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STRUCTURAL CHANGE IN ENTREPRENEURIAL DEVELOPMENT IN THE CONTEXT OF GLOBALISATION: ASSESSMENT AND ADAPTIVE FORECASTING

Efficiently functioning entrepreneurship has been considered at all times as an important condition for the development of a market economy. Business enhances a country's security and competitiveness on the world stage in a globalised world. The phenomenon of entrepreneurship is a multidimensional and complex phenomenon. Business development is conditioned by many factors that stimulate or inhibit its functioning. Under such conditions, an urgent issue of modern science is to develop a methodology to identify structural changes in entrepreneurship, as well as to forecast possible variants of its development taking into account current changes in the market environment.

The information base for our study was the reporting data on entrepreneurship development for 2010–2020, officially promulgated on the website of the State Statistics Service of Ukraine. In writing the article, we used a system of methods that allow us to determine the structural changes in entrepreneurship in the context of globalisation best, as an example: scientific abstraction, analysis, hypothetical and logical methods, methods of absolute and comparative advantages. The index method was used to analyse the impact of the number of employees and labour productivity on the volume of sold products. To study the dynamics of structural changes in entrepreneurship in Ukraine and to forecast the corresponding indicators for 2023–2024 an adaptive forecast model of Holt was used.

The implementation of the proposed methods and modelling tools allowed us to analyse the dynamics of changes in entrepreneurship in Ukraine and to forecast its further development. It was determined that a significant feature of the dynamics of the distribution of employees by types of enterprises is a clearly expressed trend of reducing the share of employees of large enterprises with an increase in the share of employees of medium enterprises and individual entrepreneurs with no significant changes in the share of employees of small businesses. The peculiarity of the dynamics of the distribution of products sold by types of enterprises is a clear tendency of a decrease in the share of products of large enterprises with the growth of the share of medium enterprises, small enterprises and individual entrepreneurs. At the same time, the shares of production of large and medium enterprises significantly exceed the shares of small enterprises and individual entrepreneurs. This ratio, in accordance with the received forecasts, also took place in the forecast period for 2023–2024.

The analysis of structural changes in entrepreneurship allows some conclusions and suggestions to be made. Thus, in order to support the development of entrepreneurship, there is a need to form a critical mass of managers able to respond to changes in the external environment in a timely manner and to make effective decisions. In the formation of public policy to stimulate business development, the relevant issue is the provision of preferential loans to business entities to upgrade fixed assets, which will significantly improve production and save entrepreneurial resources. In addition, an important issue is the attraction of human resources into entrepreneurship, especially those working on an innovative basis.

Keywords: globalisation, entrepreneurship, security, sales, productivity of work, workers, forecasting.



1. Introduction

Macroeconomic security is an important component of a country's economic security. Significant indicators that reflect this type of security are the difference between Ukraine's productivity index and real average monthly wages, the difference between Ukraine's GDP growth rate and the growth rate of developing economies, and the unemployment rate. To address macroeconomic security problems, it is important to study the structure of entrepreneurship in the country, as large and medium-sized enterprises provide a higher level of labour productivity, and the development of small enterprises, and the activity of individual entrepreneurs is essential for employment. The aim of the article is to investigate, assess and forecast structural changes in entrepreneurship in the context of globalisation.

Wide ranges of academics have been involved in assessing entrepreneurial activity. Each scientist has tried to contribute his or her own understanding of the methodology for analysing changes in entrepreneurship. Mykhailichenko *et al.*, [1], offer an assessment of the activities of the agro-food sector in the context of the globalisation of the national economy, which will ensure its competitiveness. The authors highlight the adaptive strategy of human resource management and motivational mechanism for achieving strategic goals. Using a number of indicators and methods of descriptive statistics, the scientists analyse the specifics of the application of personnel management strategies in agricultural enterprises. Stoliarchuk *et al.*, [2], identify systems of factors associated with the development of innovative entrepreneurship. Using a complex methodological approach based on the methods of economic and mathematical modelling and extrapolation, the authors estimate the influence of the factors of innovative entrepreneurship development on GDP. The findings of Aranchi *et al.*, [3] in which an integral indicator of evaluation of the effectiveness of management of the financial condition of business entities in Ukraine was proposed, are important for our study. The combination of factors influencing the financial development of entrepreneurship is interesting: the volume of capital investment, staff and wage costs, and so on. The adaptation of the model of evaluation of the effectiveness of management of the financial condition has been carried out on the example of large, medium and small enterprises. The logic of the modelling, the system of indicators and their calculation are particularly useful for our study. Gavrish and Akhtoyan [4] analysed a marketing approach that can be appropriately used to assess the management of businesses operating in separate territories. The authors conducted forecasting of the needs of the business audience and developed a system of measures to support entrepreneurship. Of particular interest are the developed indicators of business attractiveness, as well as the expert assessment of the attractiveness of the regions. Expert

evaluation is a fairly common method in the process of modelling business analysis, but there is a need for careful selection of experts, who will be impartial and responsible in their duties.

