also have several development opportunities. Scientific and technological progress facilitates the rapid adoption of digital technologies, opening up significant op-

portunities for MSMEs in Central and Western Asia (Lyeonov et al., 2023; Mursalov et al., 2023b). E-commerce platforms, digital marketing, online payment systems, artificial intelligence (Piven, 2023), and smart technologies (Ben Yahia, 2023) allow businesses to attract new customers, optimize operations, and improve transparency in the market. Yamin and Murwaningsari (2023) systematically analyze the interaction between digital technologies, transformational leadership, and management flexibility as determinants of improving the efficiency of MSMEs.

To attract MSMEs to the Circular Economy system (Kuzior et al., 2022), country governments and development agencies are increasingly focusing on promoting entrepreneurship through targeted support programs based on the experience of India and Egypt (Mullens & Shen, 2023; Chakravarthy et al., 2023; Dewan et al., 2023). These initiatives provide training, mentoring, trust, and access to finance (Kartanaitė et al., 2021; Runiewicz-Wardyn & Winogradska, 2023), helping MSMEs overcome some challenges.

Regional integration initiatives and trade agreements offer MSMEs access to larger markets and economies of scale (Zhghenti, 2023). Strengthening economic ties between Central and West Asian countries facilitates cross-border trade and investment, creating new growth opportunities.

Encouraging innovation and investment in research and development can increase the competitiveness of MSMEs (Kolosok et al., 2022) and reduce structural gaps in the business environment (Samoilikova et al., 2023a, 2023b). Cooperation between enterprises, academia, and research institutions contributes to technological progress and product diversification (Artyukhov et al., 2023). Kuzior et al. (2023c) pay attention to an essential aspect of the interaction between generations Y and Z, thanks to the transformative processes of the qualitative component of MSMEs management.

Access to global value chains is essential to integrating MSMEs into global production processes (Bilan et al., 2019; Widagdo & Sa'diyah, 2023). It allows them to use international networks, technology transfer, and knowledge exchange.

Participation in value chains increases productivity, promotes learning, and facilitates market expansion for SMEs.

To summarize the literature review, MSMEs are vital not only in the context of business development but also in the powerful potential for the country's macroeconomic stability.

The purpose of this study is to analyze the impact of challenges and opportunities related to corruption, regulatory barriers to doing business, the innovativeness of the business environment, and the development of institutions and policies that ensure economic prosperity on the development of MSMEs in Central and Western Asia countries.

## 2. METHODS

This study used open official statistical information from international databases characterizing the development of MSMEs in seven Central and West Asian countries (Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan), as provided by the Asian Development Bank.

Additionally, certain external dimensions of country development were examined, including economic and innovation aspects (World Bank, World Economic Forum, The World Intellectual Property Organization) as well as political development (Transparency International). This approach formed the following dataset, the general characteristics of which are outlined in Table 1. The analysis covers the period from 2010 to 2021, for which the necessary information is available. It is notable that data for Uzbekistan's Global Competitiveness Index are missing for the analyzed period; the issue of missing data in the work was resolved through mean substitution.

The composite indicator for MSMEs' development was calculated using factor analysis through the principal component analysis (PCA) method, which allows one to identify relationships among variables and determine factors explaining common variability in the dataset. PCA aims to detect linear combinations of the original variables ($x_1$, $x_2$, ..., $x_q$) to obtain a set of principal components

**Table 1.** General characteristics of the research input data

| Indicator | Unit of Measure | Abbreviation | Database |
|---|---|---|---|
| **Composite indicator of MSMEs' development** | | | |
| Number of MSMEs | Number | msme1 | Asian Development Bank |
| MSME growth | % | msme2 | |
| Number of Employees by MSMEs | Number | msme3 | |
| MSME employees growth | % | msme4 | |
| GDP of MSMEs | $ million | msme5 | |
| MSME Contribution to GDP | % | msme6 | |
| MSME Bank Loans to Total | % | msme7 | |
| MSME Bank Loans to GDP | % | msme8 | |
| NBFI Financing, Total | $ million | msme9 | |
| NBFI Financing to Bank Loans | % | msme10 | |
| NBFI Financing to GDP | % | msme11 | |
| **Dimensions of political, economic, and innovation development** | | | |
| Corruption perceptions index | Score from 0 (highly corrupt) to 100 (very clean) | cpi | Transparency International |
| Ease of Doing Business | Rank from 1 (most business-friendly) to 190 | edb | World Bank |
| Global Competitiveness Index | Rank from 1 to number of countries | gci | World Economic Forum |
| Global innovation index | Rank from 1 to number of countries | gii | The World Intellectual Property Organization |

or factors ($Z_1$, $Z_2$, …, $Zq$) that are uncorrelated. Mathematically, this is expressed as follows:

$$
\begin{aligned}
Z_1 &= a_{11}x_1 + a_{12}x_2 + \ldots + a_{1q}x_q \\
Z_2 &= a_{21}x_1 + a_{22}x_2 + \ldots + a_{2q}x_q \\
&\quad \ldots \\
Z_q &= a_{q1}x_1 + a_{q2}x_2 + \ldots + a_{qq}x_{qq}
\end{aligned}
\tag{1}
$$

To align the scale of variables and enable the comparison of their individual contributions, normalization based on accounting for either stimulating or inhibiting effects was applied. As a result, each indicator, which by its economic essence has a stimulating character within the selected data array (Table 1), within a specific country $c$, as well as a time period $t$, was transformed as follows:

$$
\overline{\overline{x}}_{q(ct)} = \frac{x_{q(ct)} - \min_c\left(x_q\right)}{\max_c\left(x_q\right) - \min_c\left(x_q\right)},
\tag{2}
$$

where $\overline{\overline{x}}_{q(ct)}$ – normalized value of the q-th indicator for country $c$ and year $t$; $x_{q(ct)}$ – value of the $q$-th indicator for country $c$ and year $t$; $\min_c(x_q)$ – minimum value of the $q$-th indicator across all years for country $c$; $\max_c(x_q)$ – maximum value of the $q$-th indicator across all years for country $c$.

