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# ЕКОНОМІКА РОЗВИТКУ

**Том 20, № 2**


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# Determining the Degree of Connection between the Development of the Sports Industry and Economic Growth in the Regional Context: Evidence from 31 Provinces in China

**Abstract.** One of the components of the rapid development of China's economy is the development of the sports industry. The exacerbation of the COVID-19 epidemic has led to the introduction of quarantine measures and a significant reduction in the share of the sports industry in the structure of China's Gross Domestic Product. To form instruments that will lead to economic development, it is important to identify regions in which the promising direction of development is the sports industry. The aim of the article is determining the degree of connection between the development of the sports industry and economic growth in the regional context using coupling coordination model (Evidence from 31 Provinces in China). This paper uses the commercial entropy method and the coupling coordination model to calculate the coupling and coordinated development of the sports industry and high-quality economic development in 31 Provinces in China from 2010 to 2020. The results of research give a base for the distribution of regions for the degree of connection between the development of the sports industry and economic growth. Firstly, the degree of connection between the development of the sports industry and economic growth in the eastern region is in a state of primary coordination, good coordination and high-quality coordination, and Guangdong Province has achieved obvious performance. Secondly, as for the eastern region, it has witnessed rapid economic development, and the sports industry is obvious. Thirdly, the degree of connection between the development of the sports industry and economic growth in central provinces is in a state of barely coordination, on the verge of disorder and mild recession. It's confirmed that the development of the sports industry can provide impetus for China's economic growth, and the further development of economy can also promote the rapid development of the sports industry. The two are interconnected and promote each other, which is a benign circular industry system. Only by constantly optimizing the development mode of China's sports industry and creating a high-quality market operation mechanism the development of the sports industry and the Chinese economy can be realized. This research will be useful for the state-managers in a sphere of regional development. Also, the results of this research will be used by the top-managers of the sports industry when choosing a region for business development and expanding the network of sports services

**Keywords:** economic development; COVID-19; coupling coordination model**;** high-quality economic development

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## INTRODUCTION

China's socialist market economy continues to develop and grow, and the rapid development of the sports industry is gradually progressing steadily. The sports industry is gradually developing and has become an important supporting emerging industry to directly promote the healthy economic growth of China in the new era. COVID-19 outbreak brought adverse effects for China's sports industry development in order to promote the outbreak era of China's sports industry high quality development, accelerate the reform and innovation, opening up to the outside world, accelerate industrial transformation and development and upgrading of modern economic and social development innovation mode of important formation stage. The critical time is to promote the construction of contemporary

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sports revitalization as well as the rapid and healthy development of the sports industry at this important historical critical moment. It is conducive to promoting further development of China's sports industry to accelerate the in-depth development of the supply-side industrial structural restructuring reform, and realize high-quality economic development.

The increasingly prominent pillar function of the sports industry of the national economy of China has attracted great attention from all walks of life. According to statistics, from 2014 to 2018, the total scale of China's sports industry increased from 1.35 trillion yuan to 2.66 trillion yuan, with an average annual growth rate of about 18%. The added value of the sports industry accounted for exceeding 1% of GDP for the first time in 2018, increasing from 0.64% to 1.1%. The added value of the sports industry increased from 404.1 billion yuan (2014) to 1007.8 billion yuan (2018). Also, in 2018, the number of sports industry employees reached 4.439 million, and the per capita stadium area increased from 1.46 square meters to 1.86 square meters. Both the investment in manpower and infrastructure of the sports industry and the scale of industrial output have been greatly improved. The importance of the sports industry in the development of the national economy of China has been constantly highlighted. However, at the same time, it should be noted that the global sports industry accounts for about 1.8% of the global GDP, and the United States accounts for about 2.85%. There is still a gap between the development of the sports industry in China and in developed countries, and the proportion of the sports industry in the national economy is still low. With the period of the development and transformation of China's economy, the growth space of the sports industry will be further expanded, and promoting the high-quality development of the sports industry has become an important way to promote economic growth in all regions of China [1].

In December 2019, a pneumonia caused by novel coronavirus infection outbreak began in Wuhan, Hubei province, and quickly spread across the country. In order to control the spread of the epidemic, major public health emergencies have been launched at the first level across the country, and measures have been taken to cancel public activities, delay the resumption of work, and ensure quarantine control. Affected by this, the sports competition and performance industry has been fully closed for comprehensive adjustment, and the sports venues, sports education and training industry have been closed. Especially, the ice and snow tourism industry has bid farewell to the peak revenue season. Finally, the sports industry has suffered significant negative effects. That is why it is relevant and important to research the impact of the COVID-19 pandemic on the sports industry. In this context, the key direction of research is to define the profound changes brought by the epidemic to the sports industry. The evaluation of change in the regional context will help to ensure the sustainable and stable development of the sports industry and achieve rapid economic growth.

*The aim of the article* is determining the degree of connection between the development of the sports industry and economic growth in the regional context using coupling coordination model (Evidence from 31 Provinces in China).

The outlined trends indicate the importance of conducting in-depth research on determining the level of influence of the development of the sports industry on economic growth in China, taking into account the regional aspect.

## LITERATURE REVIEW

As for the connotations of China's sports industry, the mainstream views can be found by consulting books and literature. The scholar Yan Zhang [2] believes that the sports industry refers to the comprehensive component of all the production, management and activity units related to sports. Guo Qiang [3] believes that in western developed countries, the sports industry has become the domestic pillar industry, accounting for a large proportion of the national economy. The American sports industry is more developed. It is represented mainly by fitness and entertainment industry, professional sports, sports industry and sports brokerage and several parts according to the needs of consumers and the market, to provide high-end consumer goods for sports. Germany is a major economic power in Europe, and the sports industry is also in a pillar position in the German national economy. Feng Wu [4] introduced the development experience of the sports industry in the United States, the United Kingdom, Germany and South Korea and other countries, and summed up the enlightenment for the development of China's sports industry. As for China, firstly, tax policies will be used to regulate the orderly development of the sports industry. Secondly, sports events will be developed vigorously to promote the rapid development of the sports industry. Thirdly, the development of the club will be used to improve the enthusiasm of residents to participate in sports. Finally, in China there will be used the "Internet + technology" to promote the development of the sports industry [5]. M. Sagas pointed out that under the new normal economy, the disadvantages of the traditional economic growth mode have gradually emerged, and accelerating the economic structural adjustment and reform is the focus of the current economic reform [6]. Jing Jinbo scholars believe that China's domestic sports industry market development started late and small scale due to China's economic, social and national economic stimulus. Therefore, the sports industry has also achieved a very good and rapid development [7]. Recently, the development scale of China's sports industry has also been expanding rapidly. From 2011 to 2014, the highest average annual economic growth rate of the economic added value of China's sports industry was 12.74%. Its growth rate was faster than its GDP growth rate in the same years [8]. The future rapid development of China's sports industry has gradually become an important strategic hot spot to directly promote the healthy development of China's domestic sports industry market [9].

On the theoretical basis of in-depth analysis of the development characteristics of China's sports industry, Peng Wang explained in detail that the sports industry plays a role in promoting the rapid development of China's social economy, which can then promote better, faster and healthy development of China's sports industry and obtain better social and economic benefits. It is believed that promoting the development of the sports industry will be conducive to promoting and driving the growth of the national economy, promoting and driving the adjustment and optimization of China's industrial structure, promoting the improvement of the employment level of social labor, and maintaining China's economic and social stability [10].

Junxi Li, Liyun Xu discuss the basic connotation of China's sports industry, the economic and social benefits and economic and ecological environment, on the basis of promoting the economic and social development between the industrial economic and social benefits and promoting the sustainable development of economic and social benefits of modern sports industry and problems, put forward the basic way to effectively promote the economic and social development [11].

## MATERIALS AND METHODS

*1. Entropy evaluation method.* According to the comprehensive level of high-quality economic development, the data should be assigned with indicators (as shown in Table 1). In order to minimize the subjective consciousness of weight determination, the strong objective and operable entropy method is used to determine the weight of each index of the two systems ($U_1$ and $U_2$) respectively. The general procedure of the entropy method is as follows:

calculate the proportion of each index and the index:

$$Y_{ij} = \frac{Z'_{ij}}{\sum Z'_{ij}} \quad (1)$$

$Y_{ij}$ is the proportion of item j in the i year, $Z'_{ij}$ is the index data of the item *j* in the *i* year.

Calculate the index information entropy:

$$ej = -k \sum_{i=1}^{m} (Yij \times Yij) \quad (2)$$

$e_{jis}$ the entropy of the item *j*, the *k* was correlated with the sample *m*.

Calculate the information entropy redundancy:

$$dj = 1 - ej \quad (3)$$

$d_j$ is the difference coefficient of the item-j index

Calculate the index weight of item j:

$$Wj = \frac{dj}{\sum_{i=1}^{m} dj} \quad (4)$$

$w_j$ is the weight of the j-item index

The weight of each index is calculated according to the above formula, and the specific system constructed is shown in the Table 1:

**Table 1.** Index system of sports industry and high-quality economic development

| 1 level | 2 level | 3 level | Unit | Mold | Weight |
|---|---|---|---|---|---|
| Sports industry $U_1$ | Sports industry development scale | Gross value of the sports industry | 100 million | + | 0.12 |
| | Sports industry development speed | Sports industry output value growth rate | % | + | 0.08 |
| | | The added value of the sports industry | 100 million | + | 0.08 |
| | | Growth rate of added value of sports industry | % | + | 0.09 |
| | | Per capita total sports industry | 100 million | + | 0.08 |
| | | The sports industry accounts for GDP | % | + | 0.08 |
| High-quality economic development $U_2$ | Growth coordination | Per capita GDP | Yuan | + | 0.09 |
| | | Industrial high polarization coefficient | % | + | 0.05 |
| | | Retail sales of consumer goods accounted in GDP | % | + | 0.11 |
| | | Fiscal self-sufficiency ability coefficient | % | + | 0.08 |
| | Open sharing | Total import and export volume accounted for | % | + | 0.08 |
| | | Per capita disposable income | Yuan | + | 0.05 |
| | | Y23 Internet broadband interface per capita | – | + | 0.07 |
| | | Urban registered unemployment rate | % | + | 0.09 |
| | | Per capita education expenditure | Yuan | + | 0.08 |
| | | Medical institution beds per capita | – | + | 0.07 |
| | | The public library holdings per capita | volume | + | 0.08 |
| | | Per 10,000 people | | + | 0.09 |
| | Green ecology | Urban greening coverage rate | % | + | 0.08 |
| | | The per capita area has a park green area | centiare | + | 0.09 |
| | | The harmless treatment rate of household waste | % | + | 0.08 |

**Source:** the author's calculation

The sources of the data are from the National Bureau of Statistics from 2010 to 2020, China Yearbook of Science and Technology Statistics, China Statistical Yearbook, China Environmental Yearbook and China Statistical Yearbook of High-tech Industry, and the statistical Yearbook of all provinces (cities) [12]. The study subjects were 31 Chinese provinces (cities) and autonomous regions (excluding Hong Kong, Macao and Taiwan regions).

*2. Coupling coordination degree model.* To analyze the coordinated development level of things. The degree of coupling refers to the influence of the interaction between two or more systems, achieving the dynamic correlation

of the coordinated development, which can reflect the degree of mutual restriction between the systems [13]. Coordination refers to the size of the degree of benign coupling in the coupling interaction relationship, which can reflect the coordination situation [14]. The phenomenon of sports industry and high-quality economic development interaction depends on the sports industry economic efficient growth coupling. The sports industry influences and interacts with economic development, and determines the level of connection between them. First of all, the development of the sports industry accelerates the development of sports industry scale and the speed of sports industry, which will surely drive the high-quality economy with coordinated economy and growth, innovation and opening up, sharing by all people, and green and sustainable economy.

First of all, the development of the sports industry has a direct impact on sustainable development of regions. Secondly, the sports industry can surely drive the high-quality economy that is based on innovation, green economy and opening up [15].

Therefore, it is necessary to build efficacy function to measure the sports industry and economic quality development of two subsystem development effect, then build the coupling function and coupling matching function respectively from pure quantitative and "qualitative quantitative". Two angles measure the sports industry and economic quality development coupling development efficiency [16].

Because the original data units are not the same, it is impossible to compare and compute directly. Standardized processing is required, as well as treatment utilizing (extremely standardized treatment). Also it is necessary to have forward indicators and reverse indicators, so get the following formula:

– forward indicators:

$$Y_{ij} = \frac{x_{ij} - x_{j_{min}}}{x_{j_{max}} - x_{j_{min}}} \quad (5)$$

– reverse indicators:

$$Y_{ij} = \frac{x_{j_{max}} - x_{ij}}{x_{j_{max}} - x_{j_{min}}} \quad (6)$$

$x_{ij}$ is the value in $i$ year, $j$ region, $x_{j_{min}}$ is the minimum in region $j$, and $x_{j_{max}}$ is the maximum in region $j$, $Y_{ij}$ is the value after normalization.

*The coupling function*. According to the n-dimensional system interaction coupling degree model:

$$C_n = n\left(\frac{U_1 U_2 \cdots U_n}{\prod(U_i + U_j)}\right)^{\frac{1}{n}} \quad (7)$$

The dual coupling function between the sports industry and high-quality economic development is obtained:

$$C_2 = 2\left(\frac{U_1 U_2}{(U_1 + U_2)(U_2 + U_1)}\right)^{\frac{1}{2}} \quad (8)$$

$C$ is the coupling between the sports industry and high quality economic development; between 0 and 1, when $C$ tends to 0, is the coupling system of the development of the sports industry and high quality economic development, indicating that the development of the sports industry fails to promote high quality economic development; when $C$ tends to 1, the development of the sports industry and high quality economic coupling system is in effective coupling state, indicating that the development of sports industry can promote high quality economic development.

*Coupling matching degree function*. The established coupling degree function can effectively calculate the coupling system composed of the development of the sports industry and high-quality economic development, but due to the lack of data, it does not better reflect the real economic state, and cannot reflect the actual economic significance between $U_1$ and $U_2$. In this case it is appropriate to build a coupling matching degree function [17; 18], performing exactly as follows:

$$\begin{cases} D = (CT)^K \\ T = aU_1 + bU_2 \end{cases} \quad (9)$$

$D$ is the coupling matching degree, and $C$ is the coupling degree between the development of the sports industry and high-quality economic development; $T$ is the matching and reconciliation index between the development of the sports industry and high-quality economic development, indicating the matching effect between the development of the sports industry and high-quality economic development; $K$, $a$, $b$ is the pending coefficient, $K$=0.5, $a$=0.6, $b$=0.4.

## RESULTS

According to the standardized index values and their weights, the comprehensive index of each subsystem and the comprehensive index of the sports industry and high-quality economic development system in each region are calculated using the above formula (5-8). Due to the limited length of the article, the data results of 2010 and 2020 are listed here. Details are given in Table 2.

**Table 2.** Comprehensive index of sports industry and high-quality economic development system in various provinces and cities in China

| | Sports industry $U_1$ | | | High-quality economic development of the $U_2$ | | |
|---|---|---|---|---|---|---|
| | 2010 | 2020 | Mean value | 2010 | 2020 | Mean value |
| **Beijing** | 0.48 | 0.59 | 0.54 | 0.72 | 0.88 | 0.80 |
| **Tianjin** | 0.34 | 0.55 | 0.45 | 0.54 | 0.59 | 0.57 |
| **Hebei** | 0.36 | 0.56 | 0.46 | 0.34 | 0.35 | 0.35 |
| **Shanghai** | 0.58 | 0.58 | 0.58 | 0.8 | 0.85 | 0.83 |
| **Jiangsu** | 0.65 | 0.81 | 0.73 | 0.64 | 0.66 | 0.65 |
| **Zhejiang** | 0.49 | 0.69 | 0.59 | 0.57 | 0.69 | 0.63 |
| **Fujian** | 0.42 | 0.60 | 0.51 | 0.48 | 0.57 | 0.53 |

Table 2, Continued

| | Sports industry $U_1$ | | | High-quality economic development of the $U_2$ | | |
|---|---|---|---|---|---|---|
| | 2010 | 2020 | Mean value | 2010 | 2020 | Mean value |
| **Shandong** | 0.24 | 0.62 | 0.43 | 0.45 | 0.58 | 0.52 |
| **Guangdong** | 0.89 | 0.85 | 0.87 | 0.48 | 0.57 | 0.53 |
| **Hainan** | 0.14 | 0.53 | 0.34 | 0.34 | 0.46 | 0.40 |
| **Shanxi** | 0.2 | 0.58 | 0.39 | 0.32 | 0.39 | 0.36 |
| **Anhui** | 0.37 | 0.59 | 0.48 | 0.3 | 0.43 | 0.37 |
| **Jiangxi** | 0.16 | 0.59 | 0.38 | 0.31 | 0.42 | 0.37 |
| **Henan** | 0.17 | 0.57 | 0.37 | 0.29 | 0.4 | 0.35 |
| **Hubei** | 0.17 | 0.58 | 0.38 | 0.34 | 0.45 | 0.40 |
| **Hunan** | 0.16 | 0.58 | 0.37 | 0.32 | 0.5 | 0.41 |
| **Nei Monggol** | 0.12 | 0.37 | 0.25 | 0.33 | 0.4 | 0.37 |
| **Guangxi** | 0.13 | 0.37 | 0.25 | 0.31 | 0.39 | 0.35 |
| **Chongqing** | 0.15 | 0.54 | 0.35 | 0.41 | 0.51 | 0.46 |
| **Sichuan** | 0.22 | 0.59 | 0.41 | 0.35 | 0.47 | 0.41 |
| **Guizhou** | 0.14 | 0.55 | 0.35 | 0.26 | 0.28 | 0.27 |
| **Yunnan** | 0.12 | 0.55 | 0.34 | 0.32 | 0.43 | 0.38 |
| **Xizang** | 0.11 | 0.34 | 0.23 | 0.3 | 0.36 | 0.33 |
| **Shaanxi** | 0.17 | 0.56 | 0.37 | 0.37 | 0.46 | 0.42 |
| **Gansu** | 0.12 | 0.53 | 0.33 | 0.17 | 0.34 | 0.26 |
| **Qinghai** | 0.09 | 0.58 | 0.34 | 0.31 | 0.33 | 0.32 |
| **Ningxia** | 0.09 | 0.34 | 0.22 | 0.38 | 0.47 | 0.43 |
| **Xinjiang** | 0.12 | 0.43 | 0.28 | 0.41 | 0.38 | 0.40 |
| **Liaoning** | 0.46 | 0.55 | 0.51 | 0.4 | 0.51 | 0.46 |
| **Jilin** | 0.24 | 0.53 | 0.39 | 0.29 | 0.43 | 0.36 |
| **Heilongjiang** | 0.37 | 0.53 | 0.45 | 0.29 | 0.44 | 0.37 |

**Source:** the author's calculation

According to the standardized index values and their weights, the comprehensive index of each subsystem is calculated using the above formula (9), and the coupling and coordination degree between the sports industry and the high-quality economic development is calculated using the formula. The calculation results are in Table 3.

