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DEVELOPMENT PECULIARITIES OF AGRARIAN ENTREPRENEURSHIP IN UKRAINE

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Abstract. The article reveals the concept of entrepreneurship as an independent activity carried out by economic entities with the aim of obtaining profit and achieving social results. Successful development of entrepreneurial activity depends on its effectiveness and efficiency. The essence and meaning of the concepts of *development*, *effectiveness* and *efficiency* are characterized. The main indicators of the activity of large, medium and small agricultural, forestry and fishery enterprises are analyzed: the dynamics of the number of operating enterprises by their size, the dynamics of employment, of the amount of wages, of economic, investment and financial activities of enterprises. During the period under study, there is an increase in the number of large and small agricultural, forestry and fishery enterprises, whereas the number of medium-sized enterprises decreases. All enterprises, in terms of size, are profitable. However, the level of profitability of all enterprises is decreasing. The indices of development, effectiveness and efficiency of large, medium and small agricultural, forestry and fishery enterprises are calculated in accordance with the selected indicators. The findings show that enterprises, regardless of their size, should pay considerable attention to increasing the level of profitability of sales and equity capital. An integral assessment of large, medium and small agricultural, forestry and fishery enterprises is carried out in terms of their competitiveness and prospects for future development. The article suggests that all enterprises in terms of size have significant internal potential for development. Yet, according to the indicator of the integrated index of efficiency, medium and small enterprises are inferior to large enterprises. The study offers proposals for increasing the effectiveness and efficiency of all enterprises by size.

Keywords: entrepreneurship; development; efficiency; effectiveness; entrepreneurial activities; large; medium; small enterprises; companies; agriculture; forestry; fishery; performance

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JEL Classifications: M1, M2, O1, Q1

1. Introduction

One of the key preconditions for increasing the level of competitiveness of the country's economy, forming and realizing its export potential, reducing the unemployment rate, improving the quality of life of the population, and financially enriching the country's economy is development of entrepreneurship. Under the conditions of the successful operation of enterprises and their stable development, Ukraine may increase the volume of exports, as well as the value of the national monetary unit. In addition, the efficient operation of enterprises is a source of

economic growth, which provides employment in the country and directly affects the improvement of the quality of life of the population.

However, under conditions of an unstable market environment, which is characterized by uncertainty and constant changes, the activities of entrepreneurs and their behavior are formed mostly under the influence of a significant number of various factors. Today, it is the ability of entrepreneurs to assess the impact of external and internal environmental factors, the ability to quickly and efficiently respond to changes, that are the determining conditions for their development, effectiveness and efficiency. The special role of entrepreneurship is determined by the need for constant monitoring of patterns and trends of market development, which is an indicator for adequate changes and successful development.

Moreover, the modern business conditions in Ukraine are complex, changeable and contradictory in both political and economic aspects, which hinders the development of entrepreneurship. It is the strengthening of competition on domestic and foreign markets, the emergence of new forms of competition, the differentiation of consumer demand that require the search for new directions of development, increasing the effectiveness and efficiency of entrepreneurship in Ukraine.

2. Literature review

In modern market conditions, entrepreneurial activity operates under conditions of fierce competition. So far, there has been a deterioration of the competitive position of many Ukrainian enterprises, deepening of existing and emergence of new crisis situations, complication of living conditions and reduction of financial results. In addition to that, the external factors of the dynamic environment exert a significant influence on the activities of enterprises, in particular, negative ones.

Extant definitions of entrepreneurship variously relate to opportunity pursuit, business creation, uncertainty, profit-seeking and more, reflecting the myriad perspectives that exist within the entrepreneurship field and beyond (Bennett 2006). This definitional diversity has been well documented to date (Audretsch et al., 2015; Alegre et al., 2017; Bacq & Janssen, 2011; Dato-on & Kalakay, 2016; Moroz & Hindle, 2011), including the impact this diversity has on what is included and excluded within the entrepreneurship domain (Howorth et al., 2005). Whilst some scholars have lamented the attention that the definition of entrepreneurship has received in the literature (e.g. Low, 2001), others have motivated a continued discourse as a means of advancing the field (Shane, 2012; Welter et al., 2017).

Entrepreneurship as a driving force of the national economy is studied by many scientists at different levels (micro-, meso- and macro-) and using different methods (empirical description, development of strategic directions, factor analysis, study of determinants of entrepreneurial activity between different temporal and spatial objects of research, etc.) (Camacho Ballesta et al., 2020; Kucher et al., 2021; Ivanovic-Dukic et al., 2022; Prince et al., 2021; Gavrilava Gavrilava & De Lucas Ancillo, 2022; Kyfyak et al., 2021).

The concept of entrepreneurship stands for "the act of being an entrepreneur", and has been derived from the French word "entreprendre" meaning "pursuing the opportunities; undertaking-embarking; meeting the needs and demands via initiating an innovation and work (Özer & Topaloğlu, 2007). Also, the concept of entrepreneurship derived from the German word "unternehmen" stands for the act "üstlenmek" in Turkish (Güney, 2008).

The notion of entrepreneur has been derived from the "intare" root in Latin, "enter (introduction) and pre (first)" word roots in English and meaning "entrepreneur", i.e. the one first initiates and starts. This term was first used by the economist Richard Cantillon who lived in France at the beginning of the 18th century and it was defined as "the person who buys and manufactures the production inputs and services today in order to sell at a cost not yet

determined” (Iraz, 2005).

As of the French economist J. B. Say (1971), entrepreneurship has been accepted as the fourth production factor and therefore entrepreneurship has been included in such classical production factors as labor, capital and nature. However, the subject has become more important with the notion of “dynamic entrepreneur” suggested by J. Von Schumpeter (Müftüoğlu & Durukan, 2004). Kirzner defined entrepreneurship according to its opportunist characteristics. Accordingly, Kirzner defined entrepreneurship as “the entrepreneur who takes the profit opportunity and highlighted the importance of competition” (Abiyev & Özgür, 2013)

The notion of entrepreneurship gaining importance in the rapidly globalizing world is a multi-dimensional phenomenon that can be defined as “the process of gathering the unique combination of sources with the purpose of watching and opportunity” (Dogan, 2015).

Shane and Venkataraman’s (2000) highly influential definition of entrepreneurship as “the identification, evaluation, and exploitation of opportunities” (Shane, 2012) marks the crux point at which the definitional debate shifted from “what exactly is entrepreneurship?” to “what exactly is an entrepreneurial opportunity?” (McMullen, Plummer & Acs, 2007).