The study considered some criteria to select the optimal number of factors. The Kaiser criterion (Kaiser, 1960) recommends retaining only those components whose eigenvalues exceed one. The Cattell criterion (Cattell, 1966) involves a visual examination of the eigenvalues of components in the form of a Scree Plot to identify breaks or declines. The variance explained criterion (Taherdoost et al., 2014) recommends retaining a number of factors that can explain a certain percentage of the total variance (no less than 70-80%). As the rotation procedure, which is a standard step of the principal component method to improve the interpretability of analysis results, the orthogonal varimax method (Thompson, 2004) was used.

The obtained factors, containing the highest factor loadings for the indicators, are aggregated into a single composite indicator ($I_{msme}$) by weighting according to the proportion of explained variance in the data set (OECD, 2008):

$$
I_{msme} = \frac{\sum_{i=1}^{k} f_i v_i}{\sum_{i=1}^{k} v_i},
\tag{3}
$$

where $f_i$ – the factor loading of the $i$-th factor; $v_i$ – the proportions of explained variance for the $i$-th factor.

The directions and nature of the relationships between the dimensions of political, economic, and innovation development of countries and MSMEs' development were examined based on classical correlation analysis, as well as regression analysis for panel data with time-fixed effects (the optimality of the

chosen method is confirmed by the Hausman test). It involves dummy variables specifically for each time period, which allows for the potential to control for time-specific effects that may influence the dependent variable across all units in the panel. The model can be expressed as follows (Allison, 2009):

$$Y_{it} = \alpha_i + \beta X_{it} + \gamma_t + \varepsilon, \qquad (4)$$

where $Y_{it}$ – the dependent variable for unit $i$ at time $t$; $\beta$ – coefficients of the model; $X_{it}$ – the vector of independent variables for unit $i$ at time $t$; $\gamma_t$ – time-specific fixed effects; $\varepsilon$ – the error term.

All computational steps within this study were performed using the mathematical software STATA/SE 18.0.

# 3. RESULTS AND DISCUSSION

The first step is to construct a composite indicator that characterizes the development of MSMEs in Central and West Asian countries. The correlation matrix for the standardized variables of the input data (Table 2) indicates the absence of excessive influence of individual indicators on potential principal components (factors). Overall, correlation coefficients exhibit low to medium levels of mutual influence, with coefficients exceeding 0.7 only for certain indicators that are economically quite similar. Consequently, the decision was made to exclude indicators *nmsme6* – MSME Contribution to GDP and *nmsme9* – NBFI Financing, Total for the continuation of the research.

As a result of conducting the direct factor analysis, nine factors were identified, which were then reduced based on the Kaiser criterion, the results of the Scree plot (Figure 1), and the variance explained criterion. Following these steps and the orthogonal varimax rotation, five factors with eigenvalues greater than one and a total cumulative variance of 83% were determined to be optimal (Table 3).

Table 4 presents the factor loadings for each variable within the identified factors. Figure 2, as an

**Table 2.** Correlation matrix for the construction of a composite indicator characterizing the development of MSMEs

| Normalized Variables | nmsme1 | nmsme2 | nmsme3 | nmsme4 | nmsme5 | nmsme6 | nmsme7 | nmsme8 | nmsme9 | nmsme10 | nmsme11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *nmsme1* | 1.00 | | | | | | | | | | |
| nmsme2 | 0.26 | 1.00 | | | | | | | | | |
| nmsme3 | 0.36 | 0.07 | 1.00 | | | | | | | | |
| nmsme4 | −0.18 | 0.05 | 0.17 | 1.00 | | | | | | | |
| nmsme5 | 0.42 | 0.05 | 0.47 | −0.03 | 1.00 | | | | | | |
| nmsme6 | 0.41 | −0.13 | 0.55 | 0.07 | 0.74 | 1.00 | | | | | |
| nmsme7 | −0.10 | −0.10 | −0.04 | 0.16 | 0.00 | −0.04 | 1.00 | | | | |
| nmsme8 | 0.57 | 0.17 | 0.15 | −0.16 | 0.09 | 0.05 | 0.12 | 1.00 | | | |
| nmsme9 | 0.42 | 0.17 | 0.05 | −0.13 | 0.15 | −0.03 | −0.01 | 0.07 | 1.00 | | |
| nmsme10 | −0.01 | 0.09 | 0.20 | −0.06 | 0.07 | −0.08 | 0.06 | −0.30 | 0.69 | 1.00 | |
| nmsme11 | 0.39 | 0.17 | 0.08 | −0.12 | 0.03 | −0.05 | 0.07 | 0.12 | 0.91 | **0.70** | 1.00 |