**Table 3.** Calculation results of the coupling degree of China's sports industry and economic development from 2010-2020

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Mean value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Beijing** | 0.78 | 0.89 | 0.87 | 0.83 | 0.94 | 0.89 | 0.93 | 0.94 | 0.95 | 0.9 | 0.89 | 0.89 |
| **Tianjin** | 0.53 | 0.59 | 0.6 | 0.64 | 0.83 | 0.73 | 0.67 | 0.64 | 0.61 | 0.66 | 0.65 | 0.65 |
| **Hebei** | 0.46 | 0.44 | 0.43 | 0.47 | 0.61 | 0.61 | 0.58 | 0.55 | 0.53 | 0.53 | 0.53 | 0.52 |
| **Shanghai** | 0.72 | 0.70 | 0.72 | 0.79 | 0.99 | 0.87 | 0.8 | 0.84 | 0.75 | 0.81 | 0.8 | 0.80 |
| **Jiangsu** | 0.69 | 0.81 | 0.87 | 0.81 | 0.8 | 0.93 | 0.85 | 0.92 | 0.83 | 0.85 | 0.83 | 0.84 |
| **Zhejiang** | 0.61 | 0.67 | 0.69 | 0.69 | 0.81 | 0.84 | 0.78 | 0.81 | 0.78 | 0.76 | 0.75 | 0.74 |
| **Fujian** | 0.54 | 0.56 | 0.56 | 0.58 | 0.96 | 0.71 | 0.7 | 0.7 | 0.68 | 0.68 | 0.66 | 0.67 |
| **Shandong** | 0.45 | 0.59 | 0.62 | 0.63 | 0.83 | 0.76 | 0.7 | 0.71 | 0.68 | 0.68 | 0.67 | 0.67 |
| **Guangdong** | 0.71 | 0.85 | 0.94 | 0.87 | 0.91 | 0.98 | 0.95 | 0.97 | 0.98 | 0.93 | 0.9 | 0.91 |
| **Hainan** | 0.35 | 0.43 | 0.44 | 0.47 | 0.46 | 0.6 | 0.56 | 0.52 | 0.55 | 0.51 | 0.5 | 0.49 |
| **Shanxi** | 0.38 | 0.41 | 0.39 | 0.43 | 0.47 | 0.58 | 0.53 | 0.48 | 0.49 | 0.48 | 0.47 | 0.46 |
| **Anhui** | 0.45 | 0.44 | 0.46 | 0.45 | 0.63 | 0.61 | 0.56 | 0.56 | 0.56 | 0.54 | 0.54 | 0.53 |
| **Jiangxi** | 0.35 | 0.43 | 0.45 | 0.43 | 0.57 | 0.6 | 0.55 | 0.56 | 0.55 | 0.52 | 0.51 | 0.50 |
| **Henan** | 0.34 | 0.41 | 0.42 | 0.41 | 0.65 | 0.59 | 0.53 | 0.52 | 0.53 | 0.51 | 0.51 | 0.49 |
| **Hubei** | 0.36 | 0.46 | 0.49 | 0.47 | 0.89 | 0.63 | 0.58 | 0.61 | 0.56 | 0.58 | 0.57 | 0.56 |

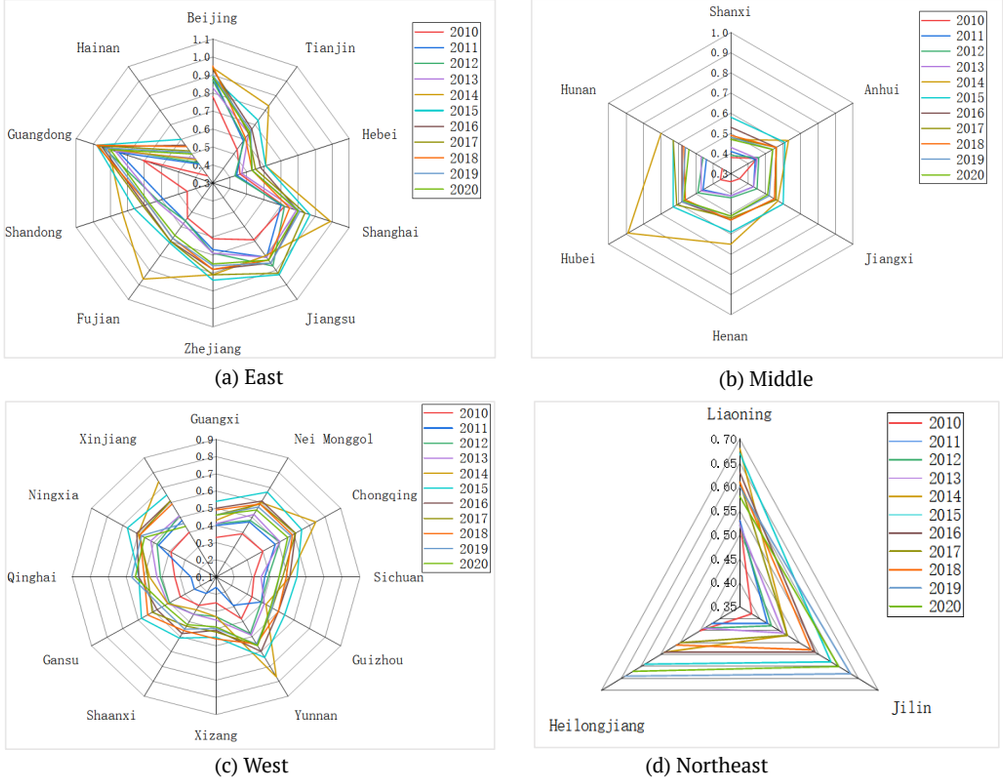
Table 3, Continued

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Mean value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hunan** | 0.35 | 0.44 | 0.46 | 0.47 | 0.7 | 0.63 | 0.58 | 0.63 | 0.57 | 0.56 | 0.54 | 0.54 |
| **Guangxi** | 0.33 | 0.40 | 0.41 | 0.41 | 0.43 | 0.54 | 0.5 | 0.46 | 0.49 | 0.46 | 0.46 | 0.44 |
| **Nei Monggol** | 0.39 | 0.47 | 0.48 | 0.52 | 0.6 | 0.67 | 0.61 | 0.59 | 0.59 | 0.57 | 0.55 | 0.55 |
| **Chongqing** | 0.4 | 0.48 | 0.51 | 0.51 | 0.74 | 0.65 | 0.61 | 0.61 | 0.59 | 0.58 | 0.56 | 0.57 |
| **Sichuan** | 0.31 | 0.37 | 0.39 | 0.35 | 0.51 | 0.55 | 0.51 | 0.47 | 0.49 | 0.45 | 0.45 | 0.44 |
| **Guizhou** | 0.33 | 0.39 | 0.39 | 0.41 | 0.42 | 0.54 | 0.5 | 0.46 | 0.5 | 0.46 | 0.45 | 0.44 |
| **Yunnan** | 0.38 | 0.29 | 0.48 | 0.49 | 0.77 | 0.64 | 0.6 | 0.56 | 0.55 | 0.55 | 0.56 | 0.53 |
| **Xizang** | 0.25 | 0.16 | 0.33 | 0.35 | 0.33 | 0.45 | 0.41 | 0.42 | 0.46 | 0.4 | 0.39 | 0.36 |
| **Shaanxi** | 0.29 | 0.21 | 0.35 | 0.35 | 0.32 | 0.51 | 0.48 | 0.43 | 0.46 | 0.45 | 0.42 | 0.39 |
| **Gansu** | 0.33 | 0.24 | 0.4 | 0.41 | 0.41 | 0.58 | 0.48 | 0.51 | 0.54 | 0.45 | 0.43 | 0.43 |
| **Qinghai** | 0.33 | 0.24 | 0.41 | 0.43 | 0.47 | 0.53 | 0.53 | 0.48 | 0.5 | 0.57 | 0.55 | 0.46 |
| **Ningxia** | 0.39 | 0.47 | 0.48 | 0.52 | 0.6 | 0.67 | 0.61 | 0.59 | 0.59 | 0.58 | 0.56 | 0.55 |
| **Xinjiang** | 0.4 | 0.48 | 0.51 | 0.51 | 0.74 | 0.65 | 0.61 | 0.61 | 0.59 | 0.46 | 0.44 | 0.55 |
| **Liaoning** | 0.53 | 0.53 | 0.52 | 0.52 | 0.68 | 0.67 | 0.63 | 0.61 | 0.61 | 0.6 | 0.58 | 0.59 |
| **Jilin** | 0.38 | 0.42 | 0.43 | 0.46 | 0.47 | 0.58 | 0.54 | 0.47 | 0.53 | 0.63 | 0.6 | 0.50 |
| **Heilongjiang** | 0.45 | 0.42 | 0.44 | 0.44 | 0.54 | 0.59 | 0.54 | 0.5 | 0.51 | 0.64 | 0.62 | 0.52 |

**Source:** the author's calculation

From 2010 to 2019, the coupling degree of China's sports industry and high-quality economic development tends to increase, and in 2020, the influence of novel coronavirus tends to decline. Before 2020, the eastern region was in a state of high coupling. The central and western regions ranging from imbalance and moderate coordination to good coordination show that the overall level of coupling between China's sports industry and high-quality economic development is high. Then the authors analyze the spatial and temporal evolution from the coupling degree of the sports industry and high-quality economic development.

*Analysis of the time evolution.* Based on the statistical data from 2010-2020 and the above coupling model, the relationship between the sports industry and high-quality economic development in provinces and cities was calculated. It is divided into economic development levels: eastern region, central region, western region, northeast region. The authors analyze them in accordance with the regional time change level, the Figure 1:




(a) East (b) Middle

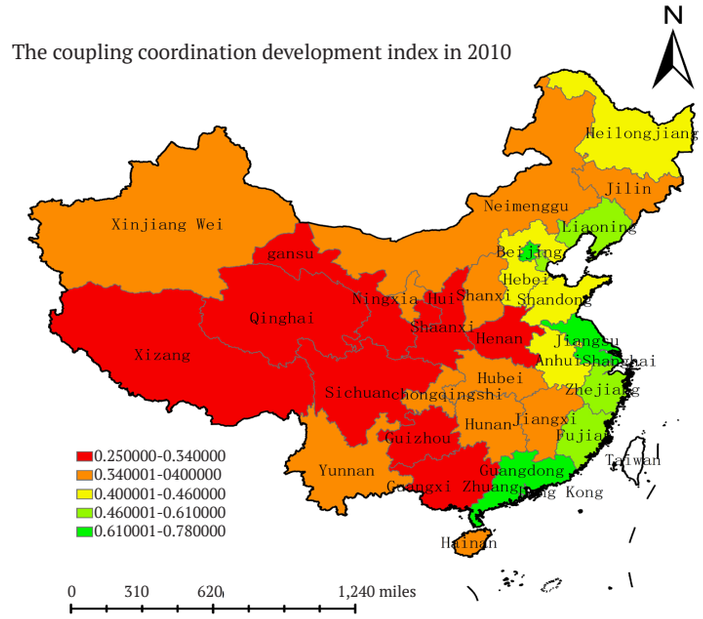
(c) West (d) Northeast

**Figure 1.** Statistical diagram of the coupling degree of sports industry and high-quality economic development in four regions (a – graphical results for the East region of China, b – graphical results for the Middle region of China, c – graphical results for the West region of China, d – graphical results for the Northeast region of China)

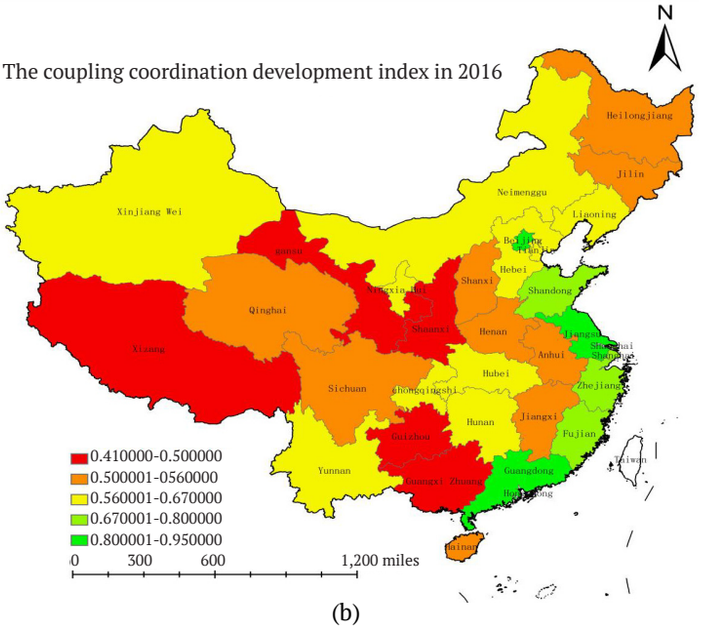
**Source:** own elaboration

As can be seen from Figure 1a, the coupling degree of the sports industry and high-quality economic development in eastern China shows an overall trend of increasing year by year, among which the coupling degree of Hainan Province was the lowest in 2010 and slowly increased year by year. In 2019, the coupling value of the sports industry and high-quality economic development exceeded that of Hebei Province. The coupling degree of the sports industry and high-quality economic development in central China is generally between 0.4 and 0.7 (Fig. 1b). Among the central provinces and cities, the sports industry and economy are well-developed in Hubei Province, and in 2010 the index was 0.88, which was a good breakthrough and leap. From 2010 to 2014, the coupling index of the sports industry and high quality economic development in all provinces in western China was lower than 0.5; from 2014 to 2019, it was in barely coordination and loss coordination (Fig. 1c). The coupling index of the sports industry and high-quality economic development in the three northeastern provinces was on the rise. From 2010 to 2014, the coupling index of the sports industry in northeastern China was between 0.45 and 0.5 (Fig. 1d); from 2014 to 2018 it grew rapidly. Between 2019 and 2020 it was in a downward trend, further proving that COVID-19 has a great impact on the sports industry.

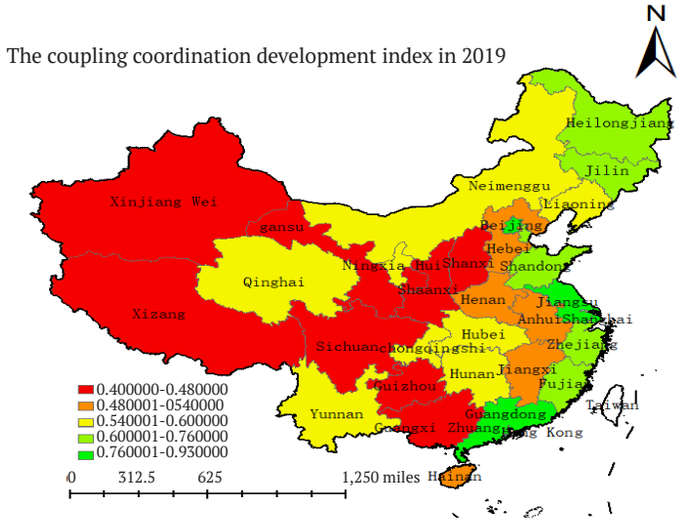
*Spatial evolution analysis*. In order to further explore the spatial differences in the development level of the sports industry and high quality economic development, it is proposed the visual analysis of the sports industry and economic development in 2010, 2016, 2019 and 2020. The coupling coordination development index is as follows (Fig. 2):



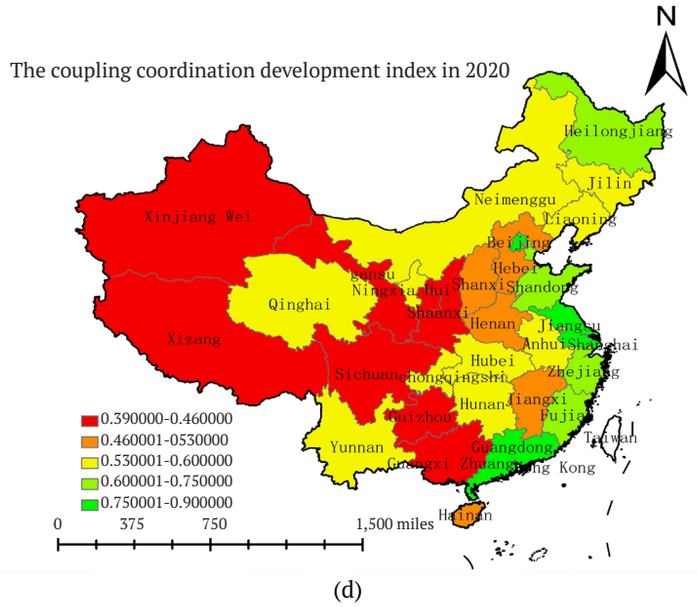

(a)




(b)




(c)




(d)

**Figure 2.** High-quality coupling coefficient between Chinese regional sports industry and economy in the four years (a – graphical results for 2010 year, b – graphical results for 2016 year, c – graphical results for 2019 year, d – graphical results for 2020 year)

**Source:** own elaboration

The spatial coefficient of coupling with high-quality economic development in Chinese provinces and cities changed significantly in 2010, 2016 and 2019, which further shows that the coupling coordination between regions is obvious. It's researched the sports industry and economic development in Beijing, Guangdong, Jiangsu Province in 2010 (Fig. 2a); the eastern region was at a high level, while the central and northeast regions were at the second level, which further shows the rapid economic development in the central and eastern regions. In 2016 (Fig. 2b), the coupling coefficient of high-quality development of the sports industry and economic development was at a high level in Beijing, Guangdong Province, Jiangsu Province, Shandong Province, etc. In 2019 (Fig. 2c), the coupling coefficient of the sports industry and high-quality economic development in China was higher than 0.5, but the changes between provinces and regions were obvious. The investment in green science and technology in the eastern region was still at the first level, in the central and northeast regions were at the second level, and the development of the western region was at the last level. In 2020 (Fig. 2d), the coupling coefficient of the sports industry and high-quality economic development in all provinces was lower than that in 2019. The COVID-19 has an obvious impact on the high-quality development of China's sports industry and economy.

By using the coupled coordination model, selecting the data for the period 2010-2020 to calculate the coordination degree between the sports industry and high-quality economic development system between 31 provinces and cities in China, and the mean coordination value of the high-quality economic development in 11 years, the authors obtained the following results (Table 4).

**Table 4.** Calculation results of the coupling degree of China's sports industry and economic development for the period 2010-2020

| Region | Mean value | Rank | Coupling coordination values | Coordination level |
|---|---|---|---|---|
| **Guangdong** | 0.91 | 1 | 0.9<D⩽1 | High quality and coordinated development |
| **Beijing** | 0.89 | 2 | 0.8<D⩽0.9 | Good coordinated development |
| **Jiangsu** | 0.84 | 3 | | |
| **Shanghai** | 0.80 | 4 | 0.7<D⩽0.8 | Intermediate coordinated development |
| **Zhejiang** | 0.74 | 5 | | |
| **Fujian** | 0.67 | 6 | 0.6<D⩽0.7 | Primary coordinated development |
| **Shandong** | 0.67 | 7 | | |
| **Tianjin** | 0.65 | 8 | | |
| **Liaoning** | 0.59 | 9 | 0.5<D⩽0.6 | Barely coordinated development |
| **Chongqing** | 0.57 | 10 | | |
| **Hubei** | 0.56 | 11 | | |
| **Xinjiang** | 0.56 | 12 | | |
| **Ningxia** | 0.55 | 13 | | |
| **NeiMonggol** | 0.55 | 14 | | |
| **Hunan** | 0.54 | 15 | | |
| **Yunnan** | 0.53 | 16 | | |
| **Anhui** | 0.53 | 17 | | |
| **Hebei** | 0.52 | 18 | | |
| **Shaanxi** | 0.51 | 19 | | |
| **Heilongjiang** | 0.51 | 20 | | |
| **Jiangxi** | 0.50 | 21 | 0.4<D⩽0.5 | The verge of dysregulation and recession |
| **Jilin** | 0.50 | 22 | | |
| **Henan** | 0.50 | 23 | | |
| **Hainan** | 0.49 | 24 | | |
| **Shanxi** | 0.49 | 25 | | |
| **Qinghai** | 0.45 | 26 | | |
| **Guangxi** | 0.44 | 27 | | |
| **Sichuan** | 0.44 | 28 | | |
| **Guizhou** | 0.44 | 29 | | |
| **Gansu** | 0.44 | 30 | | |
| **Xizang** | 0.36 | 31 | 0.3<D⩽0.4 | Mild dysregulation decline |

**Source:** the author's calculation

The results of coordination between the sports industry and high quality economic development show that the coupling coordination is between 0.9 and 1 in Guangdong province. In Beijing and Jiangsu Province the coupling coordination is between 0.8 and 0.9. In Xizang the coupling coordination is between 0.3 and 0.4, indicating the great difference between the provinces.

## DISCUSSION

In order to realize the coordinated development of the sports industry between regions, and thus promote the high-quality economic development between regions, the following countermeasures are put forward.

1. The government should strengthen support policies and support measures. As the sports industry is an emerging industry, many start-ups and small companies have limited capital reserves and weak risk resistance. On the other hand, enterprises operating in various sports venues and sports goods stores bear high cost pressure during the epidemic. Industry entities look forward to a new round of policy support, greater and greater urban land use tax and property tax reduction, increased hydropower fee subsidies, reduction, exemption or VAT reduction, coordinate with financial institutions to increase credit supply to the related enterprises in the sports industry, appropriately relax credit loans, and allow financial institutions to float interest rate standards within a certain range.

2. Encourage the innovative development of sports industry enterprises. China's state institutions will encourage enterprises to use new technologies such as big data, cloud

computing, artificial intelligence, 5G, blockchain and so on to promote the digitalization and intelligence of the sports industry, promote the integration, superposition and innovation of online and offline sports products and services, cultivate new models and new business forms of the sports industry, and help improve the quality and upgrading of the sports industry.

3. Promote the healthy and sustainable development of China's sports economy, provide more impetus for China's economic growth, and constantly expand the new areas of the sports economy development. Develop a new field of sports economy development, form new development projects with the integration and agglomeration of sports, science and technology, culture, talents, brands and other elements, enrich the content and forms of new fields of sports economy, and generate more vitality and vitality in the field of sports economy.

4. The integration of online and offline industries will help us participate in the transformation and upgrading of the sports industry. Under the COVID-19 epidemic, the sales of sports education products and related products lines occupy the mainstream of the market, and the number of online fitness users continues to rise. This new "Internet" sports model has promoted the provision of sports consumption services by e-commerce platforms, and has played a greater role in promoting the development of China's sports industry. The epidemic has spawned the hot spot of online and offline integration of the sports industry, enabled the rapid development of new models such as online training and live broadcast and fitness, and cultivated the online consumption habits of sports consumers.

## CONCLUSIONS

From 2010 to 2020, the coupling degree (C) and the coordinated degree of development values (D) between the sports industry and the high-quality economic development system of various provinces and cities are steadily increasing year by year, indicating that the correlation and closeness between the systems are getting closer and closer. In terms of the spatial gathering situation, 31 provinces and cities are manifested as the spatial development pattern of the eastern region> western region> northern region> northeast region> western region. This research can be oriented on urban district of provinces but it is necessary to conduct a survey and form of the data from currently selected indicators.

Finally, the development of sports industry can provide impetus for China's economic growth, and the further development of economy can also promote the rapid development of sports industry. The two are interconnected and promote each other, which is a benign circular industry system. Only by constantly optimizing the development mode of China's sports industry and creating a high-quality market operation mechanism it is possible to achieve common development of sports industry and the Chinese economy.