Economic Code of Ukraine (Article 42) defines the term *entrepreneurship* as an independent, proactive, systematic, at one’s own risk economic activity carried out by business entities (entrepreneurs) with the aim of achieving economic and social results and obtaining profit (Economic Code of Ukraine, 2003).

Today, individuals having the spirit of entrepreneurship in the society must realize themselves in order for a region or country to develop in economic and social terms. An increase in entrepreneurship implies an increase in competition, employment, innovation, quality and efficiency and acceleration of economic development (Özkuş & Dulupçu, 2007).

In the course of the research, it is determined that efficiency of enterprises is characterized by the level of their development. Many scientists considered development as an economic category. In general, the concept of development can be defined as a change in a process or phenomenon from simpler to more complex (Dunda, 2016).

Kolesnikov (2013) understands the concept of development as the changes occurring at the enterprise, that is, a certain sequence of transitions of the socio-economic system of the enterprise from the beginning of its creation to its liquidation.

According to Kyfyak (2011) development is a dynamic system of interacting subsystems, prerequisites, factors and principles that form a vector of quantitative and qualitative changes in the functioning of the enterprise aimed at achieving priorities. Pohorielov (2012) interprets this concept as a continuous process that takes place according to an artificially established or natural program, as a change in the state of the enterprise, each of which is qualitatively different from the previous one, due to which the enterprise, like a more complex system, may have emerged, disclosed and potentially implemented new opportunities, new properties, qualities and characteristics that contribute to the ability of the enterprise to perform new functions, to solve fundamentally different tasks, which strengthens its positioning in the external environment and increases the ability to counteract negative influences.

Rayevnyeva and Chankina (2013) define development as a unique process of transformation of an open system in space and time, which is characterized by a permanent change in the global goals of its existence through the formation of a new dissipative structure and its transfer into a new attractor (one of the alternative trajectories of

enterprise development) of functioning. Chorna and Koval (2018) explain development as a process of cumulative changes in the socio-economic system of the enterprise, aimed at its transition to a new qualitative and quantitative state over time under the influence of internal and external environmental factors. It is important that it can be both positive and negative in its direction.

According to Koniahha and Dunda (2018), the development of an enterprise is a set of directed, intensive and qualitative changes of an economic nature that occur at the enterprise as a result of contradictions in the internal environment and the influence of external environmental factors.

In the process of development, the main component of the successful activity of any enterprise is its efficiency. The first studies of the problem of efficiency can be attributed to the time of the founders of the classical school of economic theory of William Petty, Wilfred Pareto and Francois Quenet, the head of the school of physiocrats. Petty and Quenet equated the concepts of efficiency and effectiveness, which were applied to certain state measures and contributed to the economic revitalization of countries (Darmic & Vatsyk, 2010).

The separation of the concept of efficiency as an economic category took place at the beginning of the 19th century in the writings of Ricardo who separated the concepts of efficiency and effectiveness, giving efficiency a specific meaning that is expressed by comparing the result and a certain type of costs.

The concept of effectiveness, from Latin *effectivus*, means “to benefit”. The nouns implementation, result and effectiveness are originated from it (Economic Encyclopedia, 2000).

As noted by Hrosul and Avanesova (2010), efficiency is a concept that characterizes the positive dynamics of the subject’s development, and the degree of achievement of planned indicators or set goals reflects effectiveness.

According to P. A. Samuelson and W. D. Nordhaus, efficiency can be regarded as the main subject of economics because in a wider perspective it is tantamount to a lack of wastefulness (Rutkowska, 2013). R. Przygodzka (2008) believes that the concept of efficiency is usually analyzed with regard to specific activities.

Considering the general formulations of the concept of *efficiency*, it is possible to formulate three principle provisions that should be present in any definition (Mahas, 2018).

1. Efficiency implies the presence of a goal and depends on a number of factors, such as, for example, the content of tasks solved by the system, the state of the system, the nature of the environment, etc.
2. Efficiency can change (it is characterized by dynamism), the nature of its changes can be measured by a certain number that fluctuates from zero to some maximum value under ideal conditions. Moreover, this number should include a lot of factors that efficiency depends on; complexity of the system, the development of the relevant regulatory framework, the level of personnel training, the optimality of the management system, etc.
3. Efficiency should adequately reflect all the results of the functioning of objects through such indicators (in most cases, we speak of a system or a set of efficiency indicators), as the probability of any event, the average expected value (mathematical expectation) of some random variable, actual the results of the task, etc. It should be noted that so far today such a general theory has not developed an indicator that would correctly reflect all factors on which efficiency depends.

According to Demchenko and Momot (2013), effectiveness is a certain indicator of some process, an indicator that at the end of the process something planned in advance is obtained. The effectiveness of the organization is understood as its ability to achieve established external goals, aiming to ensure that all its organizational decisions

and actions meet the criteria established by the external environment.

In-depth literature review allows for finding the following definitions of effectiveness (Otola, 2010):

- effectiveness expresses a particular approach to the effort, expenditures, time consumed for its achievement. The effect itself is the result, outcome, effect of our activity or an impression we create;
- economic effectiveness is a result of economic activity, reflected in the result to expenditure ratio;
- economic effectiveness is a positive outcome of actions which demonstrates its efficacy and efficiency;
- efficiency is concerned with doing things right while effectiveness is doing the right things.

Improving both the efficiency and effectiveness of processes and activities has a positive impact on the financial results of an organization. This influence can involve: a reduction in the number of mistakes in processes, activities, and products, preventing loss of material and working time, lower costs of compensation from warranty and guarantee, as well as decreased costs of lost customers and markets (Roszkowska, 2018).

The aim of the paper is to determine the prospects for the development of agrarian entrepreneurship in Ukraine on the basis of the assessment of indicators of development, effectiveness and efficiency of large, medium and small agricultural, forestry and fishery enterprises.

3. Overview of the main activity indicators of large, medium and small agricultural, forestry and fishery enterprises

In the contemporary tough, competitive conditions, a significant share of agricultural enterprises in Ukraine suffers losses. This is caused by a variety of factors: internal, which depend on the actions and management decisions made by the managers of the enterprise itself, as well as external, such as: global market challenges, significant competition, unreliable suppliers, political, technical and technological, economic and natural influences. However, some agricultural enterprises maintain their positions, adapt to the influence of external environmental factors and restore the efficiency of their activities, while others go bankrupt and are forced to liquidate their enterprises (Voskolupov et al., 2021).