**Table 3.** Characteristics of principal components before and after rotation for the construction of a composite indicator characterizing MSMEs' development

| Factor | Eigenvalue | Difference | Proportion | Cumulative | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|---|---|---|---|
| | Unrotated | | | | Orthogonal varimax rotation | | | |
| Factor 1 | 2.31 | 0.63 | 0.26 | 0.26 | 1.81 | 0.01 | 0.20 | 0.20 |
| Factor 2 | 1.68 | 0.34 | 0.19 | 0.44 | 1.81 | 0.18 | 0.20 | 0.40 |
| Factor 3 | 1.34 | 0.20 | 0.15 | 0.59 | 1.63 | 0.46 | 0.18 | 0.58 |
| Factor 4 | 1.13 | 0.11 | 0.13 | 0.72 | 1.16 | 0.09 | 0.13 | 0.71 |
| Factor 5 | 1.03 | 0.36 | 0.11 | 0.83 | 1.07 | . | 0.12 | 0.83 |
| Factor 6 | 0.66 | 0.18 | 0.07 | 0.90 | | | | |
| Factor 7 | 0.48 | 0.23 | 0.05 | 0.96 | | | | |
| Factor 8 | 0.25 | 0.13 | 0.03 | 0.99 | | | | |
| Factor 9 | 0.12 | . | 0.01 | 1.00 | | | | |
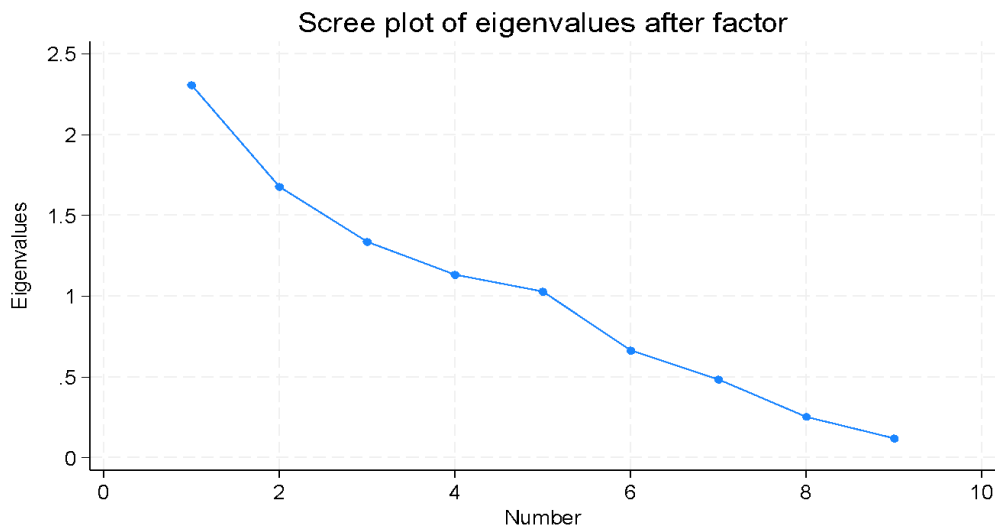
**Figure 1.** A scree plot of the eigenvalues

example, shows the factor loadings plot for factors 1, 2, and 3. The first factor has sufficiently high positive factor loadings for the variables Number of MSMEs (*msme1*) and MSME Bank Loans to GDP (*msme8*). The second factor is defined by the indicators NBFI Financing to Bank Loans (*msme10*) and NBFI Financing to GDP (*msme11*). The third uses the Number of Employees by MSMEs (*msme3*) and the GDP of MSMEs (*msme5*). These indicators were used to calculate the intermediate and, subsequently, a composite indicator of MSMEs' development.

The data were used to calculate the composite indicator of MSMEs' development (*I_msme*) using (3). Across different countries, the values of this indicator significantly differ and exhibit varying trends (Figure 3). Specifically, in most countries, there is an observable upward trend for this in-

dicator (for Azerbaijan, Kazakhstan, Tajikistan, and Uzbekistan). However, in recent years, a noticeable decline has been observed in Armenia, Georgia, and the Kyrgyz Republic, among others.

Figure 4 is more convenient for comparing the level of the composite MSMEs' development indicator among countries to identify leaders and laggards. As of 2021, the highest levels of the composite indicator were observed for Kazakhstan, Azerbaijan, and Uzbekistan. It is noteworthy that, despite the fact that the dynamics over the years showed moderate growth for most indicators (for example, for Armenia, Azerbaijan, and Kazakhstan), Georgia experienced a decrease in 2021, and the Kyrgyz Republic saw a significant decline in 2016.

The obtained composite indicator for MSMEs' development is influenced by numerous external fac-