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## Визначення ступеня зв'язку між розвитком спортивної індустрії та економічним зростанням у регіональному контексті: дані 31 провінції Китаю

**Анотація.** Однією зі складових стрімкого розвитку економіки Китаю є розвиток спортивної індустрії. Загострення епідемії COVID-19 призвело до введення карантинних заходів і значного скорочення частки спортивної індустрії в структурі валового внутрішнього продукту Китаю. Для формування інструментів економічного розвитку важливо визначити регіони, в яких перспективним напрямком розвитку є спортивна галузь. Метою статті є визначення ступеня зв'язку між розвитком спортивної індустрії та економічним зростанням у регіональному контексті за допомогою моделі зв'язаної координації (дослідження проводилось за даними 31 провінції Китаю) У досліджені було використано метод комерційної ентропії та модель координації зв'язку для розрахунку зв'язку та скоординованого розвитку спортивної індустрії та високоякісного економічного зростання 31 провінції Китаю з 2010 по 2020 рік. Результати дослідження дали підстави для розподілу регіонів за ступенем зв'язку між розвитком спортивної галузі та економічним зростанням. По-перше, ступінь зв'язку між розвитком спортивної індустрії та економічним зростанням у східному регіоні знаходиться в стані первинної координації, хорошої координації та високоякісної координації, і провінція Гуандун досягла очевидних результатів. По-друге, що стосується східного регіону, то тут спостерігається швидкий економічний розвиток, і вплив спортивної галузі на досягнення результативності є очевидним. По-третє, ступінь зв'язку між розвитком спортивної індустрії та економічним зростанням у центральних провінціях перебувають у стані ледь помітної координації, на межі розладу та легкого спаду. Підтверджено, що розвиток спортивної індустрії може дати поштовх для економічного зростання Китаю, а подальший розвиток економіки, відповідно, може сприяти швидкому розвитку спортивної індустрії. Доведено, що обидва досліджувані складники, взаємопов'язані та сприяють один одному, що є доброякісною циклічною галузевою системою. Тільки шляхом постійної оптимізації режиму розвитку китайської спортивної індустрії та створення високоякісного механізму функціонування ринку можна реалізувати подвійний розвиток щодо спортивного напряму економічної діяльності та економіки Китаю. Дане дослідження буде корисним для державних менеджерів у сфері регіонального розвитку. Також результати цього дослідження можуть будуть використані топ-менеджерами спортивної галузі при виборі регіону для розвитку бізнесу та розширення мережі спортивних послуг

**Ключові слова:** економічний розвиток; COVID-19; модель зв'язаної координації; якісний економічний розвиток

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# Customer Dominant Logic (CDL): Features of Supplier Involvement in Customer Ecosystems in E-Commerce

**Abstract.** In the conditions of the active development of the digital economy and the emergence of new marketing approaches, the determination of the features of the involvement of suppliers in consumer ecosystems based on the customer dominant logic (CDL) is the starting point for the use of this logic in e-commerce and an actual direction of scientific, theoretical and practical research. The purpose of this study is to determine the features of the involvement of suppliers in customer ecosystems in e-commerce based on CDL. The theoretical and methodological basis of the research is modern scientific concepts, theoretical developments of leading domestic and foreign scientists regarding their essence, possibilities and features of their use in electronic commerce. The method of theoretical generalization, and logical analysis and the graphic method were used. The conducted research made it possible to obtain the following results: firstly, the author substantiated the use by companies of indicators characterizing thoughts, emotions, experience and possible models of customer relationships while auditing content and promoting products in social networks. Unlike the existing approach, which is based on the traditional account analysis metrics, this one will enable companies to gain real-time information about how, where and when a customer orders a product, what they want and who they are, and become an element of their ecosystem. Considering the fact that different companies use different types of logic (goods dominant logic (GDL), maintenance dominant logic (SL) and service dominant logic (SDL)), this work offers to distinguish two groups of indicators of content audit and promotion – specific and general – which will give companies a reason to focus on indicators that are more significant for them. Secondly, the article proposes the involvement of suppliers in customer ecosystems based on the assessment of business clients using the methodology of auditing the activities of the main competitors in social networks, which will make it possible to significantly simplify the company's entry into client ecosystems. The results of the given research can be useful for companies seeking to establish long-term and effective relationships with customers based on the introduction of new marketing approaches and technologies

**Keywords:** consumer; digital economy; marketing; client ecosystem

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## INTRODUCTION

The modern economy is increasingly associated with e-commerce, which is explained by the new, almost limitless opportunities provided by the digital space, which include the convenience of finding the products necessary for buyers and consumers, the possibility of creating individualized offers and compatible design of value, a wide range of products and services, new approaches to strengthening products, the possibility of forming customer databases and collecting information about consumers based on Big Data technologies, etc. Thus, according to the communications agency Plusone [1], as of July 2021, the audience of the Instagram social network in Ukraine was more than 15 million people, and the reach of advertising tools on the Facebook network reached 24 million people. According to the penetration of these social networks, Ukraine is in the top three among large European countries and neighboring states. Therefore, constant improvement of marketing in e-commerce in general, and in social networks in particular, based on modern technologies, approaches and concepts can bring significant business results.

The marketing activities of companies are traditionally based on approaches that have always focused on the

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product supplier [2; 3]. Thus, approaches such as goods dominant logic (GDL), service dominant logic (SDL), and maintenance dominant logic (SL) have become widespread. In recent decades, representatives of the Scandinavian school of marketing have developed the foundations of a new approach – the customer dominant logic (CDL), which is fundamentally different from the existing ones because it shifts the focus from the product supplier and its marketing efforts to the consumer, namely, how the consumer engages the suppliers different products into their ecosystems.

Therefore, in the conditions of the active development of electronic commerce and the emergence of new marketing approaches, the determination of the features of the involvement of suppliers in the ecosystems of consumers in electronic commerce based on the logic of customer dominance is a promising and relevant direction of scientific, theoretical and practical research.

## LITERATURE REVIEW

The marketing activity of a modern company is based on a certain dominant logic that determines the concept of business and the specifics of its implementation, specific tools that are used in management. The works of such authors as K. Heinonen and T. Strandvik [4; 5], K. Gronroos [3], R. Bettis and S. Prahalad [6] and others are devoted to the development of theoretical foundations and practical tools of various types of dominant logic. The methodological foundations of the logic of client dominance were formed in the works of representatives of the Scandinavian school of marketing – P. Voima [7], K. Heinonen and T. Strandvik [4], K. Gronroos [3], etc. In the works of these researchers, the logic of client dominance is considered as a view of business and marketing, that is based on the primacy of the client [4; 7], which is significantly different from other types of logic used by modern companies in both real and electronic commerce. The theoretical and practical principles and models of managing relationships with electronic suppliers are considered in the works of S. Maxwell and A.M. Khan [8] and others. In the study by S. Cleary and C. McLerney [9], organizational benefits from the implementation of supplier relationship management at the strategic level are determined; J.M. Payan [10] and others focused on modeling relationships with suppliers based on trust. Research by D.E. Campbell [11] is focused on improving customer perception of operating platforms and marketing strategies in e-commerce.

Despite the significant interest of marketing theorists and practitioners in the problem of consumers forming their ecosystems and involving product suppliers in them, effective management of relationships with suppliers in e-commerce, a number of issues requires further development.

For example, K. Heinonen and T. Strandvik [4] identified the following most relevant directions of further research in the formation of the logic of customer dominance: conducting empirical studies on the implementation and use of CDL in business, forming recommendations for the integration of the logic of customer dominance in strategic and operational business levels, researching the logic of customer dominance in different settings and under conditions of different scale of business, developing methods to observe overt and covert activities and experiences of customers, identifying ideal types of customer logic, etc. Sharing the view of these researchers regarding the main directions of further development of CDL, it was stated that identifying the features of involvement of product suppliers in client ecosystems is the starting point for using this logic in e-commerce in general and in social networks in particular.

*The purpose of the study* is to determine the characteristics of suppliers' involvement in customer ecosystems in e-commerce based on customer dominant logic (CDL).

## MATERIALS AND METHODS

The theoretical and methodical basis of the research are such modern scientific concepts and approaches as the logic of customer dominance and relationship marketing, theoretical developments of leading scientists regarding their essence and methods, features of their use in electronic commerce. A methodical approach to auditing clients in social networks, based on which practical marketing research is conducted, is also used.

This article is based on a system of general scientific and special research methods – abstract-logical analysis, the method of analysis and synthesis, the method of theoretical generalization and the graphic method, with the help of which the peculiarities of using the logic of client dominance in e-commerce were determined, a theoretical generalization of the audit indicators of clients in social networks, taking into account the peculiarities of the customer dominant logic, and the structure of client ecosystems are given.

## RESULTS AND DISCUSSION

The most common types of logic in the marketing activities of companies are goods dominant logic (GDL), maintenance dominant logic (SL), service dominant logic (SDL) and customer dominant logic (CDL). Historically, the logic of product dominance appeared first, then there was a gradual shift in the attention of researchers from suppliers and their goods to consumers, attention was focused on building long-term and mutually beneficial relations between market agents, joint creation of value within the logic of service and service dominance. One of the latter is the logic of customer dominance, which involves shifting the focus from product providers to customer ecosystems in a more radical way than within other types of logic. So, in the modern practice of marketing, companies use different types of logic, which implies the existence of various approaches to determining the priorities of the development of companies and the tools used to achieve their goals. The effective application of various types of logic in e-commerce in general and in social networks in particular involves determining the most important for the company traditional indicators of content audit and promotion of the selected account, which allows to focus on the most important aspects of marketing from the point of view of management. For example, when using product dominance logic, other things being equal, product characteristics are most important, when using SDL and SL, service quality indicators and customer relations will be most important. Due to the more radical difference of CDL from other types of logic, the improvement of traditional method of content audit and account promotion is proposed due to the fact that not only and not so much the main competitors, products, services and relationships will be subject to analysis, but also consumers and opportunities to enter their ecosystems.

As stated by H.V. Demchenko [12] and on the

Fakelikeinfo resource [13], in order to identify and attract customers through social networks, modern companies conduct a content audit and promotion of the selected account according to such indicators as comprehensibility, relevance and visual quality of the content, use of hashtags, efficiency and relevance of the reverse communication, working with bloggers and opinion leaders, the quality of visual aesthetics, compliance of content with the needs of the audience, regularity of posting, the most popular publications, the presence of a direct connection between content and products/services, the existence of sales through the account, their systematicity and effectiveness. So, the given indicators mostly characterize the supplier and reflect the marketing approaches in which it is the center – GDL, SL, SDL. We note that in conditions of limited resources, it is appropriate for companies to determine the priorities of content development and product promotion through social networks, therefore it is expedient to differentiate these indicators and identify the most significant of them. Thus, companies are offered to form two groups of indicators of content audit and promotion of the selected account in social networks – a group of specific (most significant) and a group of general indicators. Both the subjective opinion of the management and the logic used by the company can form the basis of such division.

Within the goods dominant logic (GDL), the most important value for companies is the product, and customers are seen as maximizers of the profit from buying and consuming the best possible products. Management actions in this case are focused on the constant improvement of products – their individual characteristics and properties and ways to increase the level of customer satisfaction and the formation of their loyalty to the product, brand or company. Regarding the implementation of GDL in e-commerce, when conducting a content audit and promotion in social networks, special attention should be paid to indicators such as "Availability of direct connection between content and products/services", "Existence of sales through the account, their systematicity and efficiency" due to the fact that they make it possible to assess the compliance of the company's product with the existing demand.

From the point of view of D.E. Campbell [11], S. Cleary, and C. McLarney [9], T. Durai, G. Stella [14], C. Gronroos and J. Gummerus [3], within the maintenance dominant logic (SL) building effective and sustainable relationships between the customer and the service provider is the key to the company's long-term success at the market, thus the focus is on the interaction between the supplier and the customer. In this case, the management actions of the company are aimed at maximizing the value of a certain offer for the client, therefore work is being carried out to identify the needs of clients and develop such offers that would have maximum value for them. When implementing SL in e-commerce, it is advisable for companies to pay attention to such indicators of content audit and promotion in social networks as "Regularity of posting", "Adaptation of content to the needs of the audience", "Expedience and relevance of feedback", "Working with bloggers and leaders' opinions", "Most popular publications". The evaluation of the above indicators makes it possible to determine the satisfaction of customers' needs based on their perception of the value of the company's products and offers. As stated by C. Gronroos and J. Gummerus [3], S. Maxwell, A.M. Khan [8], the logic of service dominance emphasizes systems of relationships and co-creation between subjects and provides assistance to customers in their own value creation processes. So, the logic of service dominance involves the joint creation of value by the client and the service provider. Management actions of the company when using the logic of service dominance, as noted [5], focus on the design of product exchange systems and the joint creation of values in them for many interested parties. When implementing SDL in e-commerce, special attention should be paid to such indicators of content audit and promotion in social networks as: "Adaptation of content to the needs of the audience", "Expedience and relevance of feedback", "Working with bloggers and opinion leaders", "Quality of visual aesthetics". The evaluation of these indicators will provide grounds for determining the possibilities of co-creation between the product supplier and the interested parties. When implementing SDL in e-commerce, special attention should be paid to such indicators of content audit and promotion in social networks as: "Adaptation of content to the needs of the audience", "Expedience and relevance of feedback", "Working with bloggers and opinion leaders", "Quality of visual aesthetics". The evaluation of these indicators will provide grounds for determining the possibilities of co-creation between the product supplier and the interested parties.

Therefore, content audit and social media promotion metrics such as "Comprehensibility of content", "Relevance of content", "Visual quality of content", "Usage of hashtags" are usually common to any type of logic used by a company. So, in this article, it is proposed to divide all traditional indicators of content audit and promotion in social networks into two groups – specific and general. Specific indicators will reflect the state of the most important elements of content and promotion from the company's point of view, and general ones will provide general information about the state of the market and competitors. Filling these groups with specific indicators is proposed to be carried out on the basis of a survey, a generalization of the opinions of the top management of companies and the logic used.

As mentioned, the customer dominant logic is distinguished by the emphasis on the introduction by customers of certain products and, accordingly, their suppliers, into their processes of purchase, consumption, further use, etc. However, the role that a product supplier can play in a customer's life or business can vary from minor to significant and can change over time. CDL is implemented through defining the configuration of product and supplier offerings for the customer. At the heart of this configuration are patterns of relationships between customers and suppliers, based on thoughts, emotions, experiences and their aspirations, and implemented within customer ecosystems. According to [4], the customer ecosystem in general is a system of subjects and elements related to the customer, which is related to a specific product. It is described as a distinct network with the customer at the center, so customer ecosystems include service providers, other customers, other actors, and physical and virtual structures associated with the product. At the center of the ecosystem is the client himself, who is surrounded by many other market subjects, both those with whom the client already has direct or indirect connections, and potential ones. Virtual structures in customer ecosystems include various

elements of e-commerce, including e-commerce platforms and social networks.

A schematically simplified client ecosystem is shown in Figure 1, where the following abbreviations are adopted:

– other clients (IR [IK], numbering from 1 to n);
– service providers (P [П], numbering from 1 to m);
– other subjects (IS [IC], numbering from 1 to k);
– virtual structures (VS [ВС], numbering from 1 to p);
– physical structures (FS [ФС], numbering from 1 to q).

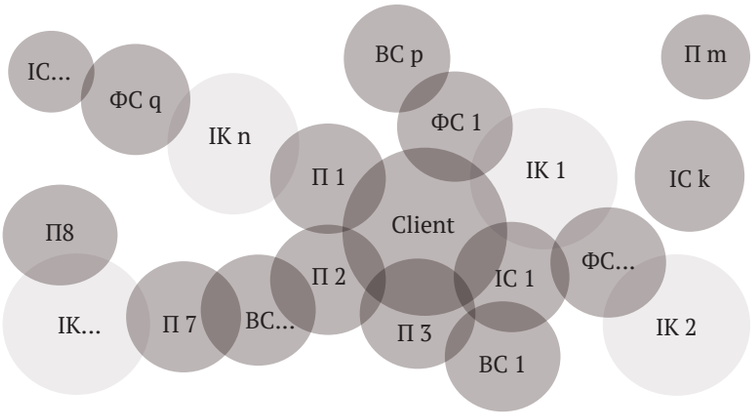


**Figure 1.** A simplified diagram of the client ecosystem

**Source:** developed by the author

In this article, it is proposed to audit the content and promotion of products of companies using CDL in social networks, taking into account the differences in the customer dominant logic and the use of client ecosystems. In this case, when auditing content and promoting products in social networks, indicators characterizing thoughts, emotions, customer experience, and possible models of relationships will acquire special importance, and all traditional indicators will provide general information about the state of the market. Therefore, traditional indicators of content audit and promotion of companies' products in social networks will form a general group. The group of specific indicators is supposed to include indicators that will provide insight of how, where and when the customer orders the product, what he wants and who he is, which fully corresponds to the approach proposed [7].

Thus, in order to determine who the client is, it is advisable to investigate how his social life is structured, what he believes, how the client's lifestyle can be identified, what roles the client performs in everyday life. Identification of the client's aspirations is based on answers to the following questions: What does the client feel? What is the client interested in, what does he have a passion for? What are the difficulties and problems in the client's life? When determining when to order a product, within the logic of customer dominance, it is proposed to determine the customer's personal time frame and how calm/restless their lifestyle is. The study of places where the client orders products is based on answers to the following questions: What is the client's internal and external life context? What mobility does the customer have? What are the client's general life situation? When determining the way a customer orders a product, it is important to determine how he lives his life, what his routine is, what satisfies or annoys him in his daily life, what the customer enjoys and what interests him.

Conducting an audit of customers in social networks using the above questions, unlike existing approaches, will make it possible to really shift the focus from the supplier to the customers – their interests, lifestyle, joys and sorrows. Conceptually, the approach to the audit of customers in social networks, which is based on CDL, is shown by the author in Fig. 2.

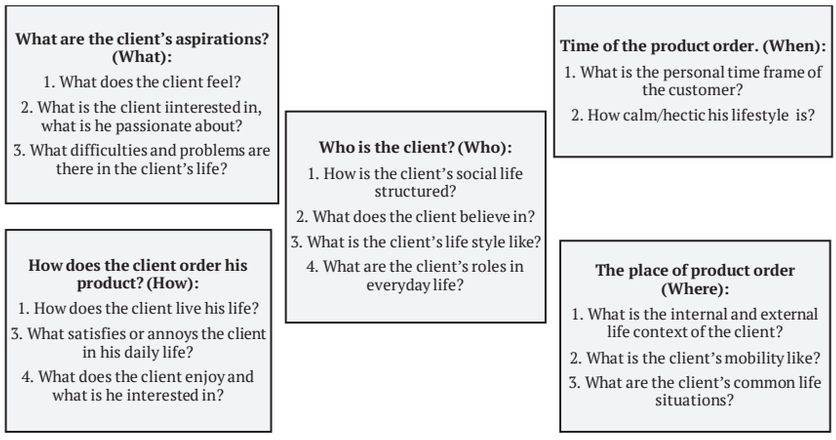


**Figure 2.** Approach to customer audit in social networks

**Source:** compiled by the author on the basis of [7]

Using this approach in e-commerce practices will enable product suppliers to find new ways to create value for customers, meet customer aspirations and expectations, and enter their ecosystems with greater probability.

In order to determine the ratio of different types of logic used in the practice of marketing activities of companies, and the indicators of content audit and promotion in social networks, this article gives their theoretical generalization. As already mentioned, the division of content audit indicators and promotion in social networks into two groups – specific and general – is carried out within the company individually (on the basis of a survey or based on the opinions of top managers), and the use by companies of the logic of client dominance requires the development of an audit approach, which is radically different from the existing ones. Therefore, one of the features of the involvement of suppliers in customer ecosystems in e-commerce is the need to improve standard approaches to content audit and promotion in social networks and the use of indicators that make it possible to characterize the thoughts, emotions, experience of customers, and possible models of relationships. This approach will enable companies to clearly define their priorities, goals and main directions of management actions, develop programs for further business development and customer relations in e-commerce, and to be involved in customer ecosystems.

The author summarized the essence of different types of logic in the marketing activities of companies and indicators of content audit and product promotion in social networks, the results of which are clearly shown in Table 1.

**Table 1.** Generalization of different types of logic and indicators of content audit and product promotion in social networks

| Type of logic | Basic aspects of logic | Main directions of management actions | Indicators of content audit and promotion in social networks | |
|---|---|---|---|---|
| | | | Specific indicators | General indicators |
| GDL | The most important value for companies is the product | Continuous improvement of products: their individual characteristics and ways to increase the level of customer satisfaction | Availability of direct connection between content and products/services; The existence of sales through the account, their systematicity and efficiency | Comprehensibility of content; Relevance of content; Visual quality of content; Using hashtags |
| SL | The focus is on the interaction between the supplier and the customer | Maximizing the value of a certain offer for the client | Posting regularity; Relevance of the content to the needs of the audience; Promptness and relevance of feedback; Working with bloggers and opinion leaders; The most popular publications | |
| SDL | Emphasis is placed on systems and co-creation between entities | Designing exchange systems and co-creating value in them for multiple stakeholders | Relevance of content to needs; Promptness and relevance of feedback; Working with bloggers and opinion leaders; Quality of visual aesthetics | |
| CDL | Focusing on how customers integrate products and their suppliers into their ecosystems | Observation of customers and their processes and development of models of relationships between companies and customers | How is the client's social life structured? What does the client believe? How can you identify a client's lifestyle? What roles does the client play in everyday life? What does the customer feel? What is the client interested in, what does he have a passion for? What are the difficulties and problems in the client's life? What is the client's personal time frame? How calm/restless is the client's lifestyle? | Comprehensibility of content; Relevance of content; Visual quality of content; Use of hashtags; Promptness and relevance of feedback; Working with bloggers and opinion leaders; Quality of visual aesthetics; Relevance of the content to the needs of the audience; |

Table 1, Continued

| Type of logic | Basic aspects of logic | Main directions of management actions | Indicators of content audit and promotion in social networks | |
|---|---|---|---|---|
| | | | **Specific indicators** | **General indicators** |
| CDL | | | What is the internal and external life context of the client? What mobility does the customer have? What are the client's general life situations? How does he live his life? What is his routine? What satisfies or annoys the customer in everyday life? What does the client enjoy and what is he interested in? | Posting regularity; The most popular publications; Availability of direct connection between content and products/services; The existence of sales through the account, their systematicity and efficiency |

**Source:** compiled by the author

Thus, when e-commerce companies use such marketing approaches as goods dominant logic (GDL), maintenance dominant logic (SL) and service dominant logic (SDL), the audit of content and product promotion in social networks is carried out using a standard methodology and using traditional indicators, the significance of which may differ in different companies. Given the transition to a customer dominant logic (CDL), it is recommended to reformulate indicators by shifting the emphasis to the customers and their ecosystems. In this case, traditional audit indicators can be used to obtain general information about the state of the market.

According to the Fakelikeinfo resource [13] and from the positions of J.M. Payan, J. Hair [10], M. Saunila, J. Ukko [15] it is stated that in addition to content audits and product promotion in social networks, companies conduct audits of main competitors using the following indicators: screenshot of the account and link to the account through the symbol "@", a brief description of the business area and brand positioning, unique selling proposition, content, brand features, its partners, strengths and weaknesses. Conducting an audit of the main competitors in social networks provides grounds for evaluating the company's competitive positions on the market. As for conducting an audit of the activities of the main competitors in social networks, it is advisable to evaluate business clients with the help of existing methods and indicators within CDL, which will significantly simplify the company's entry into their ecosystems. It is proposed to consider conducting customer audits in social networks as another feature of the involvement of suppliers in customer ecosystems in e-commerce based on the logic of customer dominance.