The implementation of entrepreneurial activities aimed at the production of agricultural products plays an important role both for the economy of Ukraine and for the food supply of the population. According to the data of State Statistics Service of Ukraine, in 2021 the share of agriculture in the GDP of Ukraine was the highest among all branches of the national economy and amounted to more than 10%. Agri-food products also accounted for the largest share of Ukraine's total exports – about 41% per year (State Statistics Service of Ukraine, 2022).

If Ukraine's capacity to provide food for the world's population, according to experts, was 40 million people 20 years ago, today Ukraine's contribution to food security is equivalent to about 400 million people. In addition, the Strategy for the Development of Ukraine's Agricultural Sector by 2030 envisages providing food for 1 billion people in the world (State Statistics Service of Ukraine, 2022).

Table 1 shows quantitative indicators of actually operating enterprises in Ukraine by their size; the dynamics of employment and wages at large, medium and small agricultural, forestry and fishery enterprises. Due to the limitation of the official statistical data for 2021 connected with the impossibility to form a database by the size of enterprises (according to the conducted research), which is caused by the war in Ukraine, the research was

conducted on the basis of the data of the State Statistics Service of Ukraine, and it covers the period of 2012-2020.

Table 1. The Dynamics of the Number of Operating Enterprises by Their Size, the Dynamics of Employment and Wages in Large, Medium and Small Enterprises of Agriculture, Forestry and Fisheries*

Indicator	Year									Average Annual Growth Rate
	2012	2013	2014	2015	2016	2017	2018	2019	2020	
<i>The number of enterprises, units</i>										
Total	47656	49848	46012	46744	44998	50115	50504	50239	49452	1,006
Large	26	27	28	29	20	18	23	34	36	1,056
Medium	3143	2915	2595	2533	2501	2383	2298	2281	2134	0,938
Small	44487	46906	43389	44182	42477	47714	48183	47924	47282	1,010
<i>The number of employed workers at enterprises, thousands of people</i>										
Total	712,0	687,2	628,9	597,6	614,3	593,0	581,1	566,7	534,7	0,953
Large	44,5	38,8	46,6	48,3	38,1	27,5	32,8	43,1	38,6	0,977
Medium	447,1	409,7	364,1	346	359	335,8	323,8	301,7	277,7	0,924
Small	220,4	238,7	218,2	203,3	217,2	229,7	224,5	221,9	218,4	0,998
<i>The number of employees at enterprises, thousands of people</i>										
Total	697,8	652,1	596,0	569,4	583,4	558,1	545,7	535,0	506,5	0,948
Large	44,5	38,8	46,6	48,3	38,1	27,5	32,8	43,1	38,6	0,977
Medium	446,7	409,4	363,8	345,7	358,7	335,5	323,5	301,4	277,4	0,924
Small	206,6	203,9	185,6	175,4	186,6	195,1	189,4	190,5	190,5	0,987
<i>The number of employees at one enterprise, persons</i>										
Total	15	13	13	12	13	11	11	11	10	0,942
Large	1712	1437	1664	1666	1905	1528	1426	1268	1072	0,925
Medium	142	140	140	136	143	141	141	132	130	0,985
Small	5	4	4	4	4	4	4	4	4	0,975
<i>The average monthly salary of one employee, UAH</i>										
Total	1972	2167	2419	3112	3870	5380	6909	8134	8808	1,283
Large	2661	2996	3405	4532	5957	8078	10147	13123	14676	1,329
Medium	2105	2319	2605	3379	4321	6111	7734	8812	9695	1,290
Small	1537	1704	1807	2195	2577	3742	4940	5934	6329	1,266

* the initial data for the calculation of the indices of development, effectiveness and efficiency

Source: calculated according to the data of the State Statistics Service of Ukraine

As evidenced by the data in the Table 1, during 2012-2020, there was an increase in the number of large and small agricultural, forestry and fishery enterprises, while the number of medium-sized enterprises was decreasing. During the studied period, the number of employed and hired workers (employees) decreased in all enterprises,

regardless of their size. There was also a decrease in the number of employees at one enterprise. A positive factor is that the average monthly salary of 1 employee in large, medium and small enterprises grew annually. Considering the volume of the produced products (goods, services) in monetary terms, its amount during 2012-2020 was growing in all sizes of agricultural, forestry and fishing enterprises (Table 2).

Table 2. The Dynamics of Indicators of Economic and Investment Activity of Large, Medium and Small Enterprises of Agriculture, Forestry and Fisheries*

Indicator	Year									Average Annual Growth Rate
	2012	2013	2014	2015	2016	2017	2018	2019	2020	
<i>The production costs (on goods, services), mln UAH</i>										
Total	134318	157671	189916	274982	326545	388919	481540	508634	512270	1,250
Large	16455	18517	29736	44926	43164	43457	66030	84884	70174	1,273
Medium	90018	94316	108163	147442	179995	219434	259153	253375	255568	1,190
Small	27845	44838	52016	82614	103385	126027	156357	170375	186528	1,373
<i>The production volume (for goods, services) of enterprises, mln UAH</i>										
Total	175742	191655	280927	409113	465003	511163	600955	620551	660951	1,247
Large	23374	24724	41015	68731	57660	46424	63282,8	80991,8	90514,9	1,253
Medium	111772	106560	144677	213148	245522	269043	312525,7	312553,7	316443,3	1,189
Small	40596	60371	95234	127234	161821	195697	225146,4	227005,8	253992,3	1,357
<i>The added value based on enterprise production costs, mln UAH</i>										
Total	74407	69670	125464	183874	186933	195448	201938	205442	263617	1,235
Large	10491	9893	15683	32362	19815	8781	5913	9900	36568	1,231
Medium	43007	34208	59846	94144	96644	91921	105103	115518	121478	1,189
Small	20908	25569	49935	57369	70474	94746	90922	80024	105572	1,310
<i>The capital (fixed assets), mln UAH</i>										
Total	76568	94870	98790	119530	167230	211262	266300	232354	258413	1,225
Large	7664	8051	8075	11484	11131	12848	24658	31425	32689	1,273
Medium	39812	45512	47358	55346	76950	90729	108484	98452	107861	1,181
Small	29093	30387	32226	39503	58283	80560	99132	102477	117863	1,263
<i>The equity, mln UAH</i>										
Total	136431	156820	163932	275304	369371	436338	482979	355379	612251	1,284
Large	14636,6	21631	25534,4	59624,2	61377,7	64820,1	63650	91593	99557	1,376
Medium	69024	81565	82764,8	121674	176600	209447	251174	245099	271265	1,256
Small	39785,7	53624	55632,5	94006,1	131393	162070	168154	18687	241429	1,351
<i>The volume of the products sold, mln UAH</i>										
Total	162611	161130	213930	362310	403646	454380	525097	556326	605483	1,245
Large	19473,2	23441	31584,6	61214,8	53033,8	38879,9	54757,9	74132	78052,1	1,260
Medium	93979,4	88851	117041	183214	206594	237987	272210	275954	289400	1,206
Small	49158,5	48838	65303,9	117881	144018	177513	198129	206240	238031	1,301