**Table 4.** Factor loadings for the construction of a composite indicator characterizing the development of MSMEs

| Variable | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Uniqueness |
|---|---|---|---|---|---|---|
| nmsme1 | 0.775 | 0.187 | 0.403 | −0.139 | 0.097 | 0.173 |
| nmsme2 | 0.281 | 0.164 | −0.061 | −0.235 | 0.807 | 0.183 |
| nmsme3 | 0.069 | 0.097 | 0.847 | 0.030 | 0.134 | 0.250 |
| nmsme4 | −0.406 | −0.195 | 0.232 | 0.454 | 0.600 | 0.177 |
| nmsme5 | 0.176 | 0.027 | 0.819 | −0.077 | −0.121 | 0.278 |
| nmsme7 | 0.089 | 0.088 | −0.061 | 0.919 | −0.093 | 0.128 |
| nmsme8 | 0.891 | −0.152 | 0.026 | 0.169 | 0.066 | 0.149 |
| nmsme10 | −0.252 | 0.922 | 0.126 | 0.015 | 0.005 | 0.070 |
| nmsme11 | 0.256 | 0.903 | −0.014 | 0.051 | 0.066 | 0.113 |
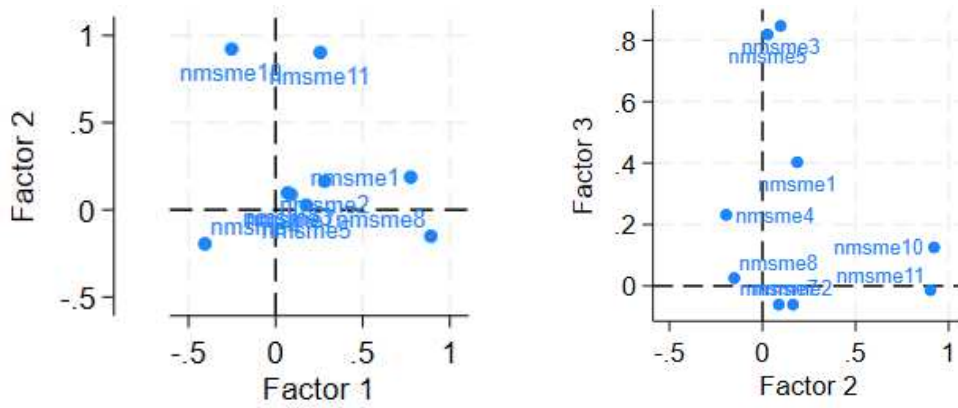
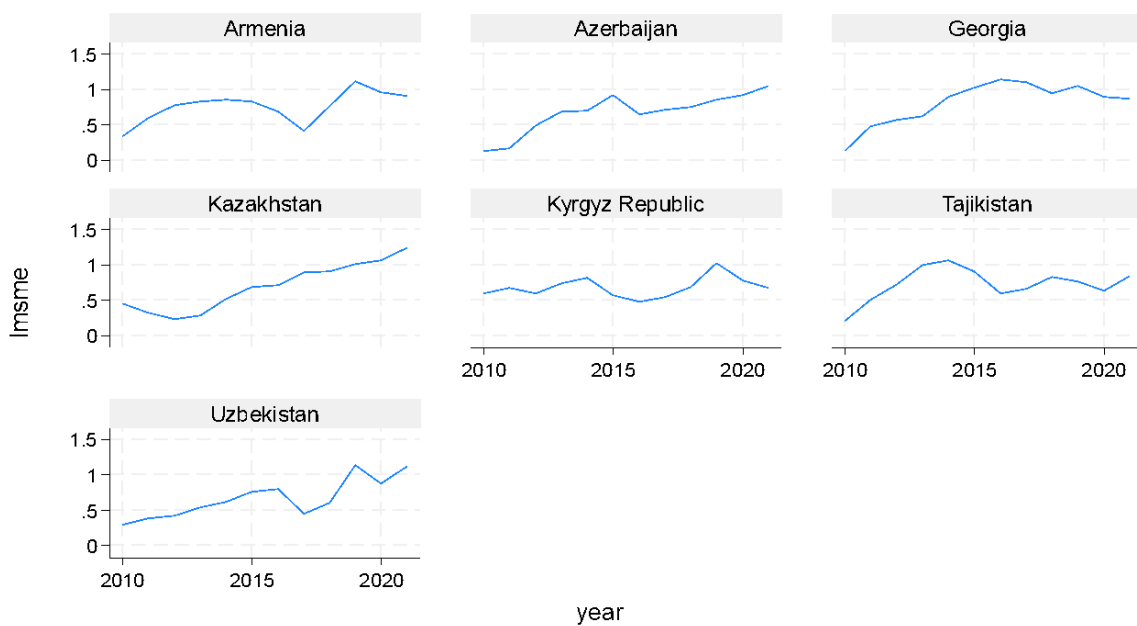**Figure 2.** Factor loadings plot for factors 1, 2, and 3



**Figure 3.** Trends in the development of composite indicators of MSMEs' development (*I_msme*) for 2010–2021 for the analyzed Central and West Asian countries
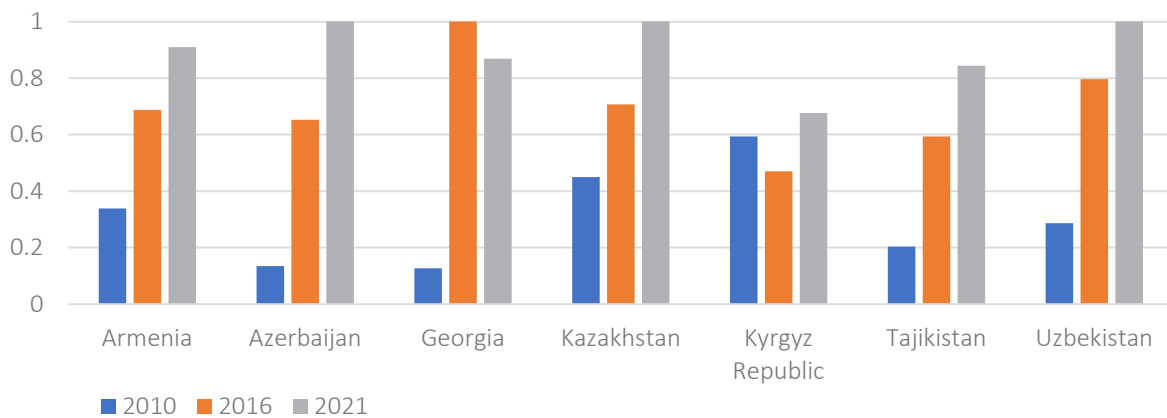


**Figure 4.** Comparison of the composite indicator of MSMEs' development (I_msme) for 2010, 2016, and 2021 for the analyzed Central and West Asian countries

tors, including the diverse political, economic, and innovation developments of countries. The correlation analysis between the calculated composite indicator for MSMEs' development and normalized indicators such as the Corruption Perceptions Index (*cpi*), Ease of Doing Business (*edb*), Global Competitiveness Index (*gci*), and Global Innovation Index (*gii*) indicates the existence of cause-and-effect relationships between the variables, which have low to medium levels of correlation density. Specifically, the highest level of direct correlation was found for *cpi* (0.68), with the other indicators showing inverse relationships, which is explained by the ranked values of the indicators.