Shpikuliak and Malik, [5], explore the methodology of institutionalism, which can be used to analyse the structure and systematisation of comprehensive and specific indicators to assess the state of development of entrepreneurship in the agricultural sector. The scholars propose indicators of organizational and institutional structure and development of agribusiness efficiency. The article is interesting to us through the authors' usage of a rather non-standard methodology of modelling efficiency indicators, as well as the combination of a number of methods and tools of statistical analysis.

Taran, [6], proposes a comprehensive assessment of regional peculiarities of innovative entrepreneurship development. The scientist notes that the application of the methodology for assessing innovative entrepreneurship based on the analysis of financial indicators allows us to identify the sufficiency or lack of funds for the development of innovative entrepreneurship in a particular territory. The article proposes an integral indicator for assessing the institutional environment of business and uses a graphical method to show the results of calculations.

Khmelyuk, [7], defines the features of accounting of small business entities in Ukraine and analyses the impact of seasonal fluctuations on the volume of sales of products (works, services) by applying the index method. The scientist proposes a non-standard algorithm for assessing seasonal changes and graphically presents the seasonal wave of product realisation by a small business entity. In a rather interesting method of "scoring", the author carried out an analysis of quarterly rhythmicity and seasonal fluctuations of product realization by a small enterprise taking into account supplies. Moreover, the calculated system of indicators — the amplitude of fluctuations, the linear mean and the standard deviation are of particular scientific interest to us.

Nasar *et al.*, [8] assess support factors and barriers to entrepreneurship in the context of the COVID-19 pandemic. Using a qualitative method and interviewing, the researchers conducted 18 types of interviews with entrepreneurs working in micro, small and medium enterprises. Using analytical data and a set of indicators, the researchers modelled how COVID-19 affects entrepreneurial activity in Pakistan.

Important for our scientific paper is the study of Mondal *et al.*, [9] who have conducted a high-level study of the features of green entrepreneurship development in a circular economy for sustainable development. By modelling the development of green business, the authors proposed resource-saving technologies in micro, small and medium-sized enterprises of the manufacturing sector. Innovative within the green business analysis is the usage of

“best and worst method”, “interpretive modelling”, “fuzzy multiplication matrix”, etc. Modelling has made it possible to see the strength of the relationship between the factors contributing to green entrepreneurship development and assess the strength of business dependence on social norms, culture, adoption of new technologies, capacity for research and development innovations, environmental regulation, waste management policy, etc. Researches of Grégoire *et al.*, [10] have a high methodological level, where a significant number of research experiments in the entrepreneurship sphere, methods, tools and strategies to solve business development problems are presented. Marshall *et al.*, [11], using social and cognitive theory, model the relationship between wealth, access to resources and persistence. Involving 258 entrepreneurial subjects using regression analysis, the researchers proved that happiness, well-being, life satisfaction, and one’s mental state have an unconditional influence on entrepreneurial performance. The methods, tools, and logic of modelling that can be used to assess entrepreneurial development have been extensively reviewed in Okudan and Rzasa, [12], Bezverhij *et al.*, [13], Obschonka, [14], Hornsby *et al.*, [15], Kaminski *et al.*, [16] researches. Despite the widespread usage of technologies for modelling structural change in entrepreneurship in the context of globalisation, there is a need for a systematic review of scientific advances as well as the introduction of new analysis tools. This will allow for comprehensively considering the current state of the enterprise, making forecasts and identifying the factors of influence of the institutional environment on business.

2. Materials and Methods

To study the dynamics of entrepreneurship development in Ukraine, data on the number of employees and the volume of products sold in large, medium, small enterprises and for individual entrepreneurs during 2010–2020 were selected. For each type of enterprise let us determine the percentage that represents the number of employees in the enterprises of that type from the total number of employees and the percentage that represents the volume of products sold by these enterprises from the total volume of products sold. The results of the calculations are shown in Table 1.

To study the dynamics of structural changes in Ukrainian entrepreneurship and to forecast relevant indicators for 2023–2024, we use Holt’s adaptive predictive model. This model combines the exponential alignment of a dynamic series and the identification of a trend. The model introduces two coefficients: the equalisation coefficient α and the coefficient β , which determines the trend. The user sets these coefficients. They belong to the range from 0 to 1 and are selected empirically.