* the initial data for the calculation of the indices of development, effectiveness and efficiency

Source: calculated according to the data of the State Statistics Service of Ukraine

Accordingly, there was also an annual increase in production costs (goods, services) and added value based on enterprise production costs, which is fully justified. It is worth noting that the annual increase in the volume of sold products in the monetary equivalent ensured the increase of profitability by enterprises. During 2012-2020, there was an increase in capital (fixed assets) and equity, which contributed to increasing the creditworthiness of enterprises of different sizes.

The financial indicators of the activity of enterprises play an important role in the activity of enterprises of any size (Table 3).

Table 3. The Dynamics of Indicators of Financial Activity in Large, Medium and Small Enterprises of Agriculture, Forestry and Fisheries*

Indicator	Year									Average Annual Growth Rate
	2012	2013	2014	2015	2016	2017	2018	2019	2020	
<i>The financial result of enterprises, mln UAH</i>										
Total	26993	15147	21677,4	103138	91109,5	69344,1	71478,5	94041,4	82230,6	1,204
Large	5304,7	3837	5223	24786	12085	8063	11191	5054	8794	1,088
Medium	13813	7050	9522	44190	43185	35738	38792	69019	40610	1,197
Small	7875	4261	6932	34162	35840	25543	21496	19969	32826	1,269
<i>The net profit (loss) of enterprises, mln UAH</i>										
Total	26718	14985	21481,3	102849	90613,2	68858,5	71002,6	93255,4	81618,5	1,205
Large	5305	3819	5223	24786	12085	8063	11218	5026	8678	1,085
Medium	13592	6945	9371	43968	42818	35426	38482	68464	40321	1,199
Small	7821	4221	6887	34096	35711	25370	21303	19766	32620	1,269
<i>The level of profitability (unprofitability) of the operational activities of enterprises, %</i>										
Total	21,74	11,28	20,58	41,65	32,43	22,38	18,26	16,97	18,10	0,970
Large	29,7	20,0	23,8	54,3	29,3	24,6	22,9	8,3	16,0	0,902
Medium	19,6	8,4	20,8	37,8	30,4	20,8	17,1	26,2	18,5	0,990
Small	22,7	12,9	18,5	41,4	37,2	24,1	18,6	13,4	19,8	0,978
<i>The level of profitability (loss) of all enterprise activities, %</i>										
Total	15,6	8,0	8,9	29,5	24,7	16,0	13,7	13,1	12,8	0,968
Large	24,6	15,3	14,9	45,4	24,7	20,5	21,2	6,1	9,7	0,857
Medium	13,1	6,3	6,9	23,4	21,6	15,4	14,3	23,6	13,9	1,009
Small	16,7	8,1	9,8	32,4	30,0	15,6	10,9	9,6	14,8	0,980

* the initial data for the calculation of the indices of development, effectiveness and efficiency

Source: calculated according to the data of the State Statistics Service of Ukraine

According Table 3, in general, during 2012-2020, large, medium and small enterprises received profit. However, there was an unstable trend over the years, that is, the amount of profit increased in one year and decreased in another. Regarding the level of profitability of the operational activities of enterprises, in 2020, compared to 2012, it decreased at enterprises of all sizes. A similar situation is observed in terms of the indicator of the level of profitability of all enterprise activities. This indicator shows a decrease in large and small-sized enterprises and an

increase in medium-sized enterprises.

Thus, despite the general profitability of agricultural, forestry and fishery enterprises of different sizes, it is advisable for large and small enterprises to review in detail and reduce expenditure items, which will lead to an increase in the level of profitability in the future.

4. Research methodology

In the course of the study, an integral assessment of large, medium and small enterprises in agriculture, forestry and fisheries has been carried out in terms of their competitiveness and prospects for future development, with further improvement of the management decision-making process to outline the clear competitive advantages of each group of enterprises, adjusting measures to achieve the goals of the Strategy the Food Security of Ukraine. The comprehensive (integral) assessment has been carried out according to the algorithm presented below, taking into account the recommendations outlined in the order of the State Statistics Committee of Ukraine No. 114 dated 04/15/2003 on the approval of the methodology for calculating integral regional indices of economic development (2003) regarding the specifics of calculating integral regional indices:

1. Defining a system of indicators for evaluating the activity of enterprises of different sizes in three separate blocks (directions) - development, effectiveness, efficiency, i.e. in a three-dimensional plane.

Block 1 *Development* includes the following indicators: the number of employed workers, thousands of people; the number of employees (hired workers), thousands of people; the cost of capital, million UAH; the volume of production (goods, services) of enterprises, million UAH; the volume of the products sold (goods, services) of enterprises, million UAH; the added value, million UAH; the net profit, million UAH; the cost of the manufactured products per UAH 1 of expenses, UAH; the cost of the manufactured products per UAH 1 of capital, UAH; the cost of the manufactured products per 1 employee, thousand UAH; the cost of the sold products per UAH 1 of expenses, UAH; the cost of the sold products per UAH 1 of capital, UAH; the cost of the sold products per 1 employee, thousand UAH; the added value per UAH 1 of expenses, UAH; the added value per UAH 1 of capital, UAH; the added value per 1 employee, thousand UAH; the net profit of enterprises per UAH 1 of expenses, UAH; the net profit of enterprises per 1 employee, thousand UAH; the profitability level, %; the average monthly salary of 1 employee, UAH.

Blok 2 *Effectiveness*. The effectiveness indicators include: the cost of the manufactured products per UAH 1 of expenses, UAH; the cost of the manufactured products per UAH 1 of capital, UAH; the cost of the manufactured products per 1 employee, thousand UAH; the cost of the sold products per UAH 1 of expenses, UAH; the cost of the sold products per UAH 1 of capital, UAH; the cost of the sold products per 1 employee, thousand UAH; the added value per UAH 1 of expenses, UAH; the added value per UAH 1 of capital, UAH; the added value per 1 employee, thousand UAH.