## CONCLUSIONS

The conducted research made it possible to form the following features of the involvement of suppliers in customer ecosystems in e-commerce based on customer dominant logic (CDL). First, this article recommends distinguishing two groups of content and promotion audit indicators – specific and general – which will enable companies using GDL, SL and SDL to focus on the indicators that are more significant for them. Given the transition to a customer dominant logic (CDL), it is recommended to reformulate indicators by shifting the emphasis to the customer and their ecosystem. In this case, traditional audit indicators can be used to obtain general information about the state of the market. Therefore, when auditing content and promoting products in social networks in case of use by the CDL company, it is advisable to use indicators characterizing thoughts, emotions, customer experience, and possible patterns of relationships. Unlike the existing approach, which mostly assesses the past behavior of the customer, the market situation and competitors, the use of these indicators will allow the company to become an element of the customer's ecosystem with greater probability through a more thorough study of the customer and his lifestyle. Secondly, the article proposes the involvement of suppliers in the ecosystems of business clients based on the evaluation of business clients using the methodology of auditing the activities of the main competitors in social networks, which involves the use of such indicators as a screenshot of the account and a link to the account through the symbol "@", a brief description of business customers' scope of activity and their brand positioning, unique selling proposition, content, brand features, partners, strengths and weaknesses, and aimed at significantly simplifying the company's entry into customer ecosystems by shifting the emphasis from product suppliers to customers.

It is advisable to focus further research on the development and implementation of new approaches and indicators of content evaluation and promotion of companies in the digital environment into the marketing practice of companies, taking into account the aspirations of consumers and the characteristics of their ecosystems.

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# Логіка домінування клієнта (CDL): особливості залучення постачальників в екосистеми клієнтів в електронній комерції

**Анотація.** В умовах активного розвитку цифрової економіки та появи нових маркетингових підходів, визначення особливостей залучення постачальників в екосистеми споживачів на основі логіки домінування клієнтів (CDL) є вихідним пунктом використання цієї логіки в електронній комерції і актуальним напрямом науково-теоретичних і практичних досліджень. Метою наведеного дослідження є визначення особливостей залучення постачальників в екосистеми клієнтів в електронній комерції на основі CDL. Теоретичною і методичною основою дослідження є сучасні наукові концепції, теоретичні розробки провідних вітчизняних і зарубіжних вчених щодо їх сутності, можливостей і особливостей їх використання в електронній комерції; використано метод теоретичного узагальнення, абстрактно-логічний аналіз, графічний метод. Проведене дослідження дало змогу отримати такі результати: по-перше, автором обґрунтовано використання компаніями при аудиті контенту та просуванні продуктів в соціальних мережах показників, що характеризують думки, емоції, досвід та можливі моделі взаємовідносин клієнтів. На відміну від наявного підходу, який ґрунтується на традиційних показниках аналізу акаунтів, це дасть змогу компаніям отримати реальну інформацію про те, як, де і коли клієнт замовляє продукт, чого він прагне та ким він є, і стати елементом його екосистеми. Зважаючи на те, що різні компанії використовують різні типи логіки (логіка домінування товару (GDL), логіка обслуговування (SL), логіка домінування сервісу (SDL)), в наведеній роботі пропонується виокремлення двох груп показників аудиту контенту та просування – специфічних і загальних, – що дасть підстави компаніям акцентувати увагу на більш значущих для них показниках. По-друге, в статті запропоновано залучення постачальників в екосистеми покупців на основі проведення оцінювання бізнес-клієнтів за допомогою методики аудиту діяльності основних конкурентів в соціальних мережах, що дасть можливість значно спростити входження компанії до клієнтських екосистем. Результати наведеного дослідження можуть бути корисними компаніям, що прагнуть налагодити тривалі та ефективні взаємини з клієнтами на основі впровадження у нових маркетингових підходів і технологій

**Ключові слова:** споживач; цифрова економіка; маркетинг; клієнтська екосистема

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# Government Expenditure and Macroeconomic Stability Conundrum in Zimbabwe

**Abstract.** The objective of this paper was to explore the effect of government expenditure growth on macroeconomic stability in Zimbabwe. Public expenditure has grown over time but as per a priori expectations, other macroeconomic variables have not been forth coming. What the country has actually experienced is prolonged macroeconomic instability. The paper contributes to the body of literature in two ways, by creating a macroeconomic instability index and by being the first in the Zimbabwean context to explore this conundrum. To achieve the main objective of the paper, the study used a cointegrated vector error correction model and Granger causality with data spanning 1981 to 2019. We did not find a statistically significant relationship between government expenditure and macroeconomic stability as argued mostly by the Keynesians. However, as per apriori expectations the relationship was found rightly negative. To buttress the Cointegrated-VECM results, granger causality tests were also conducted where no causality was found from government spending to macroeconomic stability, and vice versa (causality running from instability to government spending). This paper recommends that, Zimbabwe's policy makers may need to consider proactive government spending or policies since that helps the economy through successfully evading possible risks like macroeconomic instability. When policies are proactive rather than reactive, that helps through seizing untapped opportunities and the economy out rightly avoids consequences of reactive governance

**Keywords:** expenditure and macroeconomic stability; government expenditure and trade; government debt; economic growth; unemployment; poverty

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## INTRODUCTION

Zimbabwe has battled the twin problem of fiscal and current account deficit since the late 1990s. The country has run an unsustainable public debt for more than a decade and that has threatened its macroeconomic stability. The government lack budgetary discipline and also huge appetite to spend whilst lacking capacity to enlarge its national purse. The term "Macroeconomic stability" is defined as an economic environment of a country that is less vulnerable to external shocks leading to a very sustainable economic growth trajectory [1]. The objective of this paper was to understand the relationship between government expenditure and macroeconomic stability in Zimbabwe. The motivation was government expenditure that has been increasing over the years (see figure 1 below) whilst the response of other key economic variables like exports and economic growth not forth coming as expected [2].

Conventional knowledge according to Keynesian theory argues that government expenditure is a necessary tool for stimulating a struggling economy. However, as for Zimbabwe, government expenditure has been increasing overtime, but the country has not achieved economic prosperity. This paper becomes the first in Zimbabwe to the best of the researchers' knowledge to investigate this relationship using a macroeconomic instability index created from

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principal component analysis. That gives us confidence to say, the gaps this paper covers are both on the measure of macroeconomic stability (methodological) and also being the first paper in the Zimbabwean context to unpack the relationship.

*Background of the study*. Theoretically, classical economists, the Keynesians and the Wagner's law does not all agree on the involvement of government in the economy. However, Keynes believed that increasing government spending can help stimulate the economy during times of recession. Available studies on the expenditure and economic growth relationship give inconclusive findings. We found both positive and negative association in the literature. This study seeks to answer how Zimbabwe's government expenditure impacted macroeconomic instability over the years. The paper will answer that question through investigating the relationship that exists between government expenditure and a macroeconomic instability index (proxy for macroeconomic stability) in Zimbabwe from 1981-2019.

The Zimbabwean economy contracted from 1998 to 2008, this period has numerous popular situations for Zimbabwe, including the civil war participation in the Democratic Republic of Congo (DRC), the compensation of the war veterans from an unbudgeted purse, the violent disposition of white farmers and the hyper-inflation that reached more than 300 million percent by the fourth quarter of 2008. However, following the power sharing agreement between the biggest three political parties in the country in 2009, the economy recorded an average growth of more than 10% per year for the period 2010-2013, before it started stalling again to figures below 3% in the period 2014-2017 [2].

One of the biggest current spending zones for the government is its huge wage bill which is estimated to average between 70-80% of government spending denying the government space for capital expenditures or public investments that can create jobs and demand in the economy like energy, road and dam construction [3]. The relationship of government expenditure and revenue has refused to consolidate and it has remained unbalanced overtime since spending keep increasing while revenues keep following a sluggish trend leading to cumulative government debts. The persistence in this public or government debt has been described by many as the elephant in the room [4]. This ever increasing government debt has been threatening macroeconomic stability in the country hence motivating researchers to investigate the link. Below is a graph that shows the relationship between revenue and expenditure in Zimbabwe.


**Figure 1.** Expenditure vs revenue in billion

**Source:** [3]

Figure 1 above displays the trend of government expenditure overtime against its revenues that are not stable overtime. It would be expected that economic growth influence growth of government revenue or the other way round but the Zimbabwean situation has only been a quagmire. In the midst of increasing government spending and macroeconomic instability, the government has tight a fiscal space to maneuver and to channel spending in needy areas like infrastructure and social services delivery. Public spending is estimated to have increased by 25% compared to 2016 levels whilst gross domestic product (GDP) only increased by 7% and this spending is hugely recurrent expenditure. If combined, it adds to 90% of government spending with only 10% remaining to cover the rest. The ratio of government spending to GDP has averaged between 26 to 30% from the period 2010 to 2017.

When compared to other SADC countries, the Zimbabwean situation does not look alien, although public recurrent spending is too stalling the economy. The economy has been failing to sustain the size of the country's public sector. This paper argues that, the size of the public sector is too big for the economy and that puts the country far from deliverables such as quality public service and ability to conduct a sound fiscal policy (Fig. 2).

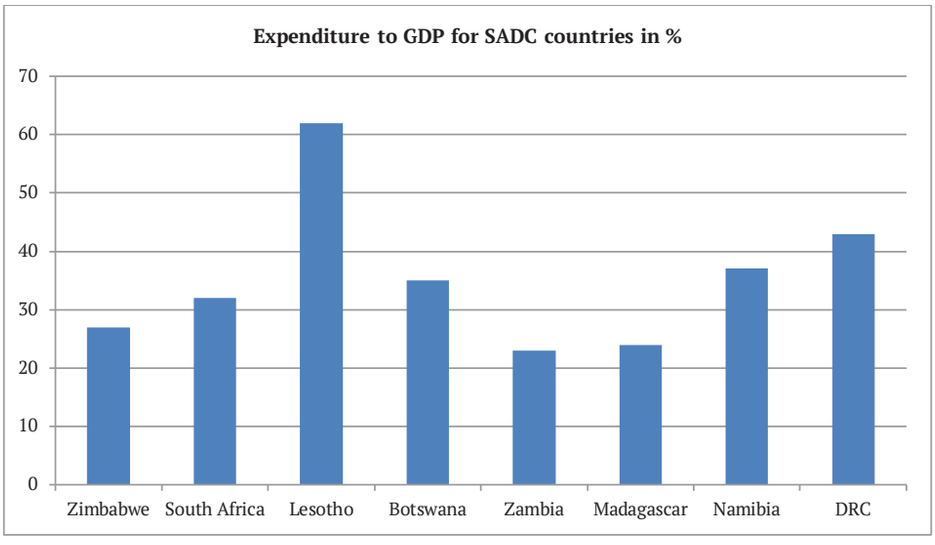


**Figure 2.** Expenditure to GDP ratio in SADC

**Source:** [5]

The observed appetite displayed by the Zimbabwean government to spend what it does not have and its ballooned public sector vis a vis economy size has exposed the economy to external shocks, for example from fuel prices. World over spending is not a problem but how the spending is financed marks the difference [1]. Zimbabwe can no longer borrow from the World Bank [5] and the International Monetary Fund (IMF) because of its bad credit history and no lines of credit can be opened unless the country clears its debt. That situation has forced the Zimbabwean officials to resort to domestic borrowing through treasury bills and overdrafts from the Reserve Bank of Zimbabwe (RBZ) [6]. Domestic borrowing led to money supply growth which led the country to start experiencing inflation which was estimated to be over 200% in the first quarter of 2019 [7].

The problem with Zimbabwe's government expenditure is the funding of recurrent expenditure as opposed to key productive sectors. According to Egwaikhide [8], most developing economies rely on government expenditure to kick start economic growth especially during recessions but that is only achievable if the spending is channeled towards productive sectors of the economy to create demand and jobs.

## LITERATURE REVIEW

*Theoretical framework*. The development model by Musgrave and Rostow argue that government expenditure must respond according to economic growth and development in a country [9]. The model treats government expenditure as a function of the size of economic growth. Hence, government expenditure is expected to be higher at the early stages of economic development [10]. Government expenditure according to the development model is expected to be higher in the early stages of development mostly because the state must make sure that there is necessary infrastructure for the convenience of industrialization in a country. The theory base on the argument that, the moment an economy moves to the next stage of development, the state spending will fall. The next or second stage of production where government expenditure is expected to fall is assumed to be characterized by rapid economic growth. In the second stage, private investment and activities are activities are expected to rise causing rapid growth and increase in private saving. The last stage of the development model by Musgrave and Rostow argues that, because private investment and activities have risen, government spending must increase to compliment the private sector through providing for example, more security and education [9].

On another perspective, the classical economists believed that the role of the government must be limited to only providing a conducive investment climate for the private sector to thrive. According to the classical theory, government activities in the economy must be limited to provision of security (defense) guaranteeing law and order for the efficient operation of the private sector. The argument of the classical theory was that any government involvement outside providing security will cause distortions in the economy and make the economy prone to economic crises. The classical theory is not too distant from the work of H.C Adams based on the argument that government spending and output should always grow with the same proportion. The work of H.C Adams inspired the work of A. Wagner early in the 20$^{th}$ century growing literature of the relationship between government expenditure and macroeconomic stability. Wagner argued that the progress in the society is what makes government expenditure to be inevitable. If society is doing well then government has to raise its spending to compliment the society. Wagner's law posits that; the activities of the state must increase if the progress achieved by the society is not to be reversed. The state must expand its budget on defense, power, social services, communication and education since thy are necessary for smooth running of the economy.

Lastly, John Maynard Keynes managed to turn around economic assumptions and beliefs about government expenditure [10]. The classists and Wagner's law believed that government expenditure must only be raise to compliment private sector activities not the other way round [11]. The Keynesian theory believed that government spending must be increased especially during a recession to bring back the economy to the steady state. Keynes argued that people should not wait for the economy to bring itself to normalcy or wait for the long-run for the economy to adjust but the government must increase its spending. The Keynesian

theory only emphasizes increase in government expenditure in during a recession meaning that when the economy recovers and there is prosperity, the government must cut back on expenditure. Keynes argued that waiting for the long-run for the market to adjust itself to the steady state is dangerous because in the long-run we will all be dead.

*Government expenditure and macroeconomic stability***.** In examining the literature on the relationship between government expenditure and macroeconomic stability, the author starts by looking at the work of A. Fatas and I. Mihov. The study [12] looked if there exist a relationship between government size and business cycle volatility in the OECD countries using data spanning 1960 to 1997. The findings of their study showed that economies with large governments have a stabilising impact on output leading them to conclude that government size and output volatility are negatively correlated.

A study [13] showed that the trend of government spending is important in achieving macroeconomic stability. The scholars used a cross-country study to find that government spending on health and agriculture is good in Africa. However, expenditure on education and agriculture can facilitate economic growth in Asia. As for Latin America it is spending on health that promotes economic growth. Another study [14] on Pakistan found that a relationship between government recurrent expenditure and economic growth was negative. Other studies that found a negative relationship between government expenditure and output include [15; 16]. On the contrary A.S. Okoro [17] found a positive effect of government capital expenditure on gross domestic product (GDP) in the long-run. However, the effect of recurrent spending had a negative effect on output.

N.P. Audu [18] analysed a relationship between economic growth and fiscal policy in Nigeria using data spanning 1970 to 2010. The study employed a co-integration error correction mechanism and the results revealed that there is an existent relationship between exports ad GDP. The author concluded that fiscal policies do have significant effects on output in the Nigerian economy. Using an error correction methodology as well, A. Risquete and J. Ramajo [19] analysed fiscal policy effects on the Spanish economy is using annual data from 1978 to 2009. Results from a Vector-autoregressive Error Correction Mechanism (VECM) showed that the Spanish economy (GDP) responds positively to total government receipts. To the contrary, total government spending is positive in the short-run but negative starting from the medium term to the long-run.

Using annual data spanning 1994 to 2007, C. Li [20] analysed the relationship that exists between output volatility and government expenditure in China. Results from an ordinary least squares (OLS) regression indicated that output fluctuations are not reduced by fiscal transfers and provincial budgetary revenues under tax assignment system. It showed that in huge contrasts with the experiences of most developed countries like China central and provincial authorities do not use public expenditure as a stabilising too to deal with economic shocks. J. Miron [21] also examined the relationship that exists between government expenditure and the findings point that large recurrent government expenditure is counterproductive. The conclusion of the author was that smaller governments are better for growth. On the other hand, a study by A.S. Saville [22] concurs with J. Miron [21] on the argument that they characterize government as a huge parasite which draws much from the economy when an economy is doing well but draws little when the economy is in doldrums. Saville argued that government expenditure during a recession is more likely to make the situation worse as opposed to stimulating it like what the Keynesian theory says. K.Z. Khan [23] analysed the effects of fiscal policy on economic growth for the Pakistan economy. The scholar used time series data from 1980-2009 estimating the johansen co-integration technique, Error Correction Model (ECM) and Granger causality. The findings of that study revealed that fiscal policy has a significant effect of economic growth and sustainability in Pakistan. However, fiscal policy is more useful in the long-run whilst the short-run manipulated interest rate brings sustained economic growth.

M. Ismail and F. Hussain [24] looked on the effect of government expenditure on inflation, output and employment in Pakistan with data spanning 1971 to 2009. The findings of the study points to the fact that neither development spending nor recurrent spending are led by changes in economic activity and that reasons why expenditure continued to be insignificant for macroeconomic variables for employment and output. The conclusion of the study was that loans should not be taken when there is no recommendation of cost and benefit analysis.

## MATERIALS AND METHODS

*Data Description.* We rely on an annual time series dataset observed between 1981 and 2019 guided by data availability from the World Development Indicators and Our World in Data which are our primary sources of data. This sampling period yields a total of 39 observations which we believe is reasonably long enough to establish the potential effect of government expenditure on macroeconomic stability. The first methodological step involves the measurement of macroeconomic instability and the subsequent section exists for this purpose.

*Measuring Macroeconomic Instability.* Measuring macroeconomic stability (or lack thereof) is far from easy empirically and the controversy is over two decades old. Much of the debate revolves around the appropriate proxy of macroeconomic instability with earlier studies such as [25] preferring instability measured based on inflation. Others such [26] have recently proxied macroeconomic stability using instability in export revenue. UNCTAD [27; 28] has long challenged the notion of proxying macroeconomic instability based on one indicator however suggesting instead the joint use of a wide array of macroeconomic indicators. Motivated by this recommendation, R. Haroon and Z. Jehan [29] recently compute a macroeconomic instability index based on terms of trade, inflation rate, unemployment rate and real exchange rate. Their macroeconomic index is computed as follows (1):

$$MI = \alpha\left[\frac{(TOT_{it}-TOT_{imin})}{(TOT_{imax}-TOT_{imin})}\right] + \beta\left[\frac{(Inf_{it}-Inf_{imin})}{(Inf_{imax}-Inf_{imin})}\right] + \gamma\left[\frac{(UN_{it}-UN_{imin})}{(UN_{imax}-UN_{imin})}\right] + \lambda\left[\frac{(RER_{it}-RER_{imin})}{(RER_{imax}-RER_{imin})}\right] \quad (1)$$

where *MI* is macroeconomic instability, *TOT* is terms of trade, *Inf* is the inflation rate, *UN* is unemployment, *RER* is the real exchange rate, min is minimum, and *max* is maximum. While the intend is plausible, the procedure is less so. They claim to use standard deviations ($\alpha$, $\beta$, $\gamma$ and $\lambda$) as weights which is hard to comprehend not only because the procedure of ensuring that $\alpha$, $\beta$, $\gamma$ and $\lambda$ sums up to one is vague and not explicitly explained but also because the four indicators are measured in completely different units. Cognisance of this important limitation, we rely instead on the principal component analysis which constructs weights in a much more systematic way. In particular, it studies the correlations among the variables and then determine the weights based on the contribution of each variable towards the variation of the overall component.

From their selected variables, we retain TOT and the inflation rate and drop the unemployment rate and the real exchange rate due to data unavailability. Unemployment in particular is only available from 1991 when our starting sampling period is 1982. On the other hand, Zimbabwe completely dollarized in 2009 and therefore the country did not have an official local currency for the best part of the period after 2009. We replace these two variables with five equally important macroeconomic indicators namely output gap computed using the Hodrick-Prescott filter method, current account balance (*CAB*) (as percentage of GDP), public debt (as a percentage of GDP), IMF loans and outward foreign direct investment (as a percentage of GDP). Selection of these additional indicators is justified by two considerations. Firstly, there is hardly any economy in which the authorities would ideally not prefer having less of these. Secondly, it is hard to think of any of these indicators as a characteristic of a stable economy. Governments for example that resort to IMF loans are in the majority of cases already facing economic turmoil and chronic macroeconomic instability. Outward foreign direct investment in the African context mostly signals capital outflows owing to an unstable and uncertain economic environment. Output gap, public debt and current account balance are self-explanatory. Their increase is mostly accompanied by macroeconomic imbalances.

The principal factor analysis (PFA, hereafter), which we use here to create a macroeconomic instability index, gets used in many cases to compress data to come up with a small set of variables (preferably uncorrelated) from a large set of variables (most of which are correlated to each other). The objective is to therefore create a macroeconomic index (*M*) which we achieve in two broad steps. In the first step, we compute the index from the following specification (2):

$$M_t = \omega_1 Inflation_t + \omega_2 TOT_t + \omega_3 Output\_Gap_t + \omega_4 Public\ Debt_t + \omega_5 Outward\_FDI_t + \omega_6 IMF\_loans_t + \omega_7 CAB_t + \gamma_t \quad (2)$$

where $\omega$ are the weights. At this stage, several points are noteworthy. Firstly, we applied the Kaiser test to determine which factors are meaningful. With this test, we essentially retain components that enter with an eigenvalue of 1 or greater. Secondly, we proceeded to apply Varimax rotation in order to maximize the sum of the variance of the squared loadings, where "loadings" refer to the correlations between variables and the component factors. This essentially facilitates high factor loadings for a smaller number of variables as each variable will load onto one factor as highly as possible while loading onto the second factor as little as possible. We then thirdly tested the groupings using the Cronbach's $\alpha$ before computing the overall index. From the computed index, the macroeconomic instability (*MI*) index is then calculated as follows (3):

$$MI = \frac{(M_t - M_{min})}{(M_{max} - M_{min})} \quad (3)$$

where *MI* denotes macroeconomic instability, and the remaining variables are as defined before. Measured this way, an increase in this index represents an increase in instability. We then proceed with this index as the dependent variable of interest in the next section.