**Table 5.** Correlation matrix between the composite indicator of MSMEs' development and measures of political, economic, and innovative development of countries

|  | *imsme* | *ncpi* | *Nedb* | *ngci* | *ngii* |
|---|---|---|---|---|---|
| *imsme* | 1.00 |  |  |  |  |
| *ncpi* | 0.68 | 1.00 |  |  |  |
| *nedb* | −0.24 | −0.20 | 1.00 |  |  |
| *ngci* | −0.28 | −0.33 | −0.25 | 1.00 |  |
| *ngii* | −0.27 | −0.31 | 0.32 | 0.01 | 1.00 |

Thus, regression models with time-fixed effects for each pair of indicators have been constructed, which are adequate and high-quality in all characteristics. Table 6 shows a comparison of these models.

**Table 6.** Comparison of regression models with time-fixed effects

| Variables | Model 1 (*ncpi*) | Model 2 (*nedb*) | Model 3 (*ngci*) | Model 4 (*ngii*) |
|---|---|---|---|---|
| x | 0.261** | −0.0368 | −0.00852 | −0.102 |
|  | (0.108) | (0.0814) | (0.0855) | (0.0880) |
| 2011 | 0.123 | −0.142 | −0.140 | −0.144 |
|  | (0.0937) | (0.0974) | (0.0977) | (0.0965) |
| 2012 | 0.163 | −0.248** | −0.237** | −0.252** |
|  | (0.0986) | (0.0991) | (0.101) | (0.0971) |
| 2013 | 0.292*** | −0.365*** | −0.361*** | −0.381*** |
|  | (0.0981) | (0.0973) | (0.104) | (0.0975) |
| 2014 | 0.361*** | −0.477*** | −0.472*** | −0.498*** |
|  | (0.105) | (0.0974) | (0.106) | (0.0983) |
| 2015 | 0.373*** | −0.524*** | −0.506*** | −0.520*** |
|  | (0.109) | (0.101) | (0.111) | (0.0968) |
| 2016 | 0.265** | −0.417*** | −0.412*** | −0.403*** |
|  | (0.112) | (0.0973) | (0.110) | (0.0972) |
| 2017 | 0.237** | −0.377*** | −0.375*** | −0.365*** |
|  | (0.110) | (0.0974) | (0.104) | (0.0971) |
| 2018 | 0.334*** | −0.476*** | −0.476*** | −0.461*** |
|  | (0.111) | (0.0976) | (0.103) | (0.0978) |
| 2019 | 0.491*** | −0.681*** | −0.687*** | −0.666*** |
|  | (0.125) | (0.0996) | (0.105) | (0.0988) |

| Variables | Model 1 (*ncpi*) | Model 2 (*nedb*) | Model 3 (*ngci*) | Model 4 (*ngii*) |
|---|---|---|---|---|
| 2020 | 0.334** | −0.561*** | −0.565*** | −0.550*** |
|  | (0.135) | (0.0990) | (0.105) | (0.0979) |
| 2021 | 0.437*** | −0.648*** | −0.650*** | −0.639*** |
|  | (0.130) | (0.0982) | (0.106) | (0.0974) |
| Constant | 0.295*** | −0.323*** | −0.311*** | −0.361*** |
|  | (0.0661) | (0.0794) | (0.0957) | (0.0839) |
| Observations | 84 |  |  |  |
| Number of c_num | 7 |  |  |  |
| R−squared | 0.629 | 0.597 | 0.596 | 0.604 |
| F(12, 65) | 9.20 | 8.04 | 8.00 | 8.27 |
| Prob>F | 0.00 | 0.00 | 0.00 | 0.00 |
| YEAR FE | YES |  |  |  |

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

According to the results, in a generalized form, when the Corruption Perceptions Index increases by one unit, the MSME indicator will increase by 0.26 units. Time-fixed effects indicate that for 2011–2012, the dependencies are not statistically significant. The greatest impact is recorded in 2019; when the *cpi* changes by one unit, the MSME indicator will increase by 0.49 units. As for the Ease of Doing Business index, in general, a statistically significant connection with MSMEs' development was not found. However, the time-fixed effects study shows that such patterns exist for 2012–2021. The greatest impact was recorded in 2019 when, with an increase in *edb* by one unit, the MSME indicator decreased by 0.68 units. The result for the Global Competitiveness Index (Table 8) turned out to be similar; the greatest impact was also found for 2019 (−0.69). The study of dependencies between *imsme* and *gii* showed that in 2019, if the Global innovation index changed by one unit, the MSME indicator would decrease by 0.67 units.

Challenges and opportunities in the modern management of micro, small, and medium-sized enterprises (MSMEs) are examined by scholars in various contexts. Brychko et al. (2023) analyzed small and medium-sized entrepreneurship and the sustainable development of the country. Through structural modeling, a hypothesis was proposed that the concept of sustainable development directly contributes to the development of small and medium-sized enterprises. However, this assumption was only partially confirmed, as the sustainable development of a country affects the development of entrepreneurship in general, and it is practically impossible to identify a dependence for small and medium-sized businesses. Although

no comparison with sustainable development was made in the presented work, a causal relationship between the composite indicator of MSMEs' development and the dimensions of political, economic, and innovative development of the country was discovered, allowing for the identification of specific levers of influence on MSMEs in Central and West Asian countries.

Olaniyan and Adepeju (2023) modeled the relationship between a country's level of economic development and the performance indicators of small and medium-sized enterprises using Nigeria as a case study. The carefully selected methodological toolkit (the method of estimating autoregressive distributed lag, the augmented Dickey-Fuller test, and the Granger causality test) allowed for the conclusion that the growth in investments in small and medium-sized enterprises, facilitated by the implementation of a simplified access system to credit resources, contributes to the long-term economic growth perspective of Nigeria. Wansi and Burrell (2023) made a similar conclusion regarding MSMEs in Cameroon. However, this current study examines how the variability of political stability and innovative activity affects the development of MSMEs in different economic contexts of Central and West Asia. It was found that a high level of political stability and government transparency, especially in terms of fighting corruption, significantly

facilitates investment attraction to the MSME sector, which ultimately has a positive effect on economic growth.