Block 3 *Efficiency*. The efficiency indicators include: the net profit of enterprises per UAH 1 of expenses, UAH; the net profit of enterprises per 1 employee, thousand UAH; the level of profitability from all activities, %; the level of profitability of sales, %; the return on equity, %; the average monthly salary of 1 employee, UAH.

2. Calculating the determined partial indicators for the studied time period (2012-2020).

3. Assessing the development according to the average rates of change of the selected indicators from 2012 to 2020.

The development index is the average annual growth rate of each of the selected indicators for 2012-2020, respectively, for large, medium and small enterprises (formula (1)):

$$I_i = \sqrt[n-1]{\frac{x_{in}}{x_{i1}}}, \quad (1)$$

where I_i – the development index for the i-th indicator;

i – the indicator's number;

n – the number of years;

x_{i1} – the value of the i-th indicator for 2012;

x_{in} – the value of the i-th indicator for 2020.

4. Normalizing the average indicators.

The effectiveness and efficiency indices are calculated according to the following algorithm:

4.1. The selected indicators are calculated on average for 2012-2020 (formula (2)):

$$\bar{x}_i = \frac{x_{i1} + \dots + x_{in}}{n}, \quad (2)$$

where \bar{x}_i – the arithmetic mean value of the i-th indicator;

x_{i1} – the value of the i-th indicator for 2012;

x_{in} – the value of the i-th indicator for 2020.

4.2. To compare and to make comparison, it is necessary to carry out preliminary normalization of the selected indicators. The main task of normalization (rating/standardization) is to bring the indicators to the same base (dimensionless values) on the condition that the ratio between them is preserved. It is calculated by the ratio of each indicator of the economic entity to the average for Ukraine by formula (3):

$$Ni = \frac{x_{ij}}{\bar{x}_i}, \quad (3)$$

where N_i – the normalized i-th indicator;

x_{ij} – the absolute value of the i-th indicator of the j-th business entity;

\bar{x}_i – the arithmetic mean value of the i-th indicator.

5. Calculating the integral indices for each block (*development, effectiveness, efficiency*) and the determination of the integral assessment of the activities of large, medium and small enterprises.

The integral index of the development is calculated according to the formula (4):

$$Id = \frac{\sum_{i=1}^m I_i}{m}, \quad (4)$$

where I_d – the integral index of the development of the business entities;

I_i – development index for the i-th indicator;

m – the number of indicators.

The integral indices of the effectiveness and efficiency are calculated according to the formula (5):

$$Ir (Ie) = \sum_{i=1}^m Ni, \quad (5)$$

where $I_r (I_e)$ – the integral index of the effectiveness (efficiency) of the business entities;

N_i – the normalized i-th indicator;

m – the number of indicators.

6. Carrying out a rating assessment of the activities of large, medium and small enterprises.
7. Analysing results (actual state of enterprises) of the rating assessment.
8. Developing management decisions in accordance with the obtained results, outlining strategic directions for the further development of business entities, determining promising business areas.

3. Research findings

In accordance with the given methodology for calculating integral indices, the first stage of our research is the calculation of indices of development, effectiveness and efficiency of large, medium and small enterprises in agriculture, forestry and fisheries according to the selected indicators (Table 4).

Table 4. The Activity Indicators of Large, Medium and Small Enterprises of Agriculture, Forestry and Fisheries and Their Index Values to Form Evaluation Directions: Development, Effectiveness, Efficiency*

Indicator	Year									Average Value	Growth Rate
	2012	2013	2014	2015	2016	2017	2018	2019	2020		
1	2	3	4	5	6	7	8	9	10	11	12
<i>The cost of the manufactured products per UAH 1 of expenses, UAH</i>											
Total	1,31	1,22	1,48	1,49	1,42	1,31	1,25	1,22	1,29	1,33	0,998
Large	1,42	1,34	1,38	1,53	1,34	1,07	0,96	0,95	1,29	1,25	0,984
Medium	1,24	1,13	1,34	1,45	1,36	1,23	1,21	1,23	1,24	1,27	1,000
Small	1,46	1,35	1,83	1,54	1,57	1,55	1,44	1,33	1,36	1,49	0,989
<i>The cost of the manufactured products per UAH 1 of capital, UAH</i>											
Total	2,30	2,02	2,84	3,42	2,78	2,42	2,26	2,67	2,56	2,59	1,018
Large	3,05	3,07	5,08	5,99	5,18	3,61	2,57	2,58	2,77	3,77	0,984
Medium	2,81	2,34	3,05	3,85	3,19	2,97	2,88	3,17	2,93	3,02	1,007
Small	1,40	1,99	2,96	3,22	2,78	2,43	2,27	2,22	2,15	2,38	1,075
<i>The cost of the manufactured products per 1 employee, thousand UAH</i>											
Total	246,8	278,9	446,7	684,6	757,0	862,0	1034,2	1095,0	1236,1	737,92	1,308
Large	525,2	637,2	880,2	1423,0	1513,4	1688,1	1929,4	1879,2	2344,9	1424,51	1,283
Medium	250,0	260,1	397,4	616,0	683,9	801,2	965,2	1036,0	1139,5	683,25	1,288
Small	184,2	252,9	436,5	625,8	745,0	852,0	1002,9	1023,0	1163,0	698,36	1,360
<i>The cost of the sold products per UAH 1 of expenses, UAH</i>											
Total	1,21	1,02	1,13	1,32	1,24	1,17	1,09	1,09	1,18	1,16	0,996
Large	1,18	1,27	1,06	1,36	1,23	0,89	0,83	0,87	1,11	1,09	0,990
Medium	1,04	0,94	1,08	1,24	1,15	1,08	1,05	1,09	1,13	1,09	1,014
Small	1,77	1,09	1,26	1,43	1,39	1,41	1,27	1,21	1,28	1,34	0,947