*Estimation Technique and Process*. To test the Keynesian proposition of a possible link between government expenditure and macroeconomic stability, we resort to a system of equations approach in a bid to offset the potential endogeneity problem emanating from simultaneity. It is widely acknowledged that fiscal decisions are in the majority of cases a reaction to macroeconomic instability which means changes in government expenditure might be endogenous. A system of equations approach, the vector autoregression method in particular, allows us to treat both variables as endogenous. To avoid or at least reduce the possibility of an omitted variable bias, we include trade (exports plus imports as a percentage of GDP) in the system. The inclusion of a trade variable is crucial in so far as it controls for a channel through which external instability feeds into the domestic economy in the absence of an exchange rate variable.

As a precondition in time series, we first evaluated the underlying data generating process using three non-stationarity tests namely the Augmented Dickey Fuller (ADF), Phillips-Perron (PP) and the Break-Point unit root tests. In all cases, the null hypothesis is of a unit root and it is rejected if the corresponding probability value exceeds the 10% maximum level of significance.

Having evaluated the underlying data generating process, then next step will involve checking the possibility of a cointegrating relationship if the trio is non-stationary and integrated of the same order. To achieve this, we will consider the Johansen approach which is based on the following specification (4):

$$\begin{gathered} \Delta X_t = \sum_{i=1}^{p-1} \Gamma_i \Delta X_{t-i} + \prod X_{t-1} + \varepsilon_t, \\ \varepsilon_t \mid \Omega_{t-1} \sim dist(0, H_t) \\ t = 1,2,\dots,T \end{gathered} \quad (4)$$

where $X_t$ is a 3×1 vector of our macroeconomic instability index (*MI*), government expenditure (*G*) (as a percentage of GDP) and trade (TR), respectively, $\Delta$ is the first difference operator, $\varepsilon_t$ is a 3×1 vector of residuals characterised by a distribution that possess a zero mean and time-varying covariance matrix, $H_t$. The VECM specification comprises both short-and-long run information in $\Gamma_i$ and $\Pi$, respectively. We then consider two likelihood ratio tests namely the trace ($\lambda_{trace}$) and maximum eigen ($\lambda_{max}$) statistics in order

to determine the presence of co-integration between the two series (5-6):

$$\lambda_{trace}(r) = -T\sum_{i=r+1}^{n}\ln(1-\hat{\lambda}_i) \quad (5)$$

$$\lambda_{max}(r, r+1) = -T\sum_{i=r+1}^{n}\ln(1-\hat{\lambda}_{r+i}), \quad (6)$$

where $\lambda_i$ are the eigen values obtained from the estimate of the $\Pi$ matrix and $T$ is the maximum number of time series observations. The $\lambda_{trace}$ tests the null hypothesis that there are at most $r$ cointegrating vectors, against the alternative that the number of cointegrating vectors is greater than $r$. The $\lambda_{max}$ considers the null hypothesis that the number of cointegrating vectors is $r$, against the alternative of $r$+1 If rank ($\Pi$)=0, then $\Pi$ is 2×2 zero matrix implying no cointegration relationship between macroeconomic instability and government expenditure. In this case the VECM reduces to a VAR model in first differences. If $\Pi$ has a full rank, that is rank ($\Pi$)=2, then both macroeconomic instability and government expenditure are I(0) and the appropriate modelling strategy is to estimate a VAR model in levels. If $\Pi$ has a reduced rank, that is rank ($\Pi$)=1, then there is a single cointegrating relationship between macroeconomic instability and government expenditure which will be given by any row of matrix $\Pi$ and the expression $\Pi X_{t-1}$ will be the error correction term. In this case, $\Pi$ can be factored into two separate matrices $\alpha$ and $\beta$. These matrices are of dimensions 2×1 where 1 is the rank of $\Pi$, such as $\Pi=\alpha\beta'$, where $\beta'$ captures cointegrating parameters and $\alpha$ embeds error-correction coefficients measuring the speed of convergence.

If government expenditure and macroeconomic instability are cointegrated, then there must be at least a unidirectional causality [30]. As a result, we will consider the standard causality tests within the auspices of a VECM framework, and it will be based on the following specifications (7-8):

$$\Delta MI_t = \sum_{i=1}^{p-1} a_{M,i}\,\Delta MI_{t-i} + \sum_{i=1}^{p-1} b_{M,i}\,\Delta G_{t-i} + \theta_M ECT_{t-1} + \varepsilon_{M,t}\,, \quad \varepsilon_t \mid \Omega_{t-1} \sim dist(0, H_t) \quad (7)$$

$$\Delta G_t = \sum_{i=1}^{p-1} a_{G,i}\,\Delta IM_{t-i} + \sum_{i=1}^{p-1} b_{G,i}\,\Delta G_{t-i} + \theta_M ECT_{t-1} + \varepsilon_{G,t}\,, \quad (8)$$

where $MI$ and $G$ are as defined before and $ECT$ is the error correction term. A Wald test is conducted to test the joint significance of $b_M$ in (7) and $a_G$ in (8). In each case, causality exists if the null hypothesis is rejected. Note that (7) and (8) reduce to (9-10):

$$\Delta G_t = \sum_{i=1}^{p-1} a_{G,i}\,\Delta IM_{t-i} + \sum_{i=1}^{p-1} b_{G,i}\,\Delta G_{t-i} + \varepsilon_{G,t} \quad (9)$$

$$\Delta MI_t = \sum_{i=1}^{p-1} a_{M,i}\,\Delta IM_{t-i} + \sum_{i=1}^{p-1} b_{M,i}\,\Delta G_{t-i} + \varepsilon_{M,t}, \quad \varepsilon_t \mid \Omega_{t-1} \sim dist(0, H_t) \quad (10)$$

if we do not find $G$ and $MI$ cointegrated. Post estimation, we will consider a battery of diagnostic tests that range from serial correlation tests to model specification, heteroscedasticity, residual normality, and parameter stability tests. For robustness checks, we also considered estimations from two additional methods namely the dynamic ordinary least squares (DOLS) and the fully modified ordinary least squares (FMOLS).

## RESULTS AND DISCUSSION

Since our primary contribution is embedded in computing a macroeconomic index, we start with results from the principal factor analysis. Table 1 contains the unrotated principal component factors and it shows that the first three factors whose Eigenvalues are greater than 1 cumulatively explain about 75 percent of the total variance. Based on the Kaiser criterion, we retain these three factors.

**Table 1.** Unrotated principal-component factors

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 2.39005 | 0.86791 | 0.3414 | 0.3414 |
| Factor2 | 1.52214 | 0.20153 | 0.2174 | 0.5589 |
| Factor3 | 1.32061 | 0.63299 | 0.1887 | 0.7475 |
| Factor4 | 0.68762 | 0.15345 | 0.0982 | 0.8458 |
| Factor5 | 0.53417 | 0.18381 | 0.0763 | 0.9221 |
| Factor6 | 0.35036 | 0.15532 | 0.0501 | 0.9721 |
| Factor7 | 0.19505 | . | 0.0279 | 1 |

**Note:** LR test: independent vs. saturated: chi2(21) = 75.80 Prob>chi2 = 0.0000
Retained Factors = 3, Number of Parameters=18.

Table 2 proceeds with factor loadings and unique variances. Factor loadings represents weights and correlations of a variable and the factor. If the load is higher, that is an indication that the defining the factor's dimensionality is relevant. Here as indicated above, the first three factors are retained based on Eigenvalues above 1. From Table 2, inflation, use of IMF loans, outward FDI and terms of trade load highly in the first factor while debt, output gap and current account balance load highly in the second factor. Uniqueness is the variance that is "unique" to the variable and not shared with other variables. In this case, for example, results indicate that 24.34% of the variance in inflation 'inf' is not shared with other variables in the overall factor model. These values ought to be low, typically below 0.5 as such will imply high relevance of the variable in the factor model. As Table 2 confirms, the uniqueness values are all below 0.5 which is comforting.

**Table 2.** Factor loadings (pattern matrix) and unique variances

| Variable | Factor 1 | Factor 2 | Factor 3 | Uniqueness |
|---|---|---|---|---|
| inf | 0.8558 | 0.0879 | 0.1286 | 0.2434 |
| cab | 0.4229 | 0.7563 | 0.3133 | 0.151 |
| tot | 0.8155 | 0.1507 | 0.1053 | 0.3012 |
| debt | 0.5113 | 0.7453 | 0.0638 | 0.1791 |
| gap | 0.0726 | 0.5656 | -0.6773 | 0.2161 |
| fdi_out | 0.7118 | -0.1253 | -0.1196 | 0.4634 |
| imf_l | 0.8697 | -0.1693 | 0.044 | 0.213 |

From Table 2, we then applied varimax in order to produce orthogonal factors and clearly identify variables to create our macroeconomic index without inter-correlated components. The computed index is displayed in Figure 3 and it brings two main insights. Firstly, it does confirm that the Zimbabwean economy has experienced a considerable degree of macroeconomic instability since 1981. Secondly and more interestingly, our computed index is able to pick up the unprecedented macroeconomic instability that Zimbabwe went through between 2004 and 2008. During this period, the Southern African economy posted a record-breaking inflation and created a distorted exchange rate market which saw the central bank of Zimbabwe ditch the local currency in favour of a basket of multiple currencies. This brought back confidence in the economy and an improvement in economic stability which Figure 1 clearly confirms. In addition, the index is able to confirm the recent and post 2013 economic instability that was characterized by foreign currency shortages in banks and financial institutions. By picking up well known episodes of macroeconomic instability of this sort, we can safely proceed with our analysis with a considerable level of confidence in our computed macroeconomic instability index (Fig. 3).

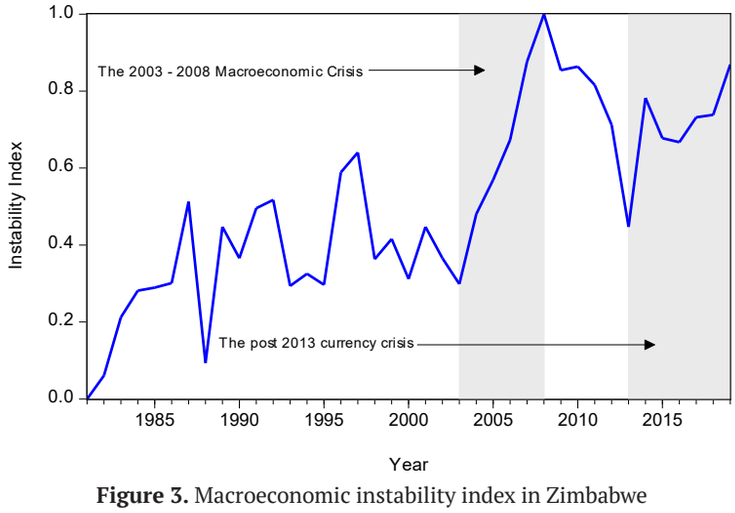


**Figure 3.** Macroeconomic instability index in Zimbabwe

Next, we present results from the three non-stationarity tests meant to provide a picture of the underlying data generating process. As Table 3 shows, the null hypothesis of a unit root cannot be rejected in levels. It is after first differencing that we are able to reject the null of a unit root suggesting that the trio is integrated of order one. With this result, we can safely proceed to check for possible cointegration using the Johansen test.

**Table 3.** Non-stationarity test results

| | ADF | | PP | | BP | | Order of integration |
|---|---|---|---|---|---|---|---|
| | Levels | | Levels | | Levels | | |
| MI | 2.138 | 6.260*** | 2.158 | 6.261*** | 2.764 | 6.779*** | I(1) |
| G | 1.727 | 5.990*** | 1.973 | 6.013*** | 2.520 | 7.128*** | I(1) |
| TR | 2.213 | 8.966*** | 2.027 | 9.213*** | 2.696 | 9.782*** | I(1) |

**Note:** For ADF and PP tests, *=MacKinnon [31] one-sided p-values. For BP, *=Vogelsang [32] asymptotic one-sided p-values. In all cases, the tests are based on specifications with intercept and no trend

Since the Johansen test is sensitive to the optimum lag, Table 4 presents results from various lag selection criterions. As the results confirm, three of the five criterions pick 5 as the optimum lag.

**Table 4**. Optimum lag length

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 1 | -194.5801 | NA | 31.91415 | 11.9753 | 12.37934* | 12.11309* |
| 2 | -188.5457 | 9.938982 | 38.37163 | 12.14975 | 12.95782 | 12.42532 |
| 3 | -178.2571 | 15.13033 | 36.56359 | 12.07395 | 13.28606 | 12.48731 |
| 4 | -168.605 | 12.49099 | 37.22962 | 12.03559 | 13.65173 | 12.58674 |
| 5 | -153.2061 | 17.21049* | 28.23710* | 11.65918* | 13.67937 | 12.34812 |

**Note:** * shows lag order chosen by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion

We proceed with the Johansen test results. As evidently presented in Table 5, the null hypothesis of no cointegration is strongly rejected both by the trace and eigen value statistics. The next hypothesis is of at most 1 cointegrating equation and clearly, there is no sufficient statistical evidence to reject this null hypothesis at 5% level of significance. This means we have evidence of at most one cointegrating equation in our system which paves way for a vector error correction model so that short run dynamics can be reconciled with long run information via an error correction mechanism. In other words, we have evidence that macroeconomic instability, government expenditure and trade are cointegrated and therefore by implication possess a long run relationship.

**Table 5.** Johansen cointegration test

| Unrestricted Cointegration Rank Test (Trace) | | | | |
|---|---|---|---|---|
| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 0.05 Critical Value | Prob.** |
| | | | | |
| None * | 0.518375 | 34.51989 | 29.79707 | 0.0133 |
| At most 1 | 0.247739 | 9.679828 | 15.49471 | 0.3062 |
| At most 2 | 2.90E-05 | 0.000988 | 3.841466 | 0.9751 |
| | | | | |
| **Unrestricted Cointegration Rank Test (Maximum Eigenvalue)** | | | | |
| | | | | |
| Hypothesized No. of CE(s) | Eigenvalue | Max-Eigen Statistic | 0.05 Critical Value | Prob.** |
| | | | | |
| None * | 0.518375 | 24.84007 | 21.13162 | 0.0143 |
| At most 1 | 0.247739 | 9.678841 | 14.2646 | 0.2339 |
| At most 2 | 2.90E-05 | 0.000988 | 3.841466 | 0.9751 |

**Note:** Trace test reflects 1 cointegrating eqn(s) at the 5% level,
* indicate rejection of the hypothesis at the 5% level,
**MacKinnon-Haug-Michelis [33] (1999) p-values. Max-eigenvalue test denotes 1 cointegrating eqn(s) at the 0.05 level,
* means rejection of the hypothesis at the 5% level,
**MacKinnon-Haug-Michelis [33] (1999) p-values

At this stage, we considered the VECM estimates but also the dynamic ordinary least squares (DOLS) and fully modified ordinary least squares (FMOLS) estimates for robustness purposes. As a standard practice, the VECM was estimated with 4 lags (5-1) and the estimated cointegrated vector was multiplied by -1 for a straightforward interpretation. In Table 6, we present these results, and the table is portioned into three columns. The first is the VECM cointegrating vector with its corresponding error correction term. The second variant contains the DOLS estimates which is based on 1 lead and 1 lag. The third and final variant contains the FMOLS estimates. As the results clearly show, the connection between government expenditure and macroeconomic stability predicted by Keynesian followers is not existent as the relationship is rightly negative but statistically insignificant. This result is true across all the three regression variants and it implies that the general rise in government expenditure observed in Zimbabwe between 1981 and 2019 hardly came with any stabilising effect during the same period in the Southern African economy.

Meanwhile, trade enters with a negative and statistically significant effect which implies a stabilising effect of global trade on the Zimbabwean economy. This is not surprising given a plethora of studies documenting a stabilising effect of trade on output volatility in developing countries. Imports in particular tend to bridge and cushion

the domestic demand-supply gap and shock, respectively, a channel which is plausible given Zimbabwe's experience in the past three years. The economy witnessed recurrent and persistent negative productivity shocks and macroeconomic instability that saw a massive proliferation of imports. The error correction term which measures the speed of adjustment is negative as expected and statistically significant. The significantly negative sign provides some reassurance of a cointegrating equation in so far as it suggests that the estimated model reverts back to the equilibrium position in the event of a short run discrepancy. The size of the coefficient in particular indicates that roughly a third of the short-run disequilibrium is corrected each year.

**Table 6.** Macro-stability and government expenditure long run estimates

| Cointegrating Eq: | CointEq1-VECM | DOLS | FMOLS |
|---|---|---|---|
| G | -0.118702 | -0.006 | -0.007 |
| | (0.25121) | (0.009) | (0.006) |
| TR | -0.261489*** | -0.012** | -0.015*** |
| | (0.06554) | (0.005) | (0.005) |
| C | -12.44018 | 0.6502 | 0.842 |
| | | (0.504) | (0.478) |
| CointEq1 | -0.312927*** | | |
| | (0.00772) | | |
| Ramsey RESET | | 0.3718 | |
| Breusch-Godfrey | | 0.3527 | |
| Jarque-Bera | | 0.8183 | 0.5273 |
| Breusch-Pagan | | 0.1521 | |
| Hansen instability | | >0.2 | >0.2 |
| Engle-Granger | | 0.0073 | 0.0271 |
| **Note:** *, **, *** denote | p<0.01, p<0.05 & p< | 0.01, respectively | |

Figures in parentheses are standard errors. The DOLS was estimated with 1 lead and 1 lag. Results of these leads and lags are not reported as they nuisance parameters whose tenet is to eliminate endogeneity according to [34].

The estimated VECM was free from residual non-normality and dynamic instability as all roots lied inside the unit circle. The results of these diagnostic tests are provided in Figures 4-6. Regarding the DOLS results which appear on the lower part of Table 6, the estimated model is clearly well specified, free from both heteroscedasticity, autocorrelation and residual non-normality which is reassuring. Interestingly, the Hansen instability and Engle-Granger tests for cointegration are firmly in support of the Johansen testing so far as they confirm the presence of a cointegrating equation.

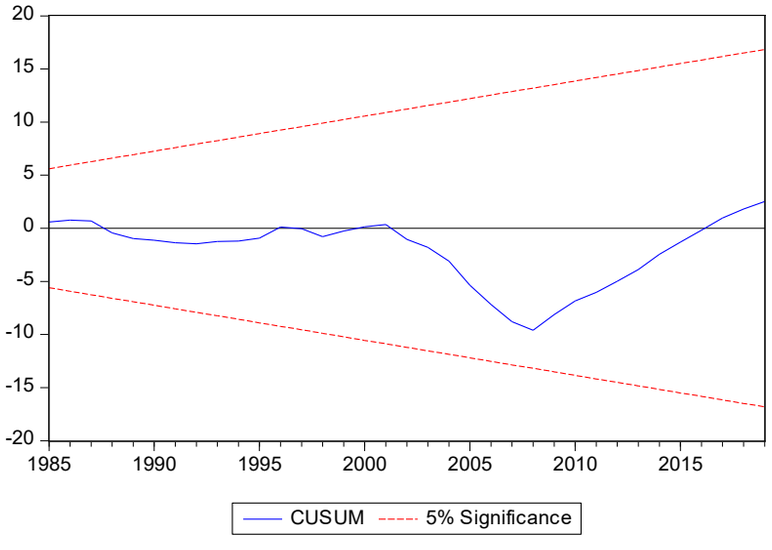


**Figure 4.** Diagnostic tests - parameter stability DOLS

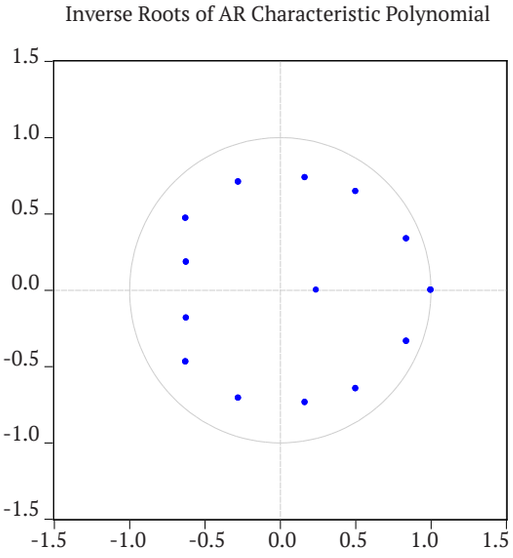


**Figure 5.** Dynamic stability - VECM

VEC Residual Normality Tests
Orthogonalization: Cholesky (Lutkepohl)
Null Hypothesis: residuals are multivariate normal
Sample: 1981 2019
Included observations: 34

| Component | Skewness | Chi-sq | df | Prob. |
|---|---|---|---|---|
| 1 | -0.836246 | 3.962738 | 1 | 0.0465 |
| 2 | -0.286829 | 0.466201 | 1 | 0.4947 |
| 3 | 0.148619 | 0.125162 | 1 | 0.7235 |
| Joint | | 4.554101 | 3 | 0.2075 |

| Component | Kurtosis | Chi-sq | df | Prob. |
|---|---|---|---|---|
| 1 | 4.519569 | 3.271211 | 1 | 0.0705 |
| 2 | 2.930117 | 0.006918 | 1 | 0.9337 |
| 3 | 2.402838 | 0.505186 | 1 | 0.4772 |
| Joint | | 3.783315 | 3 | 0.2858 |

| Component | Jarque-Bera | df | Prob. |
|---|---|---|---|
| 1 | 7.233948 | 2 | 0.0269 |
| 2 | 0.473119 | 2 | 0.7893 |
| 3 | 0.630349 | 2 | 0.7297 |
| Joint | 8.337416 | 6 | 0.2144 |

**Figure 6.** VECM residual normality

Next, we proceed with results from the Granger causality tests to infer the direction of causality presented in Table 7. Of interest here is the two upper specifications in which macroeconomic instability (*MI*) and government expenditure are the dependent variables, respectively. Evidently, there is no sufficient evidence to reject the null hypothesis that government expenditure (*G*) does not granger cause macroeconomic instability. Instead, it is trade (TR) that seems to have a causal effect on macroeconomic instability. Interestingly in the specification in which *G* is the dependent variable, the null hypothesis that macroeconomic instability does not granger cause government spending is strongly rejected at 1 percent level suggesting that causality runs from macroeconomic instability to fiscal spending and not the other way round. This observation supports our prior methodological suspicion that fiscal policy decisions tend to be reactive and not proactive in Zimbabwe. Further to this observation, evidence suggests however that such reactionary fiscal interventions in form of increased government spending have hardly stabilized the Zimbabwean economy during the study period.