Timotius (2023) discussed the barriers faced by MSMEs based on the examples of India and Indonesia, respectively. They highlight key obstacles for small and medium-sized businesses in developing countries: availability of necessary raw materials, insufficient financial support from the state, shortage of skilled labor, low efficiency in the use of innovative technologies, lack of necessary electricity supply, ineffective marketing, and an imperfect competitive environment. The conclusions regarding the existing barriers for MSMEs are important and valuable, yet they carry an exclusively local character, as they were formulated for specific countries and cannot be used for countries with different economic characteristics. In contrast, this current study attempts to generalize the obtained results to identify common and unique barriers for MSMEs in Central and West Asian countries, analyzing them through a wide range of economic, political, and innovative indicators. For instance, the analysis showed that despite the general impact of factors, such as insufficient funding and deficiencies in infrastructure development, unique barriers related to political instability and corruption were identified in some countries, affecting trust in state institutions and, consequently, the investment climate.

## CONCLUSION

This study aimed to determine the development level of MSMEs in Central and Western Asia and identify significant problems and opportunities in development management. For this, a composite indicator of MSMEs' development was calculated by means of factor analysis using the principal component method. The obtained indicator made it possible to confirm that the selected countries vary significantly in terms of the state and dynamics of MSMEs' development. Specifically, an increasing trend for 2010–2021 was observed for most countries, such as Azerbaijan, Kazakhstan, Tajikistan, and Uzbekistan, which are the leaders in MSME development. However, it is worth noting that some countries, such as Armenia, Georgia, and the Kyrgyz Republic, have shown a decline in this indicator in recent years.

A correlation analysis showed a direct, dense relationship between MSMEs' development and the Corruption Perceptions Index (0.68) and a weak inverse relationship with the Ease of Doing Business, Global Competitiveness Index, and Global Innovation Index (–0.24, –0.28, and –0.27). The constructed regression models with time-fixed effects allowed asserting a clear effect of the Corruption Perceptions Index on the development of MSME both in general for Central and West Asian countries and over the years (with an increase in the Corruption Perceptions Index by one unit, the MSME indicator increases by 0.26 units). Meanwhile, the dependency of the composite indicator of MSMEs' development

on economic and innovative development does not have a clearly expressed regularity during the study period. A statistically significant relationship was only found in 2019. Thus, with an increase in the Ease of Doing Business Index by one unit, the composite indicator of MSMEs' development decreases by 0.68. With an increase in the Global Competitiveness Index by one unit, the composite indicator of MSMEs' development decreases by 0.69 units. Finally, with an increase in the Global Innovation Index by one unit, the composite indicator of MSMEs' development decreases by 0.67 units.

## AUTHOR CONTRIBUTIONS

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## REFERENCES

1. AL-Hashimi, Y. N., AL-Toobi, J. S., & Ahmed, E. R. (2023). The influence of corporate governance on firm performance during the COVID-19 pandemic. *Financial Markets, Institutions and Risks, 7*(1), 109-122. https://doi.org/10.21272/fmir.7(1).109-122.2023

2. Allison, P. D. (2009). *Fixed effects regression models*. Los Angeles: Sage.

3. Artyukhov, A., Bilan, S., Volk, I., Lyeonov, S., & Serafimova, D. (2023). SPACE-RL innovation transfer model "Science – Business". *European Journal of Interdisciplinary Studies, 15*(1), 1-15. https://doi.org/10.24818/ejis.2023.01

4. Bekhouche, F., & Boukhedimi, F. (2023). The contribution of employee financial participation to the governance of the SME in Algeria. *Financial Markets, Institutions and Risks, 7*(4), 24-37. https://doi.org/10.61093/fmir.7(4).24-37.2023

5. Ben Yahia, N. (2023). The impact of applying sustainable leadership principles on achieving the characteristics of a smart organisation: A field study. *Business Ethics and Leadership, 7*(4), 144-158. https://doi.org/10.61093/bel.7(4).144-158.2023

6. Bensadok, E., & Abid, N. (2023). Organisational resilience as a business strategic imperative in times of crisis: Case of Hikma Pharma Algeria. *Business Ethics and Leadership, 7*(4), 24-36. https://doi.org/10.61093/bel.7(4).24-36.2023

7. Business and Sustainable Development Commission. (2017). *Better business better world. The report of the business and sustainable development commission*. Retrieved from https://sdgresources.relx.com/sites/default/files/betterbiz-betterworld_170215_012417.pdf

8. Bilan, Y., Brychko, M., Buriak, A., & Vasilyeva, T. (2019). Financial, business and trust cycles: The issues of synchronization. *Zbornik Radova Ekonomskog Fakultet Au Rijeci, 37*(1), 113-138. Retrieved from https://ideas.repec.org/a/rfe/zbefri/v37y2019i1p113-138.html

9. Brychko, M., Bilan, Y., Lyeonov, S., & Streimikiene, D. (2023). Do changes in the business environment and sustainable development really matter for enhancing enterprise development? *Sustainable Development, 31*(2), 587-599. https://doi.org/10.1002/sd.2410

10. Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*(2), 245-276. https://doi.org/10.1207/s15327906mbr0102_10

11. Chakravarthy, S., Bharathi, S., Khire, D., & Gopalakrishnan, B. N. (2023). Analyzing the potential market for MSMEs in India. *SocioEconomic Challenges, 7*(1), 97-114. https://doi.org/10.21272/sec.7(1).97-114.2023