Let us use this model to forecast the share of workers employed in large, medium, small

enterprises and under individual entrepreneurs. Let us denote by $q_i(t)$ the ratio of the number of workers employed in the enterprises of the i type in the t year of the retrospective period to the total number of workers in that year. For large enterprises, we take $i = 1$, for medium enterprises $i = 2$, for small enterprises $i = 3$, for individual entrepreneurs $i = 4$.

Determine the exponentially equivalent dynamic series using the formula

$$L_i(t) = \alpha q_i(t) + (1 - \alpha)(q_i(t - 1) + T_i(t - 1)),$$

where $L_i(t)$ is the equalised level of the series in year t ($t > 1$);

$L_i(t - 1)$ is the equalised level in the previous year;

$T_i(t - 1)$ is the trend value in the previous year. The coefficient α assume equal to 0,9.

At $t = 1$, we consider that $L_i(1) = q_i(1)$. The trend value $T_i(t - 1)$ at $t > 1$ is determined from the equality

$$T_i(t) = \beta(L_i(t) - L_i(t - 1)) + (1 - \beta)T_i(t - 1).$$

At $t = 1$, we consider that $T_i(1) = 0$. The coefficient β we take equal to 0,05.

The values are used for forecasting $L_i = L_i(N)$ and $T_i = T_i(N)$, obtained for the last year $t = N$ of the retrospective period. The forecast for p years is determined by the following equation

$$Q_i(N + p) = L_i + pT_i,$$

where p is the order number of the year, in the period for which the forecast is made.

To estimate the accuracy of the predictive model for each value of t , starting at $t = 2$, we determine the prediction for one period $P_i(t) = L_i(t - 1) + T_i(t - 1)$, the model error $\Delta_i(t) = q_i(t) - P_i(t)$ and error variance

$$\delta_i(t) = \frac{\Delta_i^2(t)}{q_i^2(t)}.$$

The accuracy of the predictive model is defined by the equation

$$v_i = 1 - \frac{\sum_{t=2}^N \delta_i(t)}{N - 1}.$$

The closer v_i is to 1, the more accurate the forecast.

3. Results and Discussion

The determination of the projected values for indicator $q_1(t)$ of the share of workers in large enterprises among all employees is shown in Table 2.

Thus, the expected proportion of employees in large enterprises in the total number of employees in 2023 is 17% and in 2024 16.8%. The accuracy of the forecast is 99.65%. Similarly, we determine the forecast values for 2023 and 2024 for the share of employees in other types of enterprises and the share of sales in these enterprises. The results of the calculations are shown in Table 3.

Table 1

Ukrainian enterprise performance indicators in 2010–2020

Years	Number of employees		Volume of products sold	
	Thousands of people	% of the total number	Million UAH	% of the total volume
Large enterprises				
2010	2400,3	22,28%	1401596,8	38,97%
2011	2449	24,09%	1775829	42,26%
2012	2484,2	24,95%	1761086	39,49%
2013	2383,7	24,50%	1717391,3	39,62%
2014	1915,1	21,77%	1742507,9	39,07%
2015	1708,6	20,89%	2053189,5	36,95%
2016	1586,6	19,57%	2391454,3	35,55%
2017	1560,9	19,17%	2929516,6	35,24%
2018	1574,3	18,45%	3515839,5	35,28%
2019	1608,3	17,83%	3631415,3	34,51%
2020	1574,6	17,63%	3626388	32,78%
Medium enterprises				
2010	3393,3	31,50%	1396364,3	38,82%
2011	3252,6	32,00%	1607628	38,25%
2012	3144,2	31,58%	1769430,2	39,67%
2013	3012,1	30,96%	1662565,2	38,36%
2014	2696,5	30,65%	1723151,5	38,64%
2015	2604,7	31,84%	2168764,8	39,03%
2016	2622,8	32,35%	2668695,7	39,67%
2017	2593,1	31,85%	3296417,9	39,66%
2018	2744,2	32,16%	3924059,6	39,37%
2019	3052,6	33,85%	4168439,4	39,61%
2020	3088,4	34,58%	4359362,1	39,41%
Small enterprises				
2010	2164,6	20,09%	568267,1	15,80%
2011	2091,5	20,58%	607782,4	14,46%
2012	2051,3	20,60%	672653,4	15,08%
2013	2010,7	20,67%	670258,5	15,46%
2014	1686,9	19,18%	705000,5	15,81%
2015	1576,4	19,27%	937112,8	16,87%
2016	1591,7	19,63%	1177385,2	17,50%
2017	1658,9	20,38%	1482000,7	17,83%
2018	1641	19,23%	1766150,4	17,72%
2019	1746,6	19,37%	1839875,9	17,48%
2020	1703,1	19,07%	2064120,7	18,66%
Individual entrepreneurs				
2010	2814,5	26,13%	230418,2	6,41%
2011	2371,4	23,33%	211215,8	5,03%
2012	2277,9	22,88%	256649,2	5,75%
2013	2322,6	23,87%	284238,1	6,56%
2014	2498,2	28,40%	289042,3	6,48%
2015	2290,3	28,00%	397473,3	7,15%
2016	2307,2	28,45%	489204,6	7,27%
2017	2328,1	28,60%	604336,7	7,27%
2018	2573	30,16%	760755	7,63%
2019	2610,3	28,95%	884382,2	8,40%
2020	2565,8	28,73%	1012426,3	9,15%