**Table 7.** Granger causality

| Dependent variable: D(MI) | | | |
|---|---|---|---|
| **Excluded** | **Chi-sq** | **Df** | **Prob.** |
| D(G) | 3.977525 | 4 | 0.4091 |
| D(TR) | 66.01597 | 4 | 0.0000 |
| All | 9.04005 | 8 | 0.3389 |
| Dependent variable: D(G) | | | |
| **Excluded** | **Chi-sq** | **Df** | **Prob.** |
| D(MI) | 8.846134 | 4 | 0.0651 |
| D(TR) | 6.945464 | 4 | 0.1388 |
| All | 11.74588 | 8 | 0.1629 |
| Dependent variable: D(TR) | | | |
| **Excluded** | **Chi-sq** | **Df** | **Prob.** |
| D(MI) | 37.02555 | 4 | 0.0000 |
| D(G) | 44.91735 | 4 | 0.0000 |
| All | 56.67579 | 8 | 0.0000 |

Lastly in Table 8, we demonstrate the insignificance of government expenditure on variations in Zimbabwe's macroeconomic instability using the variance decomposition function for a 25-year period. Unsurprisingly, government expenditure (*G*) only account for 1.4% of variation in Zimbabwe's macroeconomic instability. This is revealing for an economy that has been well known for heightened fiscal spending (averaging nearly a quarter of GDP between 1981 and 2019) as an effort to achieve macroeconomic stability. Zimbabwe particularly turned to fiscal policy as their primary stabilization instrument post 2009 owing to a combination of the multicurrency regime and the deterioration of financial conditions which rendered the monetary policy virtually ineffective. There is hardly any evidence here that the increasing reliance on fiscal expenditure affected macroeconomic instability. In theory, one would expect a strong connection between countercyclical fiscal policy responses to cushion macroeconomic volatility via both the demand and supply side. Our result challenges this notion advanced by J. Gali [35] and M. Kumhof and D. Laxton [36] which broadly falls within the common Keynesian narrative. Neither the estimated model not the variance decomposition function substantiates this narrative. Rather, we find evidence that much of Zimbabwe's macroeconomic instability is explained by own shocks and trade dynamics, which account for 82%, and 17%, respective.

**Table 9.** Variance decomposition of MI in Zimbabwe

| Period | S.E. | MI | G | TR |
|---|---|---|---|---|
| 1 | 0.153471 | 100 | 0 | 0 |
| 2 | 0.190077 | 98.35938 | 0.713331 | 0.927287 |
| 3 | 0.23814 | 89.59149 | 3.778508 | 6.630004 |
| 4 | 0.288593 | 87.35981 | 3.670814 | 8.969371 |
| 5 | 0.348985 | 86.11609 | 2.622064 | 11.26185 |
| 6 | 0.415299 | 85.16585 | 2.018168 | 12.81598 |
| 7 | 0.476717 | 83.56626 | 1.665826 | 14.76791 |
| 8 | 0.518351 | 82.5528 | 1.525278 | 15.92192 |
| 9 | 0.54978 | 82.37108 | 1.537503 | 16.09141 |
| 10 | 0.576606 | 82.74023 | 1.56061 | 15.69916 |
| 11 | 0.600162 | 82.72418 | 1.598053 | 15.67777 |
| 12 | 0.626432 | 82.64584 | 1.644661 | 15.7095 |
| 13 | 0.65629 | 82.68647 | 1.606599 | 15.70694 |
| 14 | 0.686894 | 82.56153 | 1.535672 | 15.9028 |
| 15 | 0.717098 | 82.3486 | 1.490057 | 16.16135 |
| 16 | 0.745001 | 82.25923 | 1.454852 | 16.28592 |
| 17 | 0.768774 | 82.20599 | 1.436632 | 16.35738 |
| 18 | 0.790363 | 82.19198 | 1.444849 | 16.36317 |
| 19 | 0.811289 | 82.22943 | 1.45353 | 16.31704 |

Table 9, Continued

| Period | S.E. | MI | G | TR |
|---|---|---|---|---|
| 20 | 0.832029 | 82.23213 | 1.453188 | 16.31468 |
| 21 | 0.853607 | 82.21026 | 1.448789 | 16.34095 |
| 22 | 0.875943 | 82.19156 | 1.433977 | 16.37446 |
| 23 | 0.897849 | 82.14706 | 1.415728 | 16.43721 |
| 24 | 0.918894 | 82.10104 | 1.404376 | 16.49458 |
| 25 | 0.938864 | 82.08563 | 1.397473 | 16.5169 |

The trivial influence of government expenditure on macroeconomic instability in Zimbabwe could be surprising but somehow supports results in [37] where the connection between cyclical fiscal spending and real output dynamics albeit in the context of South Africa. This is a result which may be further unsurprising for at least two additional reasons. Firstly, it is well known that the relationship between countercyclical fiscal spending and macroeconomic stability is a complex one, and one that can only be empirically unveiled. Secondly, while the standard expectation is that of a stabilising effect, there seems to be relevant concerns raised in X. Debrun and R. Kapoor [38] that non-linearities exist in such a way that the adverse effect of high tax rates required to finance the increase in government spending could be offsetting.

## CONCLUSIONS

Macroeconomic instability has been an issue in Zimbabwe which reached its height in the 2004-2008 period. The Southern African economy hit a world record inflation which forced the central bank to abolish the sovereign currency in favour of a basket of currencies. During the multicurrency system which was officially launched in 2009, the economy recovered and gained stability which was short-lived before the financial system was hard hit by foreign currency shortages moving back the economy to instability. To get the sense of the macroeconomic instability in Zimbabwe, this paper pursued a sole objective of understanding the effect of government spending on stability. That was done uniquely by creating a macroeconomic instability index using a couple of other macroeconomic variables through the principal component analysis. No statistically significant relationship was found between government expenditure and macroeconomic stability as argued mostly by the Keynesians. However, as per apriori expectations the relationship was found rightly negative. To buttress the Cointegrated-VECM results, we also ran causality tests where we could not find any causality running from government spending to macroeconomic instability but vice versa (causality running from instability to government spending). The causality findings gave us confidence to conclude that government spending in Zimbabwe has always been reactive as opposed to being proactive. This paper recommends then that; policy makers may need to consider proactive government spending or policies since that helps the economy through successfully evading possible risks like macroeconomic instability. When policies are proactive than reactive, that helps through seizing untapped opportunities and the economy out rightly avoids consequences of reactive governance.

This research's contribution was on being the first to explore the relationship in Zimbabwe and also on the measurement of the dependent variable. Future researchers can also contribute to this debate by analysing the effect of the adoption of a multicurrency monetary policy in Zimbabwe of macroeconomic stability in Zimbabwe. Also it will be interesting to understand how the macroeconomic stability variable will react to government spending if measured differently from this study.

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# Державні витрати та загадка макроекономічної стабільності у Зімбабве

**Анотація.** Метою цієї статті було дослідження впливу зростання державних витрат на макроекономічну стабільність у Зімбабве. Державні витрати з часом зростали, але, згідно з апріорними очікуваннями, інші макроекономічні змінні не з'являлися. Насправді, країна пережила тривалу макроекономічну нестабільність. Документ робить внесок у сукупність літератури за двома напрямками: (1) шляхом створення індексу макроекономічної нестабільності та (2) є першим у контексті Зімбабве, хто дослідив цю загадку. Для досягнення головної мети, у дослідженні використовувалася коінтегрована векторна модель корекції помилок (VECM) і причинно-наслідковий зв'язок Грейнджера з даними за період з 1981 по 2019 рік. Дослідження не виявило статистично значущого зв'язку між державними витратами та макроекономічною стабільністю, як стверджували переважно кейнсіанці. Однак, за апріорними очікуваннями, взаємозв'язки виявилися справедливо негативними. Щоб підтвердити результати Cointegrated-VECM, також були проведені тести на причинно-наслідковий зв'язок Грейнджера, де не було виявлено причинно-наслідкового зв'язку між державними витратами і макроекономічною стабільністю, і навпаки (причинно-наслідковий зв'язок від нестабільності до державних витрат). У цьому документі рекомендується, щоб директивні органи Зімбабве розглянули можливість проведення активної державної політики чи витрат, оскільки це допомагає економіці успішно уникати можливих ризиків, таких як макроекономічна нестабільність. Коли політика має скоріше випереджальний, ніж реактивний характер, це допоможе скористатися невикористаними можливостями, і економіка справедливо уникатиме наслідків реактивного управління

**Ключові слова:** витрати та макроекономічна стабільність; державні витрати та торгівля; державний борг; економічне зростання; безробіття; бідність

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# Theoretical and Practical Foundations for the Development of Innovation Activities of Small and Medium-Sized Enterprises

**Abstract.** The article is devoted to the problem of substantiating the theoretical and practical foundations for the development of innovation activities of Ukrainian small and medium-sized enterprises in the face of modern challenges. The study aims to develop conceptual provisions, substantiate the principles and conditions for the development of innovation activity, as well as develop scientific and methodological tools for identifying drivers and triggers for finding new opportunities. The methods of strategic analysis used in the study are: PEST-analysis to identify factors that influence the implementation of innovation activities; perspective analysis to search for and identify new opportunities for the development of innovation activities. The paper clarifies the known principles of the development of innovation activity by introducing the principle of wholeness into scolarly discourse. This principle lies in the consistency of produced innovations with rapidly changing market requirements, the demands of society and the trends in the development of the economic system. The study presents a five-factor model of flexibility of innovative behaviour of small and medium-sized enterprises which includes the following elements: communication flexibility; management flexibility; technology flexibility; economic and operational flexibility. The author justifies the essential concept of "funnel of development of enterprise's innovation activity", develops a scientific and methodological approach to conducting a strategic BOB analysis and carries out its approbation. The results revealed the drivers and triggers for the development of innovative activities of small and medium-sized enterprises which form the points of their growth. The analysis shows the barriers and brakes that constrain and prevent the transformation of new external opportunities into the internal potential of the enterprise's innovation activity. The conducted research shows that generally conditions exist in the macro environment for new impulses of change and activation of innovative development. The results obtained present scientific and practical value for the development of small and medium-sized innovative enterprises. They can be used in further theoretical studies of innovative processes and for specification of applied measures to enhance innovation activity in the modern context of Ukrainian economy

**Keywords:** behaviour; development; drivers; flexibility; innovations; small and medium-sized enterprises; triggers

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## INTRODUCTION

World experience proves that it is small and medium-sized enterprises that create the foundation of the economic system. According to studies, small and medium-sized enterprises in the USA, Ukraine and China are the creators of GDP, creating from 44 to 60% of the value added in the national economy in these countries [1; 2]. In the context of the development of the knowledge economy, innovations are the source of social and economic changes. In countries that are members of the Organization for Economic Cooperation and Development (OECD), every fifth innovation is created by small or medium-sized businesses [1]. This forms the foundation of an innovative economy and an atmosphere of entrepreneurial spirit and creative activity in the national economy. In Ukrainian economy, the innovation activity of small and medium-sized enterprises is gaining momentum, but it needs state support as well as

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a favourable institutional and operational environment. Thus, the task of developing the modern economy turns into the task of developing the innovation activity of the backbone of the economic system, which is small and medium-sized enterprises. To ensure the development of innovation activity of the leading business in Ukraine, one should learn the key theoretical and applied foundations of such development.

The theory of evolutionary dynamics is based on the famous works of J.A. Schumpeter [3; 4] and the research of modern economists who solve the problems and paradoxes of microevolution and macroevolution of economic systems in an innovative way. The problem of innovation is the subject of many studies: from the potential of small and medium-sized enterprises in creating innovations [3], coordinating dynamic interaction at the macro level between innovations, demand and income generation in terms of neoclassical development theory [5; 6] – to the disruptive nature of the impact of innovations on the formation of new markets [7; 8], creating new consumer opportunities [9]; as well as benefits and values from the commercialisation of innovative technologies [10].

Special attention should be paid to the change in behavioural determinants, organizational resilience [11] and development trajectories of innovation under the influence of digital transformation [12-14], which changes the life cycle of products and the model for maintaining the competitiveness of small and medium-sized enterprises [15]. The stimulating effect of the digital transformation of the innovation system of an enterprise leads to reducing costs, increasing benefits, increasing efficiency and stimulating open innovations [12; 16]. The results of numerous studies have emphasized the importance of the impact of COVID-19 on the complexity and unpredictability of innovation management [17], identifying a special role in versatility and organisational flexibility in the formation of open innovations [16]. Another important area of applied aspects of the study of innovation activity development is its features at the micro level which reflect the innovative component of changing business models [18; 19].

The direction of this study was chosen due to the unresolved problems at the theoretical and applied level of determining the factors contributing to the development of innovation activity, models of innovative behaviour, effective tools for enhancing the innovation activity of small and medium-sized enterprises (SMEs).

The aim of the study is to substantiate the theoretical and applied foundations for the development of innovation activities of SMEs, which is achieved through the following objectives: substantiation of the principles, conditions and models for the development of innovatiion activities of SMEs; development and testing of scientific and methodological tools to identify drivers and triggers of innovation.

The article presents new research results, which are as follows. The conceptual framework for the development of innovation activity of SMEs has been clarified, combining specific principles for the development of innovation activity, the institutional basis, environmental conditions, features of the innovative behaviour of SMEs. This allows building a system to promote the development of innovation activity of such enterprises in accordance with drivers and triggers that lead to changes and define new challenges. The scientific and practical approach to identifying drivers and triggers for the development of innovation activities of SMEs has been improved. Unlike others, it is based on the use of the developed strategic BOB-analysis which logically connects the background, opportunities and conditions for a breakthrough with the state and changes of environmental factors, which makes it possible to identify incentives and impulses for innovation among them.

## MATERIALS AND METHODS

Alongside general scientific methods, specific methods were used in the study: PEST-analysis – to determine and specify environmental factors; scoring and scaling – for formalisation and scoring of the influence of certain environmental factors on the prospects for the development of innovation activities of SMEs. A method for designing the future is proposed, based on BOB-analysis, which logically links the background and preconditions, opportunities and breakthrough conditions for innovation activities of SMEs. In order to search for and identify new opportunities for the development of innovation activity, the method of prospect analysis was applied.

## RESULTS AND DISCUSSION

The conducted research is based on the results of the study of fundamental and applied works [4; 9; 18] in the field of development of innovation activity, particularly SMEs regardless of industry specifics. Based on these, the conceptual framework for the development of innovation activities of SMEs has been developed (Fig. 1).

There is an active scientific discussion in scholarly papers [20; 21] about the conceptual foundations in the field of innovation activity of enterprises and its development. Conditions and features of innovative activities of SMEs meet the basic principles for the implementation of such activities (Fig. 1).

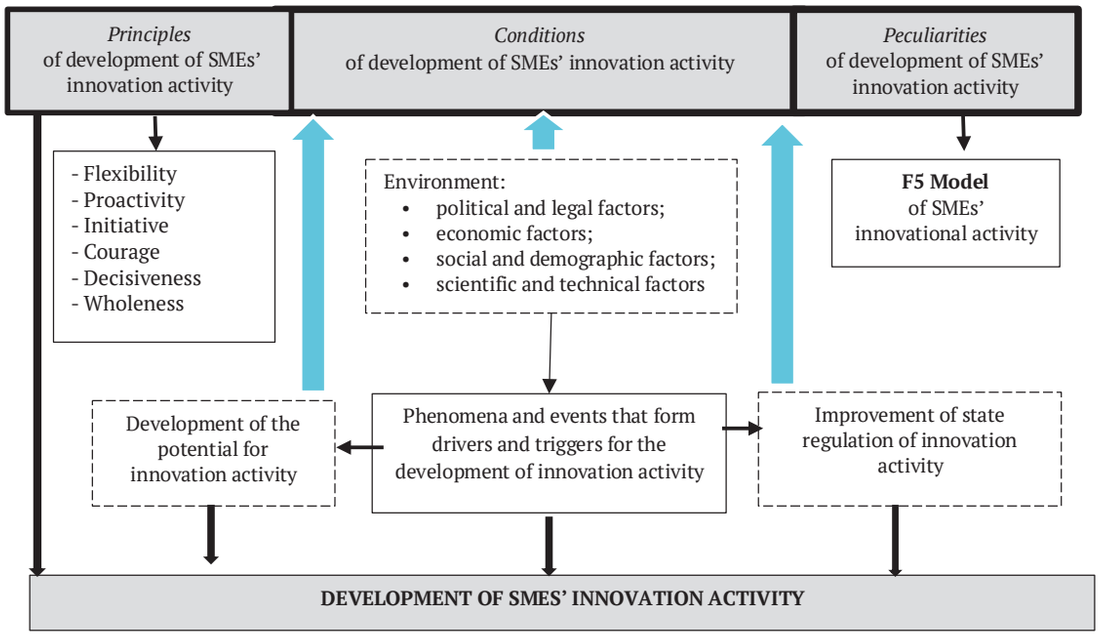


**Figure 1.** Conceptual framework for the development of innovation activities of small and medium-sized enterprises

The key principles in the scholarly literature are: scientific justification and effectiveness; determination; continuity; complexity; consistency; balance; globality; multioptionality; alternativeness; scale; adaptability; economic expediency; variability; consumer orientation; the principle of interaction; optimality; competitiveness etc. Compliance with these principles is a priori to ensure the efficiency and effectiveness of innovation. Their widespread use justifies them as classic and mandatory. However, in the face of modern challenges, it has become necessary to supplement specific principles the observance of which will help ensure the development of innovation activity.

Taking into account the speed and depth of transformational processes, the classical principles of adaptability, justification and continuity must be supplemented with a specific principle of flexibility that comes before others in Figure 1. In accordance with it, medium and small enterprises must instantly respond and implement changes in products, processes and technologies in the conditions of dynamic changes. Sometimes managers and/or business owners may have only a few days to make decisions, which provide a new "window of opportunity" that will enhance competitive advantages and strengthen the position of the enterprise in the market.

In addition, the principle of adaptability somewhat loses its relevance as a principle of innovation. Adaptation means adapting to new conditions, staying in trend. The accumulated practical experience indicates the inertness of changes in the processes and technologies of innovative activity, especially in those enterprises in which high results have been achieved. However, the ongoing changes are so drastic that even highly effective "yesterday" approaches seem outdated nowadays, and their observance in the future generally threatens the enterprise with the loss of the relevance of products and services and consequently their positions. Simple adaptation may temporarily ensure the further functioning of the enterprise. Therefore, a transformation is required, which should take place on the basis of the principle of activity. In accordance with this principle, it is important to foresee, and it is better to be ahead of probable changes, that is, to act in advance. This requires constant monitoring of events, processes and phenomena occurring in the global world, and trying to constantly monitor trends, signals of change and future prospects. While earlier it was enough to stay in trend, now it is necessary to predict the trend, but it is better to get ahead of it.

For the modern development of innovation activity, it is important to constantly act, look for opportunities, initiate changes in products, processes, technologies. Therefore, among the specific principles, it is singledout the principle of initiative, the observance of which, thanks to the constant identification and use of new prospects, the stimulation of innovative ideas will ensure the continuity and cyclicality of innovation activity and hence its development. The principle of initiative will allow overcoming resistance to change, pessimism, expectations of stabilisation, thereby giving an additional impetus to the intensification of innovation and ensuring a constant desire for innovation.

Along with the principle of initiative, one should follow the principle of courage and determination. Traditional or trivial products and services, even slightly improved ones, do not ensure market success. Therefore, in today's conditions of rapid development of technologies and their constant improvement, bold proposals will be in demand: original products and services with unprecedented competitive advantages. Courage is also required for introduction of completely innovative ideas when there is a high level of risk associated with the uncertainty of how consumers will perceive an innovative product. In this context, creativity, critical thinking, the ability of the team to go beyond the usual and traditional, inspiration are important. In some situations, it is advisable to be a daring innovator in order to achieve an unconditional victory over competitors and become leaders. Thanks to the principle of courage and determination, it becomes possible to overcome pessimism and indecision in innovative activity, which will contribute to its development.

In the conditions of modern changes, the success of innovation largely depends on the compliance of the product

or service with the modern needs of consumers, the world technological level; requirements of safety, resource saving and environmental friendliness. Therefore, it is considered the principle of wholeness as a relevant principle for the development of innovative activity, which is aimed at ensuring the consistency of innovation with the requirements and needs of society, the achievements of science and technology, synergy with world development.

Thus, in contrast to the existing views presented in the works by S. Bondarenko [21], M. Teplyuk [13], L. Fedulova [22], A. Chukhrayeva [23], V. Sharko [20], who developed the classical principles of innovation activity, the author highlights the specific principles of its development: flexibility, proactivity, initiative, courage, determination and introduces into scholarly discourse the principle of wholeness. Its essential content lies in the consistency of produced innovations with highly dynamic market requirements, the needs of society, the trends of scientific and technological development, the achievements of a global scale and the potential of the economic system. Compliance with the specific principles of the development of innovation will ensure its transition for SMEs to a new qualitative level, which will make it possible to establish innovation processes in accordance with modern requirements and challenges, to make them more efficient and effective.