12. Cherep, A., Makazan, E., Tomareva-Patlahova, V., Lepekhyn, O., & Kanabekova, M. (2023). Model of realization of mechanism of enterprise corporate culture formation. *Financial and Credit Activity Problems of Theory and Practice, 5*(52), 504-516. https://doi.org/10.55643/fcaptp.5.52.2023.4179

13. Dewan, A., Tantawi, P., & Amara, D. F. (2023). The relationship of social value orientation and social entrepreneurial orientation on organizational performance: A study on small and medium enterprises in Egypt. *SocioEconomic Challenges, 7*(2), 31-44. https://doi.org/10.21272/sec.7(2).31-44.2023

14. Dotsenko, T., Dvořák, M., Lyeonov, S., & Kovács, A. (2023). Socially relevant factors of organizational mortality of enterprises: Context of corporate sustainability in European countries. *Economics & Sociology, 16*(1), 299-314. https://doi.org/10.14254/2071-789X.2023/16-1/18

15. Hossain, S., Islam, M. S., Kundu, S., Faruq, O., & Hossen, M. A. (2023). Women participation in entrepreneurial activities in the post COVID-19 pandemic: Empirical evidence from SMEs sector. *Health Economics and Management Review, 4*(1), 1-15. https://doi.org.10.21272/hem.2023.1-01

16. Kaiser, H. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement, 20*(1), 141-151. https://doi.org/10.1177/001316446002000116

17. Kartanaitė, I., Kovalov, B., Kubatko, O., & Krušinskas, R. (2021). Financial modeling trends for production companies in the context of industry 4.0. *Investment Management and Financial Innovations, 18*(1), 270-284. https://doi.org/10.21511/imfi.18(1).2021.23

18. Kazeem, B. L. O., Adewale, O. V., Kayode, K. I., & Kayode, O. J. (2022). Challenge of COVID-19 and Nigerian economic change: The way forward. *Health Economics and Management Review, 3*(2), 69-77. https://doi.org/10.21272/hem.2022.2-08

19. Koibichuk, V., Bozenko, V., Dziubenko, O., Petryk, S., Drozd, S., & Lieonov, H. (2022). Business efficiency: Macro and micro dimensions. *Financial and Credit Activity Problems of Theory and Practice, 5*(46), 407-416. https://doi.org/10.55643/fcaptp.5.46.2022.3889

20. Kolosok, S., Lyeonov, S., Voronenko, I., Goncharenko, O., Maksymova, J., & Chumak, O. (2022). Sustainable business models and IT innovation: The case of the REMIT. *Journal of Information Technology Management, 14*(sp), 147-156. https://doi.org/10.22059/jitm.2022.88894

21. Kuzior, A., Arefieva, O., Poberezhna, Z., & Ihumentsev, O. (2022). The mechanism of forming the strategic potential of an enterprise in a circular economy. *Sustainability, 14*(6), Article 3258. https://doi.org/10.3390/su14063258

22. Kuzior, A., Ober, J., & Karwot, J. (2021). Stakeholder expectation of corporate social responsibility practices: A case study of PWiK Rybnik, Poland. *Energies, 14*(11), Article 3337. https://doi.org/10.3390/en14113337

23. Kuzior, A., Postrzednik-Lotko, K. A, Smołka-Franke, B., & Sobotka, B. (2023c) Managing competences of Generation Y and Z in the opinion of the management staff in the modern business services sector. *Sustainability, 15*(7), Article 5741. https://doi.org/10.3390/su15075741

24. Kuzior, A., Yarovenko, H., Brożek, P., Sidelnyk, N., Boyko, A., & Vasilyeva, T. (2023a). Company cybersecurity system: Assessment, risks and expectations. *Production Engineering Archives, 29*(4), 379-392. https://doi.org/10.30657/pea.2023.29.43

25. Lyeonov, S., Zakharkin, O., & Okhrimchuk, Y. (2023). Information openness as a factor of business leadership in today's digital environment. In W. Strielkowski (Ed.), *Leadership, Entrepreneurship and Sustainable Development Post COVID-19* (pp. 287-300). Cham: Springer. https://doi.org/10.1007/978-3-031-28131-0_20

26. Malyarets, L. M., Koibichuk, V. V., Zhukov, A. V., & Grynko, P. O. (2021). Diagnostics of efficiency of an enterprise's export-import activity. *Montenegrin Journal of Economics, 17*(1), 71-83. http://dx.doi.org/10.14254/1800-5845/2021.17-1.5

27. Melnyk, L., Derykolenko, O., Kubatko, O., & Matsenko, O. (2019). Business models of reproduction cycles for digital economy. *Proceedings of the 15th International Conference on ICT in Education, Research and Industrial Applications* (pp. 269-276). Kherson, Ukraine. Retrieved from https://essuir.sumdu.edu.ua/handle/123456789/74617

28. Mullens, D., & Shen, S. (2023). Sustainable and entrepreneurial: A path to performance improvements for family firms? *SocioEconomic Challenges, 7*(4), 54-65. https://doi.org/10.61093/sec.7(4).54-65.2023

29. Mursalov, M., Lyeonov, S., & Tiutiunyk, I. (2023a). Shadow economy, transparency, and leadership in business: Short-run dynamics and long-run equilibrium. In W. Strielkowski (Ed.), *Leadership, Entrepreneurship and Sustainable Development Post COVID-19* (pp. 173-187). Cham: Springer. https://doi.org/10.1007/978-3-031-28131-0_13

30. Mursalov, M., Yarovenko, H., & Vasilyeva, T. (2023b). Entrepreneurial ecosystem and digitalization: relationship and synergy of development. In W. Strielkowski (Ed.), *Leadership, Entrepreneurship and Sustainable Development Post COVID-19* (pp. 173-187). Cham: Springer. https://doi.org/10.1007/978-3-031-28131-0_9