Source: <https://www.ukrstat.gov.ua/>

The distribution of the number of employees by type of enterprise with a forecast for 2023–2024 is shown in Figure 1.

The share of employees of large enterprises increased between 2010 and 2012. Since 2013, this share has been decreasing and has become the lowest among all types of enterprises since 2017. For the years 2023–2024, it is projected to decrease slightly and stabilise at 17%. The share of employees of medium-sized enterprises is the largest. It is increasing between 2017 and 2020. For 2023–2024, it is projected to increase slightly and stabilise at 35%. The share of employees in small enterprises has not changed significantly during the retrospective period. For 2023–2024, this value is projected to stabilise at 19%, roughly equal to its value in 2019–2020. The proportion of working under individual entrepreneurs increased significantly in 2014. For 2023–2024, this value is projected to stabilise at 29%, roughly equal to its value in 2018–2020. Thus, a significant feature of the dynamics of the distribution of employees by type of enterprise is a clear tendency for the share of workers in large

enterprises to decrease with a simultaneous increase in the share of workers in medium enterprises and under individual entrepreneurs, with no significant change in the share of workers in small enterprises.

Distribution of sales volumes by type of enterprise with a forecast for 2023–2024 is shown in Figure 2.

Since 2012, the share of large enterprises in the volume of products sold has been decreasing. Since 2015, this share becomes smaller than that of medium-sized enterprises. For the years 2023–2024, this value is projected to decrease slightly and stabilise at 32%. The share of production of medium-sized enterprises is the largest since 2015. For 2023–2024, it is projected to stabilise at 39.5%. The share of the output of small enterprises starts to grow from 2012. For 2023–2024, this value is projected to continue to grow and stabilise at 19%. The share of products sold by individual entrepreneurs did not change significantly in 2015–2017 and started to grow in 2018. For the years 2023–2024, this value is projected to continue to grow and stabilise at 9.5%. Thus, a significant feature

Table 2

Determining predictive values for indicator $q_1(t)$

Year	t	$q_1(t)$	$L_1(t)$	$T_1(t)$	p	$Q_1(N + p)$	$p_1(t)$	$\Delta_1(t)$	$\delta_1(t)$	v_1
2010	1	0,22281	0,22281	0,00000			0,22281			99,65%
2011	2	0,24094	0,23912	0,00082			0,22281	0,01812	0,00566	
2012	3	0,24948	0,24852	0,00124			0,23994	0,00954	0,00146	
2013	4	0,24501	0,24548	0,00103			0,24977	-0,00476	0,00038	
2014	5	0,21771	0,22059	-0,00027			0,24651	-0,02881	0,01751	
2015	6	0,20888	0,21002	-0,00078			0,22032	-0,01145	0,00300	
2016	7	0,19568	0,19703	-0,00139			0,20924	-0,01356	0,00480	
2017	8	0,19173	0,19212	-0,00157			0,19564	-0,00391	0,00042	
2018	9	0,18451	0,18511	-0,00184			0,19056	-0,00605	0,00108	
2019	10	0,17835	0,17884	-0,00206			0,18327	-0,00492	0,00076	
2020	11	0,17629	0,17634	-0,00208			0,17678	-0,00049	0,00001	
2021					1	0,17426				
2022					2	0,17217				
2023					3	0,17009				
2024					4	0,16801				

Source: calculated by the authors

Table 3

Projected values of employee distribution indicators and sales volume by type of enterprise

Indicator	Type of enterprise	Forecast for 2023	Forecast for 2024	Accuracy of forecasts
Number of employees (% of the total number of employees at the enterprises)	Large	17,01%	16,80%	99,65%
	Medium	34,92%	35,06%	99,94%
	Small	18,96%	18,91%	99,88%
	Individual entrepreneur	29,11%	29,22%	99,50%
Volume of products sold (% of total prod- ucts sold)	Large	32,13%	31,86%	99,81%
	Medium	39,50%	39,52%	99,97%
	Small	18,92%	19,04%	99,79%
	Individual entrepreneur	9,45%	9,57%	98,68%