Unprecedented crisis challenges have changed the environment for innovation, bringing to the fore such dynamic properties of the organization as agility, flexibility, agility, openness and resilience to unpredictable conditions. The flexibility of the organization turns into a key property to change and generate innovations [24]. The behavioural component of the innovation activity of small and medium-sized enterprises involves the implementation of a five-factor model of flexibility (5F):

- FC (flexibility of communications) involves establishing interaction in the internal environment (owner – employee) and the external environment (enterprise – consumer; enterprise – partners; enterprise – state);
- FM (management flexibility) manifests itself in short chains of decision-making and speed in their execution;
- FT (technological flexibility) is due to the small scale of activities and the ability to quickly respond to market demands, change products and rebuild technology;
- FE (economic flexibility) is explained through the high turnover of equity capital and implies the possibility of attracting additional financing;
- FO (operational flexibility) is the basis for antifragility of the enterprise, the ability to withstand the pressure of the external environment by restructuring business processes.

Thus, in the conditions of dynamic changes, innovation activity should develop and be carried out according to new principles. Development is a dynamic characteristic, and therefore, the development process is influenced by numerous forces, phenomena and events which together form a certain environment consisting of many factors. A special influence on the development of innovative activity is exerted by factors that are not subject to influence by economic entities: these are environmental factors that are grouped in accordance with a certain model of their analysis:

- 4 groups of factors – PEST analysis, which provides for the analysis of political, legal, economic, social, scientific and technical factors;
- 5 groups of factors (STEEP analysis), providing for the analysis of social, scientific, technical, economic, environmental and political and legal factors;
- 6 groups (SWOT analysis), providing for the analysis of political and legal, economic, demographic, scientific and technical factors; natural-climatic, cultural order;
- 8 groups of factors (TEMPLES), which involves the analysis of scientific, technical, economic, market, political, legal, environmental, socio-demographic factors.

In order to avoid micronisation and fragmentation of groups of factors in this study, a PEST analysis model was chosen which allows to determine the key factors influencing the innovative development of SMEs in the relevant groups. For the further development of innovation activity, it is important for managers and/or owners of SMEs to know the consequences of processes and phenomena that occur with high dynamism in all spheres of life. At the same time, it is necessary to understand which factors slow down or accelerate innovation processes, which of them are natural or random, which are long-term or short-term, which provide opportunities and create certain threats.

The constant development of innovation activities of SMEs on an innovative basis is an imperative for their successful and long-term functioning in the market, which requires the development of scientific and methodological tools for searching and identifying new opportunities. To solve this problem, it is advisable to conduct a perspective-oriented analysis of environmental factors, the logic of which is shown in Figure 2. The proposed "enterprise innovation development funnel" is a mechanism for tracking the global impact on processes and phenomena in the external environment that predetermine specific macroeconomic conditions for the implementation of innovation activities of SMEs and serves as a theoretical basis for the development of analytical tools for searching for innovation opportunities.

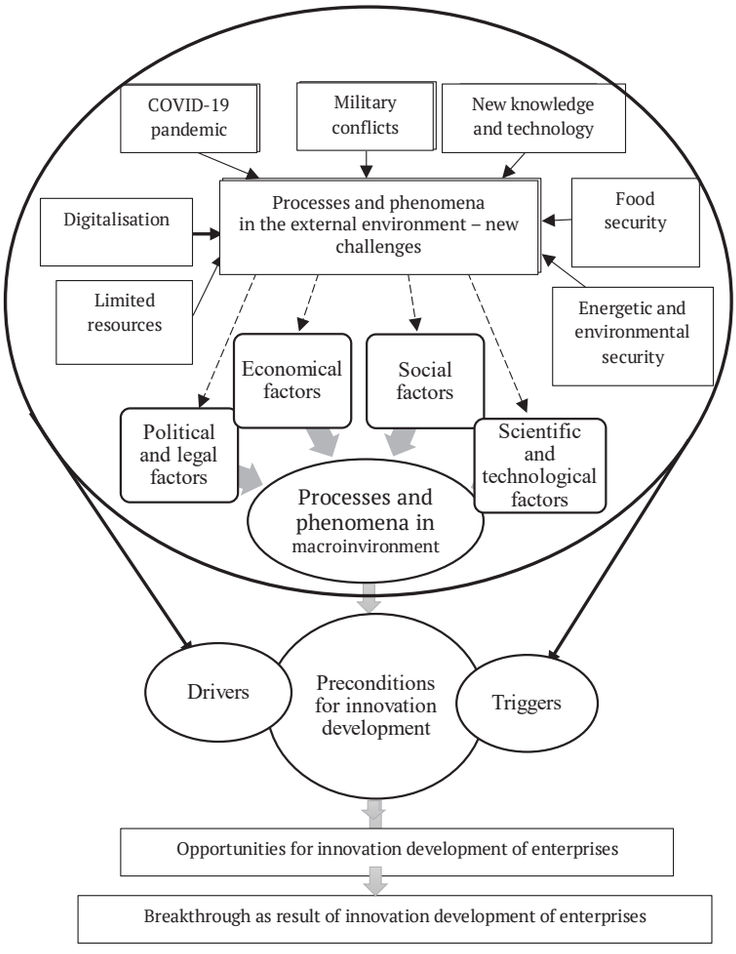


**Figure 2.** Funnel for the development of innovative activities of enterprises in the face of modern challenges

In each group of factors, there are events and phenomena that are diverse in strength (weak, moderate, strong), direction of influence (positive or negative), time of action (short-term, medium-term, long-term), which as a result of the impact can accelerate or slow down innovative processes, put pressure on them and provide a new vector of development. In this context, it is necessary to identify incentives – such a state of the factor which is characterised by circumstances that lead to favourable conditions or their improvement and encourage the intensification of innovative activity. In addition, force majeure factors, unpredictable phenomena and processes such as the COVID-19 pandemic, the military invasion of Ukraine have recently become a challenge for all business entities and as a result new circumstances have arisen that business structures have not yet encountered. Under the influence of these factors, significant changes took place that created new challenges and acted as a catalyst for certain processes. The most influential and effective factors that accelerate and give impetus to those considered as triggers of innovation, thanks to which innovation processes acquire accelerated and progressive development. Because of the symbiosis of drivers and triggers, new opportunities and/or obstacles to innovation appear. The development of innovation activity using new opportunities can provide a breakthrough, the so-called upgrade, because of which enterprises will receive new prospects for further functioning. In case of ignoring new opportunities and not taking into account obstacles, the enterprise threatens to find itself at a low and/or insufficient level of compliance with new challenges.

From the one logic (Fig. 2), it becomes possible to implement the scientific task of developing methodological tools for identifying modern drivers and triggers that form the conditions for determining the priorities for the development of small and medium-sized enterprises. To implement BOB-analysis, a system has been developed for evaluating events, processes, phenomena that characterize the state and influence of environmental factors according to the interaction scheme: Prerequisite (background or precondition) ↔ Opportunity ↔ Breakthrough ↔ future design. The assessment system is based on a formalized scale, which will allow, on a 5-point scale, to determine the influence of the state and the influence of changes in a certain factor (group of factors) (Table 1).

**Table 1.** Formalisation of the scoring of the state and changes in environmental factors

| Evaluated characteristic | Points | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Influence of factor state | Barrier | Obstacle | Hurdle | Stimulus | Impulse |
| Influence of factor change | Brake | Retarder | Restrainer | Accelerator | Momentum |

According to the proposed logic of BOB analysis (Fig. 3), the average score of the influence of the states of factors and changes in factors is determined using the arithmetic mean, which will determine the general conditions for the development of innovative activities of SMEs.

Taking into account the specifics of innovation activity which requires proper regulatory support, in the context of political and legal factors, special importance is attached to the State regulation of innovation activity. The modern normative support of innovation activity is quite actively criticised in the scientific community, in the works [21; 22; 25] they note disorder, inconsistency and too many legal acts regulating the innovation sphere; their non-compliance with modern requirements; the complementary nature of a significant number of regulations; ambiguity of interpretation; frequent changes in legislation. As a result of this situation, the pace of innovation development in Ukraine has slowed down in recent years. To stimulate and create favourable conditions for the development of innovation in general, and small and medium-sized enterprises in particular, it is necessary to systematically improve the regulatory framework, its unification and harmonization in accordance with modern challenges and European legislation [26].

The political climate in Ukraine is characterised by a difficult situation. Political instability, ongoing tensions, aggravation of the military conflict significantly increase entrepreneurial risk and worsen the conditions for the development of innovative activities of SMEs. Corruption and bureaucracy, the shadow economy, the fight against which has not yet yielded the expected results, have a particularly negative effect on the innovation process. It is considered the current tax system, which is characterised by a weak stimulating effect on the development of innovative activities of SMEs, to be another constraining factor. The slowness of its improvement is noted, as a result of which the taxation system as a tool for stimulating innovation activity remains ineffective and requires special attention. The fastest way is to eliminate the disproportionate and unfair tax burden for innovatively active SMEs, introduce tax incentives, and generally ease tax pressure in order to increase the stimulating effect on the development of innovation activities.

During 30 years in Ukraine, it has not been possible to form a powerful institutional basis for stimulating the innovation activity of SMEs. It is especially the weak development of intellectual value institutions, a contradictory institutional environment has developed, there is an imbalance of interests of various innovative active enterprises, and the interaction between business and the state remains insufficient and episodic. As in the case of improving the tax system, there is a slow pace of development of innovation institutions, the improvement of the institutional basis for promoting the intensification of innovation activities of SMEs is partial and periodic, which together hinders innovation processes.

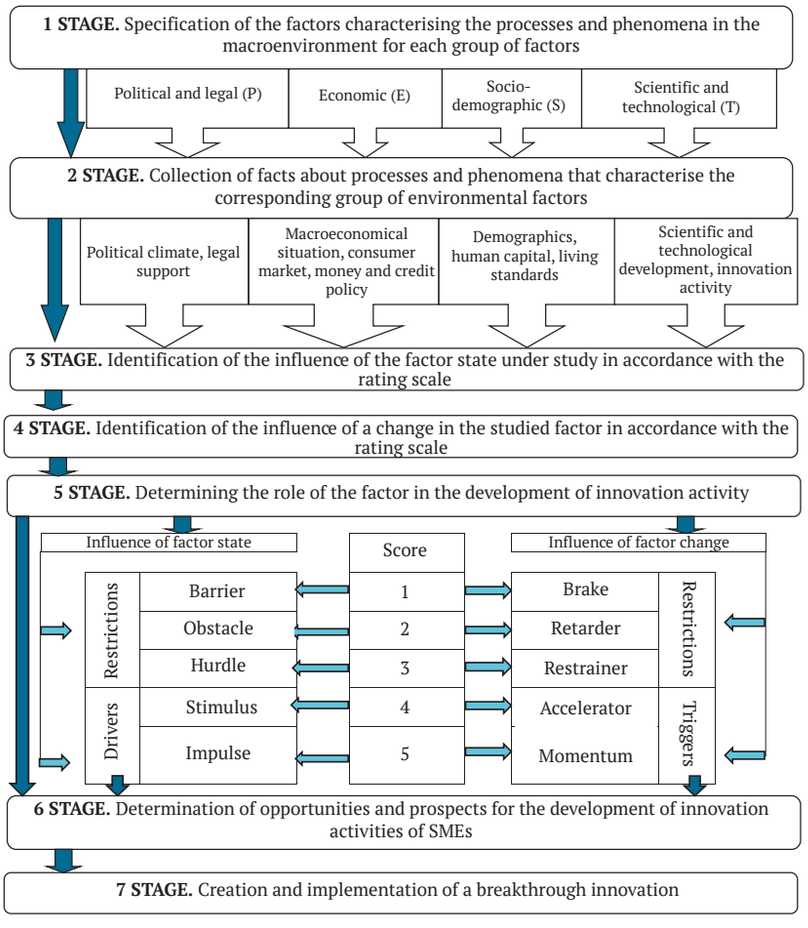


**Figure 3.** Logic of BOB analysis of SMEs' innovation technology

Among the identified political and legal factors, the best situation for promoting the development of innovation activity is observed in the context of international cooperation in the innovation sphere. In Ukraine, international relations in scientific, technical and educational areas are being strengthened and stabilised with leading scientific organizations from different countries. The processes of integration of Ukraine into the international economic and innovation space are constantly taking place, which creates certain opportunities for the development of innovation activity.

Among the economic factors, there is a negative impact of the macroeconomic situation due to a long phase of low rates of economic development, instability of the financial and economic situation. In this context, there is a growing role of small and medium-sized businesses in the economy of Ukraine. Flexibility, high adaptability and speed of response to ongoing expected and unpredictable phenomena and processes provide opportunities for the speedy recovery of SMEs, which in this case create impulses for the recovery of the economy as a whole and form its basis.

On the one hand, the development of the consumer market in Ukraine is assessed very low by international organizations and is considered to be holding back the development of innovative activity. Characteristic for Ukraine is a low level of income of the population, which limits effective demand, an imbalance in the structure of consumption, an orientation towards the price/value ratio, a certain conservatism in the perception of innovations. On the other hand, in the face of modern challenges, there is an increase in consumer demands, their desires and requirements for products and services. Under the influence of the development of digital technologies and changing cultural values, there is a significant change in consumer behaviour patterns, constant updating of customer experience, stimulating SMEs to constantly improve products, technologies, services and processes to ensure competitiveness and opportunities for further functioning in the market.

Mechanisms of monetary policy do not work in Ukraine either, resulting in a feature of innovation processes in small businesses self-financing. The high interest rate on loans and the low availability of financial resources significantly limit the opportunities for the development of innovative activities of SMEs. The situation remains critical, due to the slow and insufficient improvement in the financial support of SMEs for the development of their innovative activities. At the same time, there is an insufficient volume, limited and unavailability of investment resources for SMEs. The processes that cause the deterioration of the investment climate in Ukraine lead to a decrease in the volume of investments in general, therefore, in this direction, investments as a source of financing for innovative activities of SMEs remain inaccessible.

The demographic situation in Ukraine remains difficult – low birth rate, increased mortality, migration processes, aging of the population worsen the quantitative indicators of the capacity of the domestic consumer market, and reduce the possibility of forming human capital. In addition, migration processes are characterized by the flow of intellectual capital from Ukraine, which is fraught with a decrease in innovation potential and in the future in such a situation creates significant threats that will lead to a further slowdown in innovation processes.

The level, quality, accessibility of education in Ukraine contributed to the formation of powerful human and intellectual capital. However, the lack of support for innovators and scientists led to the poor use of potential, knowledge, skills, and achievements for the development of innovative activities of SMEs. To promote the development of innovative activities of SMEs, it is important to direct the efforts of the state to the formation of an innovative culture and entrepreneurial skills, and material incentives.

One of the problems in Ukraine is the growth of unemployment, so more and more people are forced to look for opportunities to start their own business, that is, to switch to self-employment. The development of a new type of self-employment is facilitated by digital technologies that significantly expand commercial and communication opportunities, which together lead to an increase in employment in the field of SMEs. When entrepreneurs develop innovative competencies, these trends create opportunities for the development of innovative activities. In the context of demographic factors, the stubbornly low level and quality of life of the population remains an obstacle to the innovation activity of SMEs, the slow pace of improvement of which hinders its development.

The formation of the knowledge economy contributes to the increased requirements for innovation. Accelerating the pace of production and the emergence of new knowledge accelerates innovation processes, reduces the duration of the innovation cycle. Therefore, entrepreneurs need to respond more actively to the ongoing changes. However, in Ukraine there is a lag behind the world level of scientific and technological development in most industries, there is a repetition of obsolete technologies, which entails a weak position of Ukraine in international rankings in terms of the level of development of innovative activity. At the same time, the birth of Industry 4.0 creates new opportunities that need to be seen and exploited.

Most of these opportunities are associated with the development and spread of digital technologies. In Ukraine, digitalisation processes are quite active. Digital tools and technologies create the opportunity to improve business processes, interaction and communication. Along with this, there is an increase in the level of intellectualization and informatisation of labor. It was digital technologies that contributed to the improvement of institutional support for the development of small businesses using the "Diia" platform, which encourages entrepreneurs to intensify innovation. In general, the high pace of the digital revolution provides new opportunities for improving business models, business processes, communications and interactions, automating processes, improving products and services, shaping new business practices, thereby providing new impetus to the search and generation of innovative ideas.

An unresolved problem is the insufficient level of development of the innovation infrastructure, the unsystematic and inconsistent measures and actions for its formation, and obstacles are created for the development of innovation activities of SMEs. Technology transfer also remains an object of increased attention, since commercialisation processes are mediocrely debugged, including due to the lack of proper interaction between education, science and business. The slow development of innovation infrastructure, the lack of necessary facilities for establishing innovation processes, the problems of intellectual power and

the commercialization of innovations hinder the development of innovative activities of SMEs.

Slow innovation processes in Ukraine, due to the limited positive impact of the implementation of the chosen strategic course and state innovation policy, the imperfection of the national innovation system, the underdevelopment of high-tech production. Slowness in improving the conditions for the creation and functioning of innovatively active enterprises, developing an ecosystem of innovations, attracting domestic and foreign investors, and developing mechanisms for direct and indirect incentives hinder the development of innovative activities of SMEs.

According to the results of the author's analysis, a mediocre level of assistance to the development of innovative activity of SMEs has developed in Ukraine, which is characterized by the predominance of obstacles, the identification and elimination of which will improve the situation, provide opportunities for transforming existing incentives and impulses into innovative potential.

Isolation of drivers and triggers will allow SMEs to act proactively – ahead of the curve; substantiate the strategy and priorities for the development of innovative activities; determine and, if necessary, form/strengthen internal reserves to enhance innovation. On the other hand, knowledge of barriers and inhibitors will help optimize the resource potential of SMEs, find ways to solve existing problems and those that arise in the near future.

## CONCLUSION

Based on the results of the study, the conceptual framework for the development of innovative activities of SMEs based on an interdisciplinary approach was determined, which made it possible to clarify the principles for the development of innovation activities, substantiate the model of innovative behaviour and determine the conditions for the development of innovative activities of small and medium-sized enterprises in order to identify motivating drivers and triggers, accelerating these processes In the conditions of unpredictability and variability of the external environment, a model of innovative behaviour of SMEs is substantiated, which includes five elements: communication flexibility (FC); management flexibility (FM); technological elasticity (FT); economic elasticity (FE); operational elasticity (FO). The rapid progression of change requires a new approach to the development of innovation, based on a model of flexibility and the principles of activity, initiative, courage, determination and wholeness.

Based on the fact that new challenges are caused by global factors affecting the macro environment, a funnel for the development of innovative activities of SMEs has been formed, in the context of which it is shown that it is necessary to analyse processes and phenomena at the macro level in order to identify drivers and triggers for finding new opportunities for innovative development of enterprises. In accordance with the opportunities found for SMEs, prerequisites are created, certain changes in processes, technologies, and products. To identify drivers and triggers for the development of innovative activities of SMEs, a scientific and methodological approach to BOB analysis has been developed, including a formalized scoring system for the state and changes in environmental factors, as well as a structured logic for its implementation. The conducted studies made it possible to establish that, in general, in the macro environment, there are appropriate conditions for new impulses of change and activation of the innovative development of SMEs, but whether they will turn into opportunities depends on the internal potential of the business.

The results obtained provide a theoretical basis for further scientific research on the innovation activity of small and medium-sized enterprises in the face of new challenges in the development of the Ukrainian economy.

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## Теоретико-прикладні засади розвитку інноваційної діяльності малих та середніх підприємств

**Анотація.** Стаття присвячена проблемі обґрунтування теоретико-прикладних засад розвитку інноваційної діяльності українських малих та середніх підприємств в умовах сучасних викликів. Мета дослідження полягає у розвитку концептуальних положень, обґрунтування принципів, умов розвитку інноваційної діяльності, розроблення науково-методичного інструментарію виявлення драйверів і тригерів для пошуку нових можливостей. Використано методи стратегічного аналізу: PEST-аналіз для виявлення чинників, що впливають на здійснення інноваційної діяльності; перспективно-орієнтований аналіз для пошуку і виявлення нових можливостей розвитку інноваційної діяльності. У роботі уточнено відомі принципи розвитку інноваційної діяльності шляхом введення в науковий обіг принципу органічності. Зміст даного принципу полягає в узгодженості продукованих інновацій з швидко змінними вимогами ринку, запитами суспільства, трендами розвитку економічної системи. Визначено п'ятифакторну модель гнучкості інноваційної поведінки малих та середніх підприємств, що включає такі елементи: гнучкість комунікацій; гнучкість управління; гнучкість технологій; економічну та операційну гнучкість. Обґрунтовано сутнісне поняття «воронка розвитку інноваційної діяльності підприємств»; розроблено науково-методичний підхід проведення стратегічного ВОВ-аналізу та здійснено його апробацію. За її результатами виявлено драйвери та тригери розвитку інноваційної діяльності малих та середніх підприємств, які утворюють точки її росту. Встановлено бар'єри та гальмувачі, які стримують і перешкоджають перетворення нових зовнішніх можливостей у внутрішній потенціал інноваційної діяльності підприємства. Проведені дослідження дозволили встановити, що в цілому склалися умови в макросередовищі для нових імпульсів змін і активізації інноваційного розвитку. Одержані результати становлять науково-практичну цінність для розвитку малих та середніх інноваційних підприємств та можуть бути використані у подальших теоретичних дослідженнях інноваційних процесів та для конкретизації прикладних заходів активізації інноваційної діяльності в умовах сучасних реалій економіки України

**Ключові слова:** інновації; розвиток; малий та середній бізнес; поведінка; драйвери; тригери; гнучкість

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# Fiscal Issues of Entities' Non-Financial Reporting

**Abstract.** The article identifies the ways to increase the informational value of non-financial reporting data, in particular, in terms of its fiscal aspects. The author substantiated the unresolved issues of data display regarding the impact of uncertainty on the activities of business entities based on the results of the analysis of scientific publications and generally recognized international documents. It has been proven that high-quality non-financial reporting can serve as one of the tools for enterprises to attract additional financing aimed at eliminating the consequences of the impact of the COVID-19 pandemic. The article highlights the results of the analysis of non-financial reporting of state-owned enterprises to identify data on the impact of the COVID-19 pandemic on their activities and for compliance with the list of indicators of reporting on sustainable development, defined in the document "Guidelines on key indicators of reporting of enterprises on the contribution to the achievement of the Sustainable Development Goals Development", developed by UNCTAD ISAR. The paper substantiates that one of the information sources for decision-making at the state level in terms of minimizing fiscal risks can be data obtained from non-financial reports of enterprises (management reports, reports on payments to the state). The main research methods used in the paper are bibliometric analysis; synthesis; observation

**Keywords:** non-financial reporting of companies; fiscal risks; COVID-19; sustainable development; transparency

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## INTRODUCTION

According to estimates by the International Monetary Fund (IMF) [1], the global recovery continued in 2021. Still, due to the pandemic, its pace has slowed due to the impact of a complex epidemiological situation against the background of a high level of uncertainty.