Continuation of Table 4

1	2	3	4	5	6	7	8	9	10	11	12
<i>The cost of the sold products per UAH 1 of capital, UAH</i>											
Total	2,12	1,70	2,17	3,03	2,41	2,15	1,97	2,39	2,34	2,25	1,017
Large	2,54	2,91	3,91	5,33	4,76	3,03	2,22	2,36	2,39	3,27	0,990
Medium	2,36	1,95	2,47	3,31	2,68	2,62	2,51	2,80	2,68	2,60	1,022
Small	1,69	1,61	2,03	2,98	2,47	2,20	2,00	2,01	2,02	2,11	1,030
<i>The cost of the sold products per 1 employee, thousand UAH</i>											
Total	228,4	234,5	340,2	606,3	657,1	766,2	903,6	981,7	1132,4	650,04	1,306
Large	437,6	604,1	677,8	1267,4	1392,0	1413,8	1669,4	1720,0	2022,1	1244,91	1,291
Medium	210,2	216,9	321,5	529,5	575,5	708,7	840,7	914,7	1042,1	595,52	1,306
Small	223,0	204,6	299,3	579,8	663,1	772,8	882,5	929,4	1089,9	627,17	1,303
<i>The added value per UAH 1 of expenses, UAH</i>											
Total	0,55	0,44	0,66	0,67	0,57	0,50	0,42	0,40	0,51	0,53	0,988
Large	0,64	0,53	0,53	0,72	0,46	0,20	0,09	0,12	0,52	0,42	0,967
Medium	0,48	0,36	0,55	0,64	0,54	0,42	0,41	0,46	0,48	0,48	0,999
Small	0,75	0,57	0,96	0,69	0,68	0,75	0,58	0,47	0,57	0,67	0,954
<i>The added value per UAH 1 of capital, UAH</i>											
Total	0,97	0,73	1,27	1,54	1,12	0,93	0,76	0,88	1,02	1,02	1,008
Large	1,37	1,23	1,94	2,82	1,78	0,68	0,24	0,32	1,12	1,28	0,967
Medium	1,08	0,75	1,26	1,70	1,26	1,01	0,97	1,17	1,13	1,15	1,007
Small	0,72	0,84	1,55	1,45	1,21	1,18	0,92	0,78	0,90	1,06	1,037
<i>The added value per 1 employee, thousand UAH</i>											
Total	104,5	101,4	199,5	307,7	304,3	329,6	347,5	362,5	493,0	283,34	1,295
Large	235,8	255,0	336,5	670,0	520,1	319,3	180,3	229,7	947,4	410,45	1,261
Medium	96,2	83,5	164,4	272,1	269,2	273,7	324,6	382,9	437,4	256,00	1,287
Small	94,9	107,1	228,8	282,2	324,5	412,5	405,0	360,6	483,4	299,89	1,312
<i>The net profit of enterprises per UAH 1 of expenses, UAH</i>											
Total	0,20	0,10	0,11	0,37	0,28	0,18	0,15	0,18	0,16	0,19	0,964
Large	0,32	0,21	0,18	0,55	0,28	0,19	0,17	0,06	0,12	0,23	0,852
Medium	0,15	0,07	0,09	0,30	0,24	0,16	0,15	0,27	0,16	0,18	1,007
Small	0,28	0,09	0,13	0,41	0,35	0,20	0,14	0,12	0,17	0,21	0,924
<i>The net profit of enterprises per 1 employee, thousand UAH</i>											
Total	38,3	23,0	36,0	180,6	155,3	123,4	130,1	174,3	161,1	113,58	1,271
Large	119,2	98,4	112,1	513,2	317,2	293,2	342,0	116,6	224,8	237,41	1,112
Medium	30,4	17,0	25,8	127,2	119,4	105,6	119,0	227,2	145,4	101,86	1,298

Continuation of Table 4

1	2	3	4	5	6	7	8	9	10	11	12
Small	37,9	20,7	37,1	194,4	191,4	130,0	112,5	103,8	171,2	110,99	1,286
<i>The level of profitability of operating activities, %</i>											
Total	21,7	11,3	20,6	41,7	32,4	22,4	18,3	17,0	18,1	22,60	0,970
Large	24,6	15,3	14,9	45,4	24,7	20,5	21,2	8,3	16,0	21,21	0,931
Medium	13,1	6,3	6,9	23,4	21,6	15,4	14,3	26,2	18,5	16,19	1,059
Small	16,7	8,1	9,8	32,4	30,0	15,6	10,9	13,4	19,8	17,41	1,029
<i>The level of profitability of sales, %</i>											
Total	16,4	9,3	10,0	28,4	22,4	15,2	13,5	16,8	13,5	16,17	0,968
Large	27,2	16,3	16,5	40,5	22,8	20,7	20,5	6,8	11,1	20,27	0,861
Medium	14,5	7,8	8,0	24,0	20,7	14,9	14,1	24,8	13,9	15,86	0,994
Small	15,9	8,6	10,5	28,9	24,8	14,3	10,8	9,6	13,7	15,24	0,975
<i>The average monthly salary of 1 employee, UAH</i>											
Total	1972	2167	2419	3112	3870	5380	6909	8134	8808	4752,40	1,283
Large	2661	2996	3405	4532	5957	8078	10147	13123	14676	7286,08	1,329
Medium	2105	2319	2605	3379	4321	6111	7734	8812	9695	5231,05	1,290
Small	1537	1704	1807	2195	2577	3742	4940	5934	6329	3418,33	1,266
<i>The level of return on equity, %</i>											
Total	19,6	9,56	13,1	37,36	24,53	15,78	14,7	26,24	13,33	19,35	0,938
Large	36,2	17,7	20,46	41,57	19,69	12,44	17,62	5,488	8,716	19,99	0,789
Medium	19,7	8,52	11,32	36,14	24,25	16,91	15,32	27,93	14,86	19,44	0,954
Small	19,7	7,87	12,38	36,27	27,18	15,65	12,67	105,8	13,51	27,88	0,939

* the initial data for the calculation of the indices of development, effectiveness and efficiency

Source: calculated according to the data of the State Statistics Service of Ukraine

As the data in Table 4 show, the cost of the manufactured products per UAH 1 of expenses and the cost of the sold products per UAH 1 of expenses during 2012-2020 decreased in large and small enterprises and remained unchanged in medium ones, whereas the cost of the manufactured products per UAH 1 of capital and the cost of the sold products per UAH 1 of capital decreased only in large enterprises, while the cost of the manufactured products per 1 employee and the cost of the sold products per UAH 1 employee increased in all sizes of enterprises. The added value per 1 employee increased in large, medium and small enterprises, whereas the added value per 1 hryvnia of expenses decreased. There was also a decrease in the added value per UAH 1 of capital only in large enterprises. The net profit per UAH 1 of costs decreased in large and small enterprises, while it increased in medium-sized ones. During 2012-2020, the net profit per 1 employee increased in enterprises of all sizes. It is worth noting that during the studied period, the level of profitability of sales and equity decreased in large, medium and small enterprises.