Source: calculated by the authors

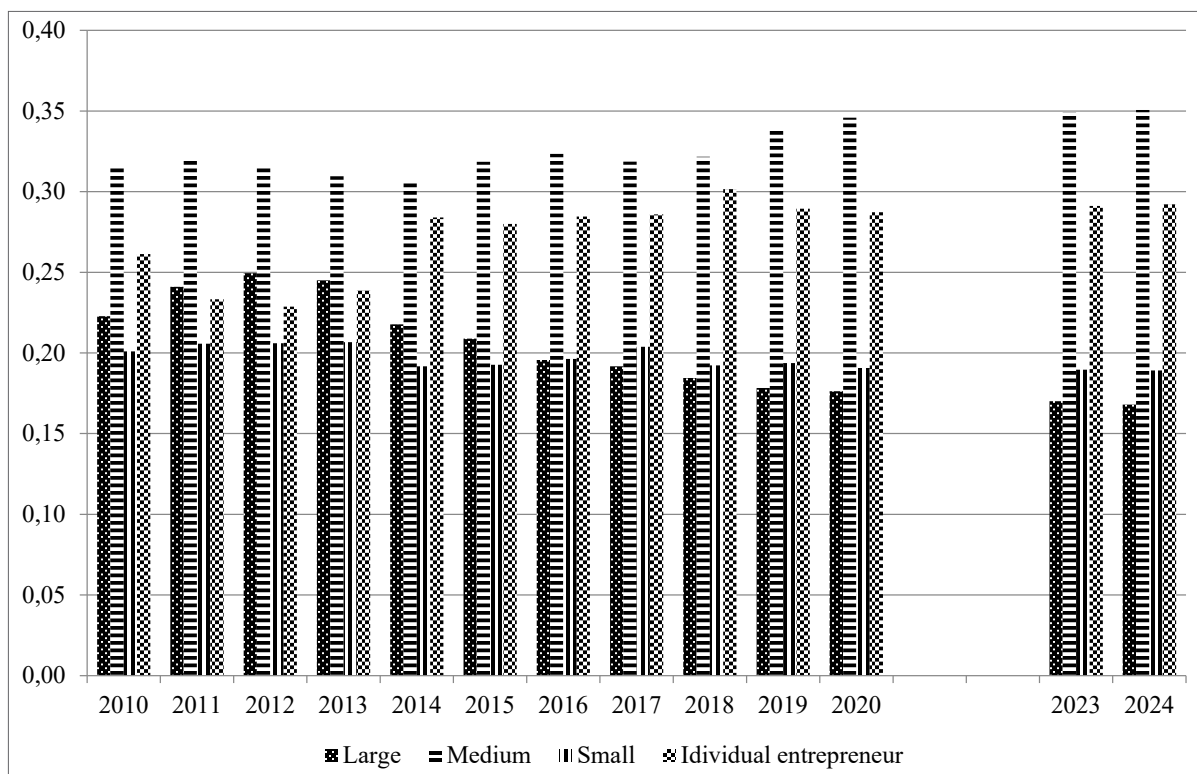


Figure 1. Distribution of the number of employees by type of enterprise with forecast for 2023–2024
Source: calculated by the authors

of the dynamics of the distribution of sales by type of enterprise is a clear tendency for the share of production of large enterprises to decrease with an increase in the shares of medium-sized enterprises,

small enterprises and individual entrepreneurs. At the same time, the shares of production of large and medium enterprises significantly exceed the shares of small enterprises and individual entrepreneurs.

