The Eurasia Proceedings of
Educational & Social Sciences (EPESS)
ISSN: 2587-1730

The Eurasia Proceedings of Educational and Social Sciences (EPESS), 2025

Volume 44, Pages 10-21

IConMEB 2025: International Conference on Management Economics and Business

Structural and Functional Concept of the Labor Market Ecosystem

Yuriy Marshavin
Kyiv National Economic University named after Vadym Hetman

Iryna Petrova
Kyiv National Economic University named after Vadym Hetman

Taras Kytsak
Kyiv National Economic University named after Vadym Hetman

Oleg Marshavin
Kyiv National Economic University named after Vadym Hetman

Ruslan Atamaniuk
Kyiv National Economic University named after Vadym Hetman

Abstract: The purpose of the article is to identify the components of the labor market ecosystem, reveal the mechanisms of interaction and complementarity of these components, and identify opportunities for public authorities to influence the labor market in order to overcome its shortcomings and asymmetries. To achieve this goal, the authors used methods of correlation analysis, structural-logical and functional approaches, analysis and synthesis, induction and deduction, econometric and hypothetical methods. This made it possible to present the labor market ecosystem in terms of its internal and external environments, which should interact organically but in reality often act contradictorily, hindering and distorting the development of the ecosystem. By studying the process of forming the labor market ecosystem, the authors obtained reliable data on the correlation between employment and such components of the ecosystem as the volume of capital investments, the volume of final consumer spending, the volume of exports of goods and services, and the share of credit money in capital investments. The article pays particular attention to the creation of conditions for the development of human potential as a core component of the labor market ecosystem. The authors substantiate the role and directions of implementation of the regulatory component of the ecosystem, which is capable of limiting chaotic fluctuations and ensuring the purposefulness of the ecosystem as a whole.

Keywords: Ecosystem, Employment, Labor market, Human potential, Regulatory function.

Introduction

The functioning of the Ukrainian labor market during the period of its independence has been characterized by numerous contradictions, imbalances, and mismatches between the level and structure of professional and vocational training of the workforce and the requirements of employers, and vice versa, between the number and quality of jobs and the expectations of employees, as well as the enormous scale of shadow employment. The Russian-Ukrainian war has greatly exacerbated these contradictions and revealed the inadequacy of traditional approaches to labor market regulation in the new reality. Previous regulatory practices were adapted to a labor-surplus model of labor market functioning, whereas under current conditions, a labor-shortage model has emerged, caused by the emigration of many thousands of able-bodied persons and the conscription of young men into the Armed Forces of Ukraine. The employment sector is undergoing radical changes related to the digital

- Selection and peer-review under responsibility of the Organizing Committee of the Conference

transformation of the economy, noticeable structural shifts, and regional changes. This requires the development of new approaches to understanding current labor market trends and introducing new mechanisms and tools for its regulation. From the authors' point of view, an ecosystem approach to interpreting the theoretical and practical problems of the Ukrainian labor market is relevant, as it allows us to reveal the interrelationships between the components of its internal and external environment and to determine the appropriate directions of regulatory influence on its ecosystem.

The Purpose of the Study

The purpose of the article is to formulate the main criteria (characteristics) of the components of the labor market ecosystem, to identify the most influential of them on this basis, to reveal the mechanisms of their interaction, and complementarity, and to identify those that are subject to regulatory influence by public authorities.

Analysis of Recent Research and Publications

The ecosystem approach has been developing in global science since the end of the last century and the beginning of this century. Foreign scientists Gutl and Chang (2008), Baruch and Altman (2016); Williamson and Meyer (2012), Schlauch (2014) and Moore (1993), Ukrainian scientists Kolot, Lopushniak, Poplavska, Azmuk, Marchenko, Fedulova have made a significant contribution to the development of the methodological foundations of the ecosystem approach to socio-economic processes. It has been determined that the ecosystem of this sphere consists of many components (elements) between which there are stable interrelationships, close interaction and mutual influence, ensuring flexibility and adaptability to change. Each component of the labor market ecosystem creates its own ecosystem, which can include a wide variety of links. In this context, it is worth highlighting the publication by Azmuk (2018) which recognizes that the labor market ecosystem, in functional terms, encompasses the following ecosystems: the economic development strategy of the country, regions, and cities; the entrepreneurial ecosystem, the ecosystems of “education, science, innovation” and “resources for labor”; the digital and infrastructure ecosystems (Azmuk, 2018). Shlaukh (2014) was one of the first to reveal the content of the labor market as an ecosystem, although, in our opinion, he narrowed its understanding by including only the unemployed, the employed workforce, and employers in the ecosystem, i.e., only the internal elements of the labor market. Moore (1993) in his work “Predators and Prey: The New Ecology of Competition”, made the assumption, with which we agree, that any company is part of a business ecosystem that intersects with many sectors of the economy, evolves towards innovation through cooperation and competition, satisfies consumer needs, and prepares for a new round of innovation (Moore, 1993).

Based on a general approach, Gutl and Chang (2008) rightly point out that the concept of an ecosystem, which encompasses its external and internal aspects, can be applied to any system. More detailed characteristics of the ecosystem are highlighted by Pickett & Cadenas (2002). In their opinion, an ecosystem has five characteristics: 1) the presence of living and non-living components, as well as an appropriate level of their aggregation; 2) temporal and spatial dimensions; 3) physical boundaries of the system; 4) the type and scale of connections and interactions between identified components; 5) limitations on the behavior of the system. They also argue that the ecosystem approach can be widely used in relation to people and the processes and structures they create (Pickett & Cadenasso, 2002). We used these ideas when defining the criteria (characteristics) of the components of the labor market ecosystem.