Thus, all agricultural, forestry and fishing enterprises, regardless of their size, should pay considerable attention to increasing the level of profitability of sales and equity capital.

Table 5 shows the results of the calculation of the integral index of development of large, medium and small enterprises of agriculture, forestry and fisheries.

Table 5. Calculation of the Integral Index of Development of Large, Medium and Small Enterprises of Agriculture, Forestry and Fisheries

Indicators of the development index	Indicator's number	Enterprise size		
		Large	Medium	Small
The number of employed workers	1	1,056	0,938	1,010
The number of employees (hired workers)	2	0,977	0,924	0,987
The cost of capital	3	1,273	1,181	1,263
The volume of production (goods, services) of enterprises	4	1,253	1,189	1,357
The volume of the sold products (goods, services) of enterprises	5	1,260	1,206	1,301
The added value	6	1,231	1,189	1,310
The net profit	7	1,085	1,199	1,269
The cost of the manufactured products per UAH 1 of expenses	8	0,984	1,000	0,989
The cost of the manufactured products per UAH 1 of capital	9	0,984	1,007	1,075
The cost of the manufactured products per 1 employee	10	1,283	1,288	1,360
The cost of the sold products per UAH 1 of expenses	11	0,990	1,014	0,947
The cost of the sold products per UAH 1 of capital	12	0,990	1,022	1,030
The cost of the sold products per 1 employee	13	1,291	1,306	1,303
The added value per UAH 1 of expenses	14	0,967	0,999	0,954
The added value per UAH 1 of capital	15	0,967	1,007	1,037
The added value per 1 employee	16	1,261	1,287	1,312
The net profit of enterprises per UAH 1 of expenses	17	0,852	1,007	0,924
The net profit of enterprises per 1 employee	18	1,112	1,298	1,286
The level of profitability of operational activity	19	0,931	1,059	1,029
The average monthly salary of 1 employee	20	1,329	1,290	1,266
The integral index of development	-	1,094	1,113	1,140

Source: calculated by the authors

According to the data in Table 5, the integrated development index for all types of enterprises is more than 1. It is the highest in small enterprises and is 1.140, slightly lower in medium-sized enterprises – 1.113 and large enterprises – 1.094. That value of the indicator demonstrates significant success in the development of both small and large and medium-sized enterprises.

The next stage of our research is the calculation of the integral index of productivity of agricultural, forestry and fishery enterprises of different sizes (Table 6).

The data in Table 6 show that the integral effectiveness index is above unity in large (1.292) and small (1.040) enterprises. Such a value of the indicator testifies to the achievement of the set goals by these enterprises and the full performance of their functions. However, it is worth noting that in medium-sized enterprises, the integrated

effectiveness index is below 1, which indicates the need to review the outlined goals for their attainability and make new management decisions.

Table 6. Calculation of the Integrated Effectiveness Index of Large, Medium and Small Enterprises of Agricultural, Forestry and Fisheries

The size of the enterprise	Indicator									The integral effectiveness index
	The cost of the manufactured products per UAH 1 of expenses	The cost of the manufactured products per UAH 1 of capital	The cost of the manufactured products per 1 employee	The cost of the sold products per UAH 1 of expenses	The cost of the sold products per UAH 1 of capital	The cost of the sold products per 1 employee	The added value per UAH 1 of expenses	The added value per UAH 1 of capital	The added value per 1 employee	
	1	2	3	4	5	6	7	8	9	
<i>The value of the effectiveness index</i>										
Total	1,33	2,59	737,92	1,16	2,25	650,04	0,53	1,02	283,34	-
Large	1,25	3,77	1424,51	1,09	3,27	1244,91	0,42	1,28	410,45	-
Medium	1,27	3,02	683,25	1,09	2,60	595,52	0,48	1,15	256,00	-
Small	1,49	2,38	698,36	1,34	2,11	627,17	0,67	1,06	299,89	-
<i>The normalized values (relative to the average mean)</i>										
Large	0,940	1,457	1,930	0,939	1,451	1,915	0,804	1,247	1,449	1,292
Medium	0,953	1,169	0,926	0,939	1,153	0,916	0,913	1,121	0,904	0,994
Small	1,120	0,920	0,946	1,157	0,937	0,965	1,272	1,035	1,058	1,040

Source: calculated by the authors

The efficiency indicator plays a leading role in the activity of any enterprise. Table 7 shows the results of calculating the integral efficiency index of large, medium and small enterprises of agriculture, forestry and fishery.

According to the data in Table 7, the integral efficiency indicator is higher than 1 only in large-sized enterprises, which indicates their efficient operation, rational distribution and cost-effectiveness. In medium and small enterprises, this indicator is below 1 and is 0.928 and 0.965 respectively.

Table 7. Calculation of the Integral Efficiency Index of Large, Medium and Small Enterprises of Agriculture, Forestry and Fisheries

The size of the enterprise	Indicator						The integral efficiency index
	The net profit of enterprises per UAH 1 of expenses	The net profit of enterprises per 1 employee	The level of profitability from all activities	The level of profitability of sales	The return on equity	The average monthly salary of 1 employee	
	1	2	3	4	5	6	
<i>The value of the efficiency index</i>							
Total	0,192	113,58	22,60	16,2	19,4	4752	-
Large	0,230	237,41	21,21	20,3	20,0	7286	-
Medium	0,176	101,86	16,19	15,9	19,4	5231	-
Small	0,210	110,99	17,41	15,2	27,9	3418	-
<i>The normalized values (relative to the average mean)</i>							
Large	1,202	2,090	0,939	1,254	1,033	1,533	1,293
Medium	0,919	0,897	0,716	0,981	1,004	1,101	0,928
Small	1,097	0,977	0,770	0,942	1,441	0,719	0,965

Source: calculated by the authors

Schematically, the indices of development, effectiveness and efficiency of large, medium, and small enterprises in agriculture, forestry, and fisheries according to the specified indicators are shown in Fig. 1.