It is known that the July forecast of the expected growth of the world economy in 2021 of six percent was reduced by 0.1% in October. However, by 2022, its value remained at the previous level – about five percent (4.9%). Regarding the group of developing countries with low income, high risks of further complications of the situation at the level of national economies are predicted. As before, with a high degree of probability, surges in prices for raw materials are possible. The deterioration of the forecast is also associated with near-term more pessimistic assessments for the group of countries with advanced economies. In most countries, the dynamics of the recovery of labor markets significantly lags behind the pace of reproduction in connection with the preservation of chronic disproportions in the chains of growth of added value [1].

Due to the limited access to vaccines and the low level of institutional support for reform policies, IMF experts are increasingly concerned about the divergence of economic prospects in different states. In their opinion, they are more dangerous than the post-crisis spreads at the end of the first and the beginning of the second decade of the current century. The aggregate volume of output of goods and services in countries with developed economies is expected to return to the level of the trend observed before the pandemic in 2022 and exceed it by 0.9% in 2024. In turn, it is pretty likely that in 2024 the aggregate production volume in the group of countries with a forming market and developing countries, excluding China, will remain at the level of 5.5% below the forecast indicators before the pandemic. As a result, the pace of improvement in the living standards of citizens in these states will lag even further behind the leader countries.

Thus, the current state of the world economy in the context of countering the COVID-19 pandemic indicates the need to adapt fiscal risk management tools as factors that may cause fiscal results to deviate from expectations or forecasts (clause 186 of Chapter 4 of the document "Fiscal Transparency Handbook" issued by the International Monetary Fund) [2].

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## LITERATURE REVIEW

Methodological principles and organizational-methodical approaches to preparing non-financial reporting and increasing its quality and informativeness are gaining more and more interest from the scientific and professional community. Ukrainian and foreign scholars' research is devoted to improving the quality of non-financial reporting data and their multi-functionality. Thus, domestic scientists are actively studying the issue of creating a methodological toolkit for information disclosure regarding the pandemic's impact on enterprises' activities [3]; evaluations of non-financial reporting practices of companies [4; 5].

The analysis of the latest publications of foreign researchers, presented in authoritative international publications, showed that their main focus is the need to find tools for assessing the quality of the company's non-financial reporting [6] and developing relevant indicators [7].

The international professional community also does not remain aloof from solving the issues of increasing informativeness and ensuring the quality of non-financial reporting of enterprises. Thus, under current conditions, separate forms with varying degrees of regulation are used: management reports, reports on payments to the state, reports on sustainable development, and others.

An important initiative in ensuring transparency of disclosure of data by enterprises of the extractive industries in non-financial and financial reporting is the Extractive Industries Transparency Initiative (EITI) [8]. The purpose of the mentioned international professional formation is to ensure the application of the global standard (EITI Standard) to increase the openness and transparency of the management of the use of natural resources as "an important driving force of sustainable economic growth" (principle 1 of the EITI) [9].

The role of reporting on the integrity of the use of national natural resources by enterprises engaged in the extractive industry has also been noted by other international organizations. In particular, in 2019, world governments and business representatives launched the "Publish what you pay" movement, the fundamental thesis of the Agenda for 2020-2025 is that revenues from mining minerals should aim at improving people's lives and well-being [9].

Another area of activity of international organizations in the field of non-financial reporting of enterprises is the creation of a methodological basis and organizational and methodological support for the disclosure of information about the contribution to the achievement of the Sustainable Development Goals, defined by the UN Agenda in the field of sustainable development until 2030 [10]. A vivid illustration of activity in this direction is the document "Guidance on core indicators for entity reporting on contribution towards implementation of the sustainable development goals" [11], prepared by the experts of International Standards of Accounting and Reporting of International Accounting and Reporting Standards of the United Nations Conference on Trade and Development (hereinafter – the Guidelines). The purpose of this document is to provide a list of enterprise reporting indicators (by economic, environmental, social, and institutional spheres) and practical information on their calculation and measurement (clause 9 of the document) [11].

Noting the existing significant achievements in the direction of creating and strengthening the transparency of a new information basis for decision-making at the micro- and macro-level, we note that the issues of displaying data regarding the impact of uncertainty (in modern conditions – the COVID-19 pandemic) on the activities of economic entities and the level of their accountability.

The above determines the purpose of the study – to identify directions for strengthening the informational value of the data of non-financial reporting of enterprises regarding their activities in conditions of uncertainty, in particular, in terms of fiscal aspects of transparency and accountability when disclosing data on mandatory payments to the state budget.

## MATERIALS AND METHODS

The main research methods used in the paper were: bibliometric analysis (for the analysis of international documents and scientific publications); synthesis (for the formation of proposals for strengthening the informativeness of non-financial reporting of enterprises); observation (to assess the practice of non-financial reporting of enterprises).

## RESULTS

An essential role in the construction of the fiscal risk management system at the country level is played by such aspects as the structure of the country's economy, the peculiarities of the organization of the public sector of the economy, and the existence and nature of the relationships between the public and private sectors [1]. In the latter's development, we note that the COVID-19 pandemic has made significant adjustments to the activities of economic entities of all sizes and sectors. World experience shows that by realizing the critical role of the private sector in the formation of the revenue component of the country's budget, the state can direct additional funding to support the activities of enterprises (for example, the UK initiative for small and medium-sized enterprises "COVID-19 Business Interruption Loan Scheme (CBILS)") [12]. In Ukraine, a similar practice of business support under the conditions of anti-epidemic measures has been implemented in the fiscal sphere. In particular, it has been achieved through the adoption of the Law of Ukraine "On Amendments to the Tax Code of Ukraine and Other Laws of Ukraine on Social Support of Taxpayers for the Period of Restrictive Anti-Epidemic Measures Introduced to Prevent the Spread of Acute Respiratory Disease COVID-19 Caused by SARS-CoV-2 Coronavirus in Ukraine" dated 04.12.2020 No. 1072-IX [13].

On the other hand, enterprise reporting is an information source for fiscal risk management. This is noted in the IMF document "Fiscal Transparency Handbook" (item 188), in particular: "the government's ability to respond to fiscal risks depends in part on the quality of information about the extent and probability of potential shocks to public finances" [1].

In this context, the role of non-financial reporting of enterprises is significant. First, enterprise reporting data provide an opportunity to assess the transparency and efficiency of the use of national natural resources through analyzing and grouping data contained in reports on payments to the state. Under the requirements of the Law of Ukraine dated 16.07.1999 No. 996-XIV "On Accounting and Financial Reporting in Ukraine" the obligation to prepare

the above-mentioned form of non-financial reporting is assigned to business entities operating in the extractive industries and enterprises that carry out wood harvesting and at the same time are of public interest [14]. Thus, reporting on payments to the state serves as an information source for assessing: fiscal risks associated with the activities of a particular group of enterprises and the use of resources; the state of implementation of the Extractive Industries Transparency Initiative (EITI) in Ukraine. The accession of Ukraine to the EITI in 2013 provides for the annual publication of reports that contain information on the number of enterprises employed in the extractive industry, the amount of taxes paid by them, and state payments.

Secondly, the information contained in other forms of non-financial reporting of enterprises (in particular, management reports) can serve as a source of monitoring the impact of the pandemic crisis on the activities of business entities, especially the economic side. Here we should emphasize the decisive role of qualitative (reliable, relevant) information, which provides an opportunity to form an idea of the main results of the functioning of economic entities in various spheres in the periods before, during, and after the crisis: economic, social, ecological, institutional. At the same time, we note that the above-reported data can also serve as a source of monitoring the achievement of the Sustainable Development Goals during the formation of the Voluntary National Review of the Central Development Goals in Ukraine for the implementation of the 2030 Agenda for sustainable development [10].

Following the requirements of Directive 2013/34/EC on annual financial statements, consolidated financial statements and related reports of certain types of companies, amending Directive 2006/43/EC of the European Parliament and the Council and repealing Council Directive 78/660/ EEC and 83/349/EEC, the provision of which has been implemented into the regulatory legal field of Ukraine, non-financial reporting of enterprises, among other information, must contain data on the state of risk management and their impact on activity. Risks can be of different natures: fiscal risks, operational risks of enterprises, etc. For this, the information must have both short-term and long-term value. For the quantitative and qualitative assessment of relevant indicators and the preparation of non-financial reporting in Ukraine, three by-laws were adopted by government decisions and orders of the Ministry of Finance in 2018-2020 [15-17].

The enterprise must disclose essential and transparent information about the main risks, regardless of what factors caused them (internal or external). At the same time, explain the methods and methods used to assess such risks and determine their level. It is also necessary to indicate any significant changes in the definition of risks and methods of their management in the reporting year.

A similar approach is laid down in the document mentioned above, "Guidance on core indicators for entity reporting on contribution towards implementation of the sustainable development goals" issued by the Intergovernmental Working Group of Experts on International Accounting and Reporting Standards of the United Nations Conference on Trade and Development (UNCTAD ISAR) (from now on – the Guidelines) [11]. Each sphere (economic, environmental, social, and institutional) contains groups of indicators proposed for disclosure, the total number of which is 33. The document provides definitions, references to international sources (international financial reporting standards, statistical sources, specific guidelines, Global Reporting Initiative), and calculation methodology.

UNCTAD ISAR, having conducted a series of consultations with the participation of a wide range of interested parties, concluded that certain economic, environmental, and social aspects are of particular importance [18].

Therefore, the critical international documents that provide recommendations for preparing a non-financial report highlight mainly a comprehensive list of key indicators to ensure enterprises' initiative in choosing those that will be disclosed in the report or examples of what key indicators can be disclosed by enterprises. The addition of several indicators summarized in the Guidelines is a current direction of UNCTAD ISAR's work, which speakers noted during the 38th UNCTAD ISAR Session [19].

Similar work on supplementing non-financial reporting with indicators characterizing the impact of uncertainty on the activities of companies is carried out by Ukrainian scientists [20]. The authors have defined the basic concept of selecting indicators supplementing the Guide and the approach for disclosing key indicators. The indicators reflect the significant economic, environmental and social impact of the reporting enterprise and essential information that reveals the impact of the pandemic caused by the coronavirus disease.

In order to establish the fact that there is no data in the non-financial reporting of enterprises regarding the impact of the coronavirus disease on the activities of enterprises, a study of the reporting of the TOP-100 state-owned companies in Ukraine [21] was conducted, the key results of which were presented at the UNCTAD ISAR reporting seminar "The impact of COVID-19 on the financial and non-financial reporting of the company" in November 2021 [20].

The results of the conducted analysis constitute the institutional basis for forming proposals to strengthen the content of non-financial reports of enterprises in terms of reflecting the impact of the uncertainty caused by COVID-19 on their activities.

The choice of respondents for the study was stipulated by the fact that, in addition to a significant share in the economy (8.3%) [22, p. 16], state-owned enterprises are most represented in industries that cause significant risks of fiscal nature, which lead to loss of revenues to the country's budget. At the same time, in 2019, the total amount of taxes, fees, and other payments paid to the state budget amounted to UAH 107.4 billion, which is 13% of the total amount of payments paid to the budget of Ukraine for the corresponding year [22, p. 16-17]. In addition, one of the groups of fiscal risks is fiscal risks associated with the activities of economic entities of the state sector of the country's economy [22].

In order to analyze the disclosure of the impact of the pandemic on the activities of enterprises, the non-financial reports of state-owned enterprises of Ukraine were examined. It included the compliance of the content of such reports with the minimum requirements for sustainable development reporting, which can be taken into account when determining indicator 12.6.1 "The number of companies that publish reports on rational use of resources" Sustainable development goals 12 "Responsible consumption and production".

The compliance assessment of the data disclosed in the non-financial reports of the investigated enterprises was carried out following the Guidelines mentioned above. In the economic sphere, eight indicators were evaluated, the main of which are reflected in the annual financial and statistical reports of enterprises, in particular, income (revenue), added value, the total amount of taxes paid, payments to the state, and others. The Guidelines provide for the assessment of 11 environmental indicators. The most acceptable for the surveyed enterprises were those that characterize: efficiency of energy and water use, volume and structure of waste, emissions of greenhouse gases, etc. In the social sphere of Management, seven indicators are defined. It assesses gender and social equality, spending on human capital development, and maintaining staff health and safe working conditions. Concerning the institutional component, out of the seven indicators of the Guide, the most significant amount of disclosure was noted regarding the level of combating corruption and bribery and the quality of corporate governance.

The results of the assessment of compliance of the data disclosed in the non-financial reports of the investigated enterprises with the minimum requirements for reporting on sustainable development, which can be taken into account when determining indicator 12.6.1, showed the following:

- 46% of non-financial reports meet the minimum requirements for disclosure of economic issues;
- 39% of non-financial reports meet the minimum requirements for disclosure of environmental issues;
- 40% of non-financial reports meet the minimum requirements for disclosure of social issues;
- 21% of non-financial reports meet the minimum requirements for disclosure of issues of an institutional nature (Fig. 1).

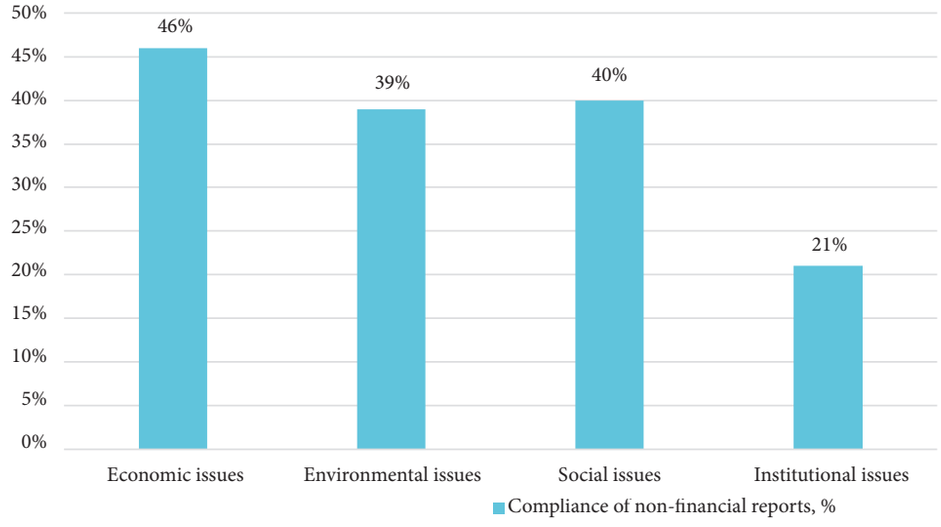


**Figure 1.** Results of the assessment of compliance of non-financial reports of the TOP-100 state-owned enterprises of Ukraine with the minimum requirements for disclosure of information about the contribution to the achievement of the Sustainable Development Goals

**Source:** [5]

The obtained results of the study of the practice of non-financial reporting serve as another argument in favour of the development and introduction into the reporting practice of enterprises of a list of additional indicators for inclusion in the management report in terms of disclosing information about the impact of COVID-19 on the activities of business entities and their contribution to countering the spread diseases (Table 1) [4; 5].

**Table 1.** Recommendations for disclosing information about the impact of COVID-19 on the activities of enterprises in the management report

| Directions of information formation in the management report | Suggestions for inclusion of additional indicators |
|---|---|
| Liquidity and liabilities | 1. The indicator "Expenditure on investment projects, the implementation of which is suspended due to COVID-19".<br>2. The indicator "Volume of credit resources attracted by the enterprise during the COVID-19 pandemic".<br>3. The indicator "Forecast change in cash flows during the COVID-19 pandemic. Directions of information formation in the management report". |
| Research and innovation | 1. The indicator "Amount of expenses aimed at measures to overcome the COVID-19 pandemic at the level of local communities".<br>2. The indicator "Amount of expenses incurred in support of research and development in combating the spread of COVID-19".<br>3. The indicator "Amount of costs incurred to ensure digitization of business processes at the enterprise in combating the spread of COVID-19". |

Table 1, Continued

| Directions of information formation in the management report | Suggestions for inclusion of additional indicators |
|---|---|
| Social aspects and personnel policy | 1. The indicator "Frequency of cases of employees falling ill with COVID-19".<br>2. The indicator "Amount of expenses for the payment of sick leave incurred during the COVID-19 pandemic".<br>3. The indicator "Amount of costs incurred to create safe working conditions in the context of combating COVID-19".<br>4. The indicator "Amount of expenses related to the payment of fines for improper working conditions in combating COVID-19".<br>5. The indicator "Amount of expenses incurred for additional employee health insurance (life insurance)".<br>6. The indicator "Duration of employee training on countermeasures against COVID-19".<br>7. The indicator "Duration of a remote form of work of employees in the conditions of COVID-19, hours/week".<br>8. The indicator "Level of introducing a remote form of work, %".<br>9. The indicator "Staff reduction ratio, %". |

**Source:** [3; 5]

The expected results from the introduction of the proposed list of key indicators that characterize the impact of the coronavirus disease pandemic on the activities of enterprises:

- increasing the comparability and transparency of enterprise reporting (for different periods, between enterprises within the same industry);
- implementation through the inclusion in reporting of sustainability indicators for monitoring the achievement of the Sustainable Development Goals at the national and global levels;
- disclosure of information regarding the impact of COVID-19 on the activities of enterprises.

It is also worth noting that the introduction of proposals for improving the regulatory support for the preparation of non-financial reporting, in particular, the management report, according to the presented approach, does not cause complications in the enterprise's activity and management. The sources of the proposed financial and non-financial indicators can be accounting data, financial, statistical [23], tax reporting, and other documents. We note that the justification for the choice of areas for additional disclosure of information in non-financial reporting was also based on the "cost-benefit" ratio principle and did not involve the imposition of additional burdens or obligations on the preparers of the statements.

## DISCUSSION

The research was based on existing global approaches to the preparation of non-financial reporting of economic entities and ensuring its quality: the IMF document "Fiscal Transparency Handbook", the UK initiative for small and medium-sized enterprises "COVID-19 Business Interruption Loan Scheme (CBILS)", the Extractive Industries Transparency Initiative (EITI), the initiative "Publish what you pay", the documents of the Intergovernmental Working Group of Experts on International Accounting and Reporting Standards of the UN Conference on Trade and Development in the field of improving non-financial reporting of enterprises and others.

The fundamental goal of the global movement "Publish what you pay" is to ensure transparency and accountability of enterprises engaged in extractive activities. The thesis confirms this stated in the Agenda for 2020-2025 of the mentioned Initiative, that the main efforts should be directed to "identification and work on new and necessary types of transparency, for example, for the governments of countries in order to inform communities about social, environmental and the fiscal impact of new projects in the field of mineral extraction" [9, p. 12]. In order to develop this opinion, the research proposed and proved a hypothesis regarding the relationship between the effectiveness of fiscal risk management at the state level and the quality and transparency of non-financial reporting of business entities (reports on payments to the state, management reports).

## CONCLUSIONS

As evidenced by the results of the discussion of the international expert community in the field of accounting at the 38th Session of UNCTAD ISAR, the primary tool for improving the state of information disclosure in non-financial reporting can be the improvement of regulatory and organizational support. Therefore, it is essential to include in the agenda of state measures against COVID-19 the issue of improving the non-financial reporting of enterprises in terms of disclosing the impact of the pandemic on the results of their activities.

The presented results of the study of the use of data from non-financial reports of enterprises constitute the methodological basis for monitoring the post-crisis recovery of the activities of economic agents at the micro level as one of the management measures aimed at minimizing risks of a fiscal nature and increasing the transparency of activities and accountability of business entities.

Novelty: in the course of the study, it was substantiated that one of the information sources for decision-making at the state level in terms of minimizing fiscal risks can be data from non-financial reports of enterprises (management reports, reports on payments to the state).

One of the critical areas of further research regarding the quality of information support in state and corporate management is the determination of parameters of economic activity using specific indicators with standardized databases. As a result of the current economic crisis, the trend of decline and recessions in the business activity of subjects of the real sector of the economy differ from the intangible spheres of creating added value. Therefore, the fiscal aspects of non-financial reporting must be identified with general assessments of the degree of business sustainability and the potential for its recovery, taking into account the differentiation of the features of business processes in the uncertain circumstances caused by the pandemic.

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# Фіскальні аспекти нефінансової звітності підприємств

**Анотація.** У статті ідентифіковано напрями посилення інформаційної цінності даних нефінансової звітності, зокрема в частині її фіскальних аспектів: Автором обґрунтовано на основі результатів аналізу наукових публікацій та загальновизнаних міжнародних документів, що залишаються невирішеними питання відображення даних щодо впливу невизначеності на діяльність суб'єктів господарювання. Доведено, що одним із інструментів залучення підприємствами додаткового фінансування, спрямованого на ліквідацію наслідків впливу пандемії COVID-19, може слугувати якісна нефінансова звітність. У статті висвітлено результати проведеного аналізу нефінансової звітності державних підприємств на предмет виявлення даних щодо впливу пандемії COVID-19 на їх діяльність та на предмет відповідності переліку показників звітності зі сталого розвитку, визначених у документі «Керівництво з ключових показників звітності підприємств щодо внеску у досягнення Цілей сталого розвитку», розробленому UNCTAD ISAR. В роботі обґрунтовано, що одним із інформаційних джерел прийняття рішень на державному рівні в частині мінімізації фіскальних ризиків можуть слугувати дані нефінансових звітів підприємств (звіт про управління, звіт про платежі на користь держав). Основні методи дослідження, використані в роботі: бібліометричний аналіз; синтез; спостереження

**Ключові слова:** нефінансова звітність компаній; фіскальні ризики; COVID-19; сталий розвиток; прозорість

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