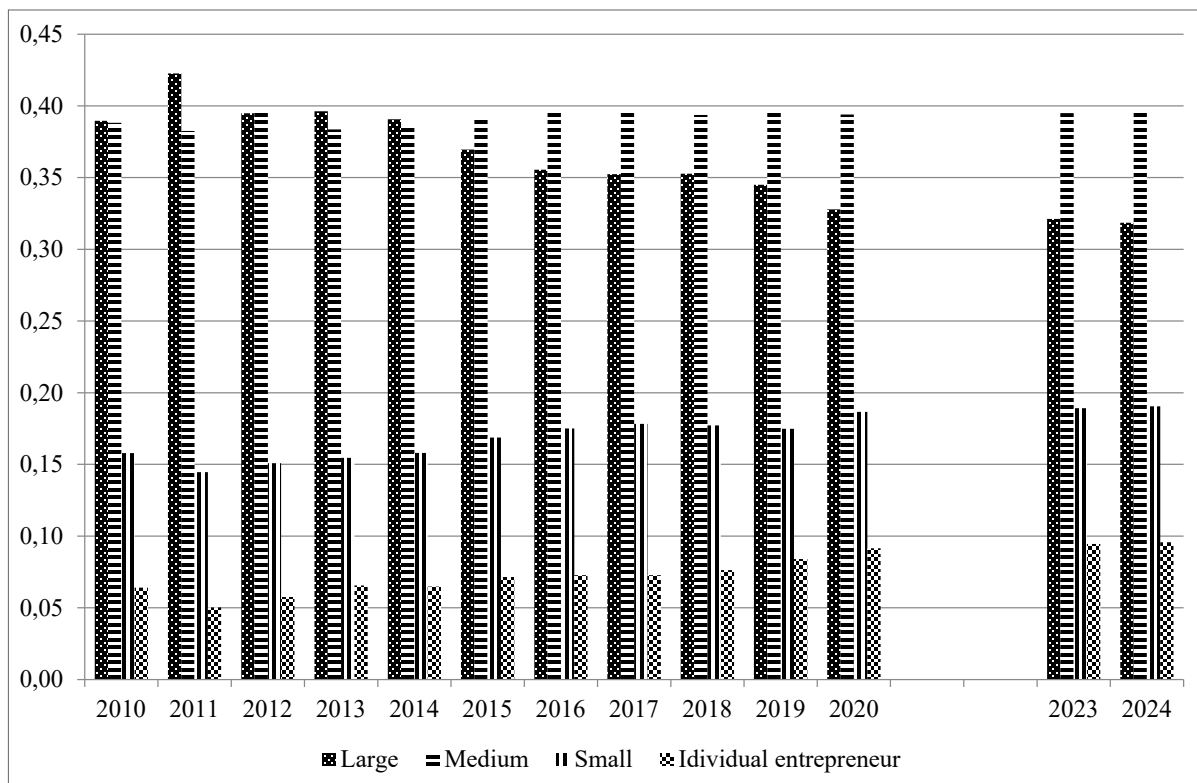


Figure 2. Distribution of sales by type of enterprise with forecast for 2023–2024
Source: calculated by the authors

This ratio, in accordance with the received forecasts, will be the same in the forecast period.

To estimate the impact of the number of employees and labour productivity on the volume of sales, we use the index method. Let us denote by $g_i(t)$ and $r_i(t)$ the labour productivity and the number of employees, respectively, for the enterprises of the i type in the t year of the retrospective period. For each year, starting from $t - 2$, we define the following indices:

1) index I_{gr} of output volume, defined by equality

$$I_{gr}(t) = \frac{\sum_{i=1}^4 g_i(t) r_i(t)}{\sum_{i=1}^4 g_i(t-1) r_i(t-1)};$$

2) index I_g of labour productivity, defined by equality

$$I_g(t) = \frac{\sum_{i=1}^4 g_i(t) r_i(t)}{\sum_{i=1}^4 g_i(t-1) r_i(t)}$$

3) index I_r of the number of employees, defined by equality

$$I_r(t) = \frac{\sum_{i=1}^4 g_i(t-1) r_i(t)}{\sum_{i=1}^4 g_i(t-1) r_i(t-1)}.$$

The I_{gr} index shows by how much the volume of products sold increases or decreases compared to the previous year, the I_g index shows by how much this volume would change if the number of employees in each type of enterprise remained unchanged, and the I_r index shows by how much this volume would change if labour productivity remained unchanged.

Let us also determine the absolute increases in sales volumes

$$A(t) = \sum_{i=1}^4 g_i(t) r_i(t) - \sum_{i=1}^4 g_i(t-1) r_i(t-1)$$

and the constituent parts of these increments:

$$A_g(t) = \sum_{i=1}^4 g_i(t) r_i(t) - \sum_{i=1}^4 g_i(t-1) r_i(t),$$

part of the growth obtained from the change in labour productivity at all kinds of enterprises and the part

$$A_r(t) = \sum_{i=1}^4 g_i(t-1) r_i(t) - \sum_{i=1}^4 g_i(t-1) r_i(t-1),$$

resulting from changes in the number of workers at these enterprises. The results of the calculations are given in Table 4.

The dynamics of the indices of the volume of products sold, labour productivity and the number of employees are shown in Figure 3.