31. Musa, A., & Ibrahim, W. (2023). The role of activity-based costing and target cost in achieving competitive advantage in Sudanese industrial companies. *Financial and Credit Activity Problems of Theory and Practice, 6*(53), 158-168. https://doi.org/10.55643/fcaptp.6.53.2023.4144

32. Njegovanović, A. (2023). Financial evolution and interdisciplinary research. *Financial Markets, Institutions and Risks, 7*(1), 71-95. https://doi.org/10.21272/fmir.7(1).71-95.2023

33. OECD. (2008). *Handbook on constructing composite indicators: Methodology and user guide.* Paris. https://doi.org/10.1787/9789264043466-en

34. Ogar, A., Anyadighibe, J., Abanbeshie, J., Etuk, A., & Eja, B. (2023). Shadow banking and micro, small and medium scale enterprises: A municipal assessment in Nigeria. *Banks and Bank Systems, 18*(2), 148-160. https://doi.org/10.21511/bbs.18(2).2023.13

35. Olaniyan, S. O., & Adepeju, M. B. (2023). Leadership of small and medium scale enterprises (SMEs), inflation and economics development in Nigeria (1981–2021). *Business Ethics and Leadership, 7*(3), 73-83. https://doi.org/10.61093/bel.7(3).73-83.2023

36. Piven, A. (2023). Analysis of financial reports in companies using machine learning. *Financial Markets, Institutions and Risks, 7*(4), 135-154. https://doi.org/10.61093/fmir.7(4).135-154.2023

37. Ratnawati, V., Rusli, R., & Wahyuni, N. (2023). Determinants of tax compliance of micro, small, and medium enterprises (MSMEs) in Pekanbaru, Indonesia. *Problems and Perspectives in Management, 21*(3), 601-613. https://doi.org/10.21511/ppm.21(3).2023.47

38. Runiewicz-Wardyn, M., & Winogradska, B. (2023). The role of trust in open innovation collaboration: The experience of Polish medium-high-tech SMEs. *SocioEconomic Challenges, 7*(4), 133-151. https://doi.org/10.61093/sec.7(4).133-151.2023

39. Samoilikova, A., Korpysa, J., Vasylieva, T., & Filep, B. (2023a). Business – education collaboration in R&D investment: Analysis of development gaps and critical points using MAR-splines. *Journal of International Studies, 16*(2), 57-71. https://doi.org/10.14254/2071-8330.2023/16-2/3

40. Samoilikova, A., Kuryłowicz, M., Lyeonov, S., & Vasa, L. (2023b). University industry collaboration in R&D to reduce the informal economy and strengthen sustainable development. *Economics & Sociology, 16*(3), 339-353. https://doi.org/10.14254/2071-789X.2023/16-3/18

41. Shvindina, H., Veckalne, R., Balahurovska, I., & Khrin N. (2022). Development features and directions of modern management: In the case of Ukrainian health care institutions. *Health Economics and Management Review, 3*(1), 19-24. https://doi.org/10.21272/hem.2022.1-02

42. Skrynnyk, O. (2023). Prediction of convergent and divergent determinants of organisational development. *Business Ethics and Leadership, 7*(1), 74-81. https://doi.org/10.21272/bel.7(1).74-81.2023

43. Taherdoost, H., Sahibuddin, S., & Jalaliyoon, N. (2014). Exploratory factor analysis: Concepts and theory. In J. Balicki (Ed.), *Advances in Applied and Pure Mathematics* (pp. 375-382). Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4178683

44. Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications.* Washington, DC: American Psychological Association.

45. Timotius, E. (2023). The role of innovation in business strategy as a competitive advantage: Evidence from Indonesian MSMEs. *Problems and Perspectives in Management, 21*(1), 92-106. https://doi.org/10.21511/ppm.21(1).2023.09

46. Vytvytska, O., Kaliuha, Y., Volodin, S., Rebilas, R., Bodnar, O., & Hryshchuk, H. (2023). Taxation as part of the accounting policy of small enterprises. *Financial and Credit Activity Problems of Theory and Practice, 6*(53), 70-81. https://doi.org/10.55643/fcaptp.6.53.2023.4162

47. Wansi, T., & Burrell, D. (2023). Financing challenges of Cameroon's small and medium enterprises (SMEs). *Financial Markets, Institutions and Risks, 7*(4), 88-104. https://doi.org/10.61093/fmir.7(4).88-104.2023

48. Widagdo, B., & Saʾdiyah, C. (2023). Business sustainability: Functions of financial behavior, technology, and knowledge. *Problems and Perspectives in Management, 21*(1), 120-130. http://dx.doi.org/10.21511/ppm.21(1).2023.11

49. Yamin, T., & Murwaningsari, E. (2023). Exploring the interplay between digital technology, transformational leadership and agility for enhancing organisational performance. *Business Ethics and Leadership, 7*(4), 73-88. https://doi.org/10.61093/bel.7(4).73-88.2023

50. Zham, O., Rudyka, V., Voronko-Nevidnycha, T., Bebko, S., Shikovets, C., & Kvita, H. (2023). Diagnostics of the strategic management of the financial and economic development of the enterprise. *Financial and Credit Activity Problems of Theory and Practice, 5*(52), 162-172. https://doi.org/10.55643/fcaptp.5.52.2023.4214

51. Zhghenti, T. (2023). Sharing economy business models (SEBMs): A study of global archetypes and from local industries in Georgia. *SocioEconomic Challenges, 7*(4), 116-123. https://doi.org/10.61093/sec.7(4).116-123.2023