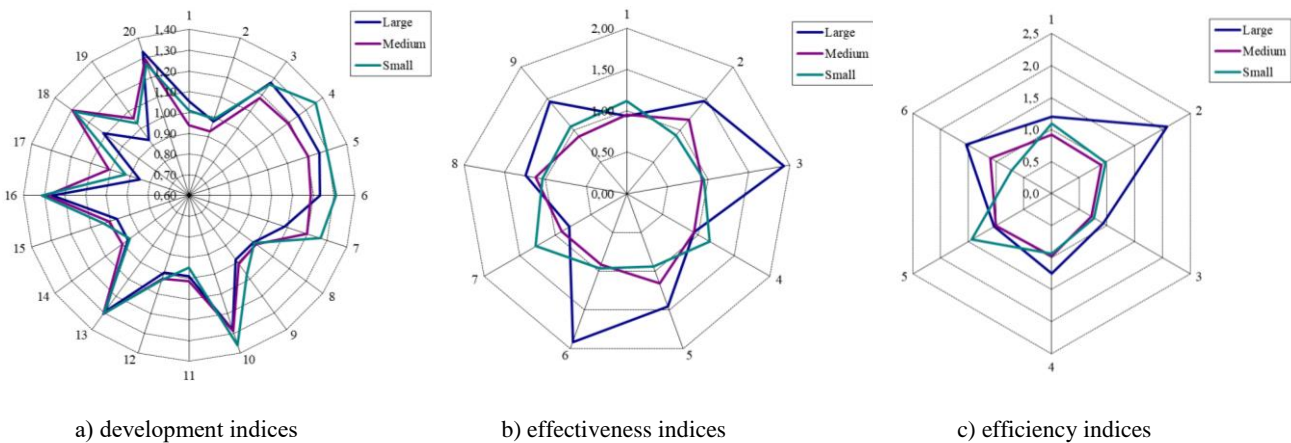


Fig. 1. Indices of Development, Effectiveness and Efficiency of Large, Medium and Small Enterprises of Agriculture, Forestry and Fisheries in Accordance with the Specified indicators

Source: developed by the authors

The summarized (generalized) data on the value of integral indices of development, effectiveness and efficiency of large, medium and small enterprises in agriculture, forestry and fisheries are shown in Fig. 2.

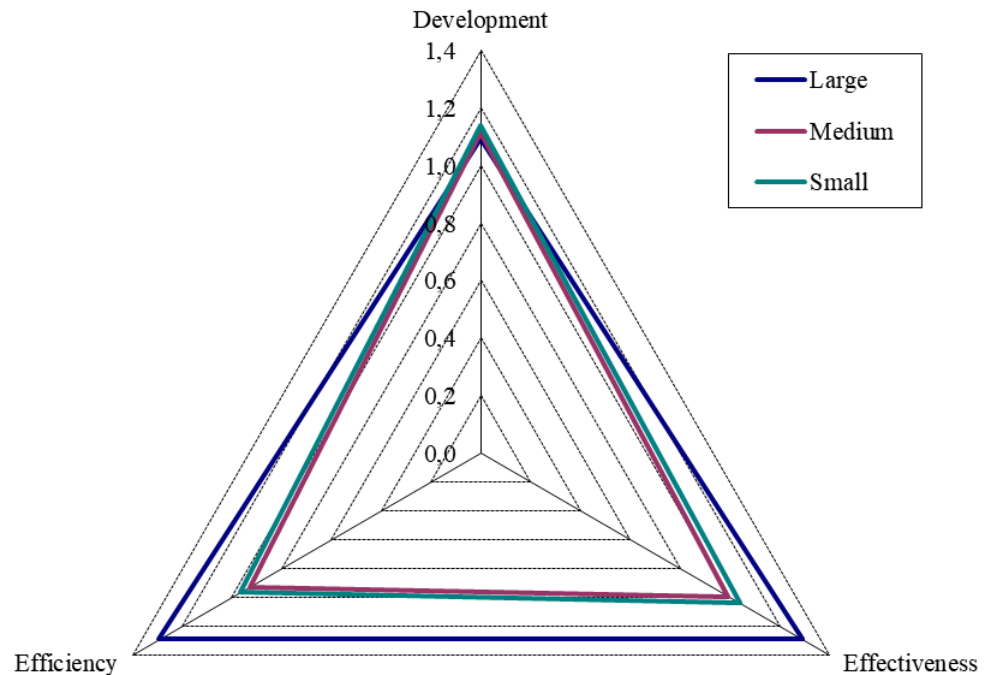


Fig. 2. The Integral Indices of Development, Effectiveness and Efficiency of Large, Medium and Small Enterprises in Agriculture, Forestry and Fisheries

Source: developed by the authors

Thus, enterprises of all sizes have significant internal potential for development. However, according to the indicator of the integral index of efficiency, medium and small enterprises are somewhat inferior to large ones. In connection with the influence of external and internal environment factors, competitive struggle on the market, it will usually be easier for large enterprises to survive and maintain their positions, while the most vulnerable in the current conditions of disruption of macroeconomic stability are medium and small business entities, which traditionally are more exposed to risks and do not have a sufficient “safety cushion”. The factors that caused difficulties in their development are related to the modern global challenges: significant financial losses, forced reduction of staff, increased risk of bankruptcy, etc. However, taking into account the important structure-forming role of medium and small entrepreneurship for the modern economy of Ukraine, comprehensive support for its development is a strategic task of the country's leadership not only for the restoration of macroeconomic, but also political and social stability of the country.

Conclusions

The integrated assessment of the agricultural enterprises has novelty and practical value. This approach can be used to make management decisions regarding the substantiation of the prospective development of all enterprises, regardless of their size, as those that demonstrate internal potential. The existing internal potential will provide an opportunity to ensure the formation of competitive agrarian entrepreneurship for the recovery of Ukraine's economy in the post-war period.

According to the results of the conducted research, one of the key strategic factors of the stable development of the economy of Ukraine and the achievement of the appropriate level and quality of life of the population is the formation of modern and effective entrepreneurial activity. According to the results of the analysis of the development of large, medium and small enterprises of agriculture, forestry and fisheries in recent years, it can be seen that the effectiveness and efficiency of medium and small enterprises is somewhat worse than that of large ones. Such a situation presupposes the solution of the following problems: improvement of the legislative and regulatory framework regulating the activities of enterprises; reducing inflation; cessation of devaluation of the national currency; overcoming corruption; strengthening of financial and credit provision of entrepreneurship; simplification of rules and procedures for their creation, etc. In addition, the recovery of the economy and its gradual growth should be based on the development of the high-tech business sector and increasing its competitiveness on the Ukrainian and European markets. The priority directions for the country's leadership should be the stimulation of innovative activity of the entrepreneurial sector, the formation of a favorable legal environment and innovative investment climate, the introduction of European approaches to the development of small and medium-sized businesses in Ukraine. The implementation of this policy should be carried out purposefully, systematically and consistently in the complex of the national innovation system.

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