Since the index I_{gr} of production volume for all years of the retrospective period, except for 2013, exceeds 100%, there is an increase in the volume of sold products in these years. The largest increase was recorded in 2015- by 24.6%, which in absolute terms amounts to 1096838 million UAH. The index I_r , of the number of employees in all years except 2018 and 2019 did not exceed 100%. This means that if labour productivity remained unchanged, the volume of products sold would decrease, while its real increase is determined by an increase in labour productivity in those years. The I_g labour productivity index shows by how much the volume of products sold would have increased with unchanged labour productivity. This index had the highest value of 1,341215 in 2015. The I_g and I_r indices were both greater than 100% only in 2018. This means that this year alone the increase in the volume of products sold was caused by both an increase in labour productivity and an increase in the number of employees, with higher labour productivity resulting in an increase in sales volumes on 1389720 million UAH and a 264812.5 million UAH increase in sales volumes caused by in the number of employees. Between 2011 and 2017, a reduction in the number of employees was accompanied by an increase in labour productivity, and in all years of

Table 4

Indices and absolute values of growth in sales volumes

Years	Indices			Absolute growths (million UAH)		
	I_{gr}	I_g	I_r	A_{gr}	A_g	A_r
2011	1,168437	1,196695	0,976387	605808,8	690737,1	-84928,3
2012	1,061241	1,073519	0,988563	257363,6	305426,8	-48063,2
2013	0,97189	1,006618	0,9655	-125366	28497,9	-153864
2014	1,028896	1,193649	0,861976	125249,1	723509,6	-598260
2015	1,245944	1,341215	0,928967	1096838	1413626	-316788
2016	1,210599	1,237208	0,978493	1170199	1289705	-119506
2017	1,235706	1,238434	0,997797	1585532	1600349	-14817,3
2018	1,199047	1,162027	1,031858	1654533	1389720	264812,5
2019	1,055916	0,992053	1,064375	557308,3	-84300,5	641608,8
2020	1,051138	1,060012	0,991628	538184,3	626289,9	-88105,6

Source: calculated by the authors

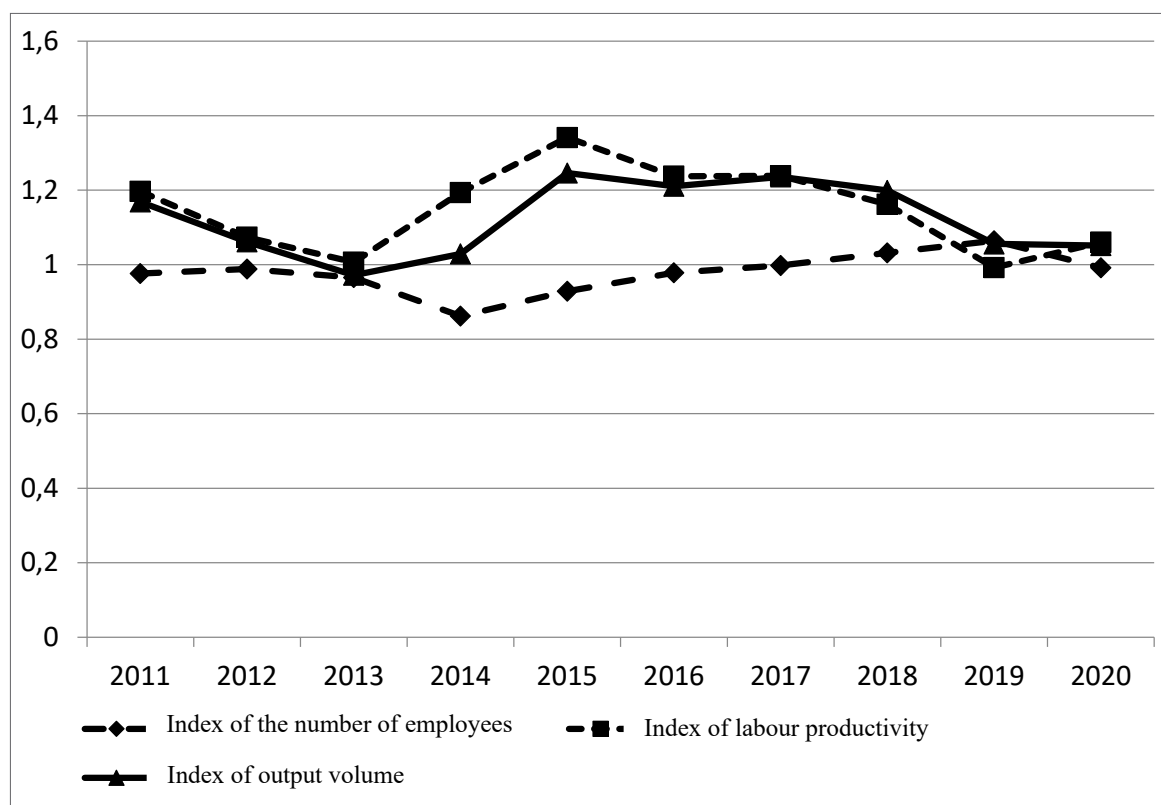


Figure 3. Evolution of indices of sales volumes, labour productivity and number of employees
Source: calculated by the authors

this period, except for 2013, the impact of labour productivity on sales was greater than that of the number of employees. In 2019, the opposite situation occurs, where the volume of products sold increased because of an increase in the number of employees. In 2020, as in 2011–2017, the growth in realised products was determined by an increase in labour productivity.

4. Conclusions

The results of modelling the estimation and forecasting of changes in entrepreneurship in the context of globalisation have been carried out using the Holt adaptive forecasting model. To assess the impact of the number of employees and labour productivity on the volume of products sold, the index method was used. The study was based on the reporting data on large, medium, small enterprises and individual entrepreneurs over the period of 2010–2020. It is determined that a significant feature of the dynamics of the distribution of employees by type of enterprise is a clear tendency to decrease the share of

employees of large enterprises with a simultaneous increase in the share of employees of medium-sized enterprises and individual entrepreneurs, with no significant changes in the share of employees of small enterprises. A feature of the dynamics of the distribution of products sold by type of enterprise is a clear trend towards a decrease in the share of large enterprises' output with a simultaneous increase in the share of medium-sized enterprises, small enterprises, and individual entrepreneurs. At the same time, the shares of output of large and medium-sized enterprises significantly exceed the shares of small enterprises and individual entrepreneurs. This ratio, according to the forecasts, was also observed in the forecast period for 2023–2024. Thus, the proposed methodology for modelling changes in entrepreneurship in the context of globalisation allows for a convenient assessment of changes. Our further research will be aimed at expanding the number of indicators that can be used to assess changes in entrepreneurship and attracting other innovative forecasting methods.

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СТРУКТУРНІ ЗМІНИ У РОЗВИТКУ ПІДПРИЄМНИЦТВА В УМОВАХ ГЛОБАЛІЗАЦІЇ: ОЦІНЮВАННЯ ТА АДАПТИВНЕ ПРОГНОЗУВАННЯ

Анотація. Ефективно функціонуюче підприємництво в усі часи вважалося важливою умовою розвитку ринкової економіки. Бізнес підвищує безпеку країни та її конкурентоспроможність на світовій арені в умовах глобалізації. Феномен підприємництва є багатоаспектним складним явищем. Розвиток бізнесу обумовлений багатьма чинниками, які стимулюють або навпаки стримують його функціонування. За таким умов актуальним питанням сучасної науки є розробка методології визначення структурних змін у підприємництві, а також прогнозування можливих варіантів його розвитку з урахуванням поточних змін у ринковому середовищі.

Інформаційною базою нашого дослідження слугували звітні данні розвитку підприємництва за 2010–2020 роки, що офіційно оприлюднені на сайті Державної служби статистики України. При написанні статті нами використано систему методів, які у найліпший спосіб дозволяють визначити структурні зміни у підприємництві в умовах глобалізації, як приклад: наукове абстрагування, аналіз, гіпотетичний та логічний методи, методи абсолютних та порівняльних переваг. Для аналізу впливу кількості працюючих та продуктивності праці на обсяг реалізованої продукції використано індексний метод. Для дослідження динаміки структурних змін в підприємництві України та прогнозування відповідних показників на 2023–2024 роки використано адаптивну прогнозну модель Хольта.

Реалізація запропонованих методів та інструментаріїв моделювання, дозволила нам проаналізувати динаміку змін підприємництва в Україні та спрогнозувати його подальший розвиток. Визначено, що істотною особливістю динаміки розподілу працівників за видами підприємств є чітко виражена тенденція зменшення частки працівників великих підприємств із одночасним зростанням часток працівників середніх підприємств та ФОП при відсутності істотних змін в частці працівників малих підприємств. Особливістю динаміки розподілу реалізованої продукції за видами підприємств є чітко виражена тенденція зменшення частки продукції великих підприємств із одночасним зростанням часток середніх підприємств, малих підприємств та ФОП. В той же час частки продукції великих та середніх підприємств істотно перевищують частки малих підприємств та ФОП. Це співвідношення відповідно до одержаних прогнозів мало місце і в прогнозному періоді на 2023–2024 роки.

Аналіз структурних змін у підприємництві дозволяє зробити окремі висновки та пропозиції. Так, з метою підтримки розвитку підприємництва існує потреба формування критичної маси управлінців здатних вчасно реагувати на зміни у зовнішньому середовищі та приймати ефективні рішення. При формуванні державної політики щодо стимулювання розвитку бізнесу актуальним питанням є надання пільгових кредитів суб'єктам підприємницької діяльності для оновлення основних фондів, що значно поліпшить виробництво продукції та заощадить підприємницькі ресурси. Окрім того, важливим питанням є залучення трудових ресурсів до зайняття підприємництвом, особливо таких, що працюють на інноваційних засадах.

Ключові слова: глобалізація, підприємництво, безпека, реалізація продукції, продуктивність праці, працівники, прогнозування.