Revealing the essential characteristics of socio-economic ecosystems, Williamson and DeMeyer (2012) point out that such ecosystems require the coordination of many ongoing, organic, diverse, and complex relationships with many different types of parties. Unlike the expansion of established rules for managing bilateral relations, according to the authors, the ecosystem is regulated indirectly, rather than through direct negotiations, command, and control (Williamson & De Meyer, 2012). This approach contributed to the formation of our understanding of the essence and functions of the regulatory component of the labor market ecosystem.

At the same time, we have found an extremely limited number of works dealing with the application of the ecosystem approach specifically to the labor market. Meanwhile, it is obvious that the system of relations that characterizes the functioning and development of the labor market under modern conditions is turning into an ecosystem. The factors of such a transformation are the processes of globalization and integration of economic processes, the presence of multi-subjectivity and multidirectionality of managerial influences, the diversity of their objects, the emergence of new needs and opportunities to ensure a dynamic balance in the labor market.

One of the few publications that examines the labor market ecosystem is a study by Baruch and Altman (2016). Researchers view the labor market through the movement of labor, career mobility, as part of a business ecosystem that achieves its goals by constantly balancing needs and requirements in line with changes in supply and demand. They consider the key characteristics of this ecosystem to be the interconnections, interactions, and interdependencies of all its components. The authors present a vivid allegory of the modern labor market as an ecosystem: employers and employees are no longer two sides of the same coin. Rather, it is a one-sided coin that is a playing field where all interested parties are present (Baruch & Altman, 2016). The structure of the labor force ecosystem includes employees from both the internal labor market of the enterprise and the external labor market, both actual and potential, both those who work directly at the company and those who are engaged in remote work.

However, despite the significant achievements of domestic and foreign scientists, there is still no agreed vision of the structure of the labor market ecosystem, approaches to identifying its components, defining their functions, and mechanisms of interaction. At the same time, these provisions are crucial for exerting a reasonable and targeted social influence on the labor market in order to minimize barriers that hinder its development and preserve flaws, shortcomings, and imbalances. We should agree with the opinion of Kolot et al. (2023) who emphasize that when taking an ecosystem approach to solving any problem, it is necessary to see not only the problem itself, but also the reasons for its occurrence, and to analyze the functioning of interrelated entities and their interaction. In our opinion, the processes taking place within the labor market, their direction and depth, are largely determined by the influence of the components of the labor market ecosystem, which is the result of the interaction of the components of the external and internal environment.

Method

In writing this article, we used the monographic method, quantitative and qualitative analysis, and statistical analysis. Correlation analysis was based on statistical assessment of the components of the labor market environment for 2000-2013, a period with relatively stable conditions. Besides, we ananlysed the period 2014-2021, characterized by unpredictable circumstances and incomparable data. We developed structural-functional and ecosystem approaches, which made it possible to determine the interaction between the main components of the labor market ecosystem and to set conditions for its regulation.

Results and Discussion

Minimizing gaps, imbalances, and asymmetries accumulated in the field of employment is largely associated with the introduction of the principles and provisions of the ecosystem approach into the theory, practice, and state policy of the labor market.

A study of the work of domestic and foreign researchers, as well as the authors' own research, provides grounds for identifying the following main characteristics of the components of the labor market ecosystem:

- a focus on achieving recognized common values, priority goals, and objectives aimed at rationalizing the behavior of labor market stakeholders and enabling them to more fully realize their potential, abilities, and talents;
- the ability to respond positively to the influence of public authorities, to interact with other components of the ecosystem on the principles of cooperation, complementarity, interpenetration, information transparency, consolidation of efforts, and the creation of synergy for the sake of socio-economic progress and human development;
- the ability to co-evolve, adapt to constant changes both within the ecosystem and beyond its boundaries, and embrace innovative ideas and developments, as well as social, humanitarian, and technological achievements;
- a fairly high impact on processes occurring directly within the labor market and in the field of employment, as confirmed by a close correlation – with a correlation coefficient above 0.5.

To identify the main components of the labor market ecosystem and reveal the causal relationships between them, as well as their impact on employment processes, we consider it appropriate to use the methodological foundations of the modern understanding of common employment theories, as well as the results of our own research. Taking into account the existing state statistical base, we have selected a number of key components that meet the specified criteria and characterize: the volume of final consumption and new investments, the share of bank loans in capital investments, and the volume of exports of goods and services. Naturally, the labor market ecosystem

includes many other components whose impact on the labor market is difficult or impossible to measure in quantitative terms, such as labor market infrastructure and institutions, the match between jobs and the qualifications of the people who fill them, the level of support for entrepreneurship, and so on. Below, we will outline the reasons for including these indicators as important components of the labor market ecosystem and analyze their content and functions.

Capital investment as a component of the labor market ecosystem is essentially the cost of creating and restoring fixed capital, i.e., physical jobs that form the material basis of employment. Naturally, capital investments are also of great independent importance in connection with the need to reindustrialize Ukraine's economy on an innovative basis in the post-war period. However, in the context of this article, the emphasis is on capital investments as a means of creating physical jobs, a prerequisite for expanding employment.

The activation of investment from internal sources is linked to such a component of the labor market ecosystem as the banking system, which should play a leading role in business investment and, hence, in the creation of new jobs and the expansion of employment, as shown in Figure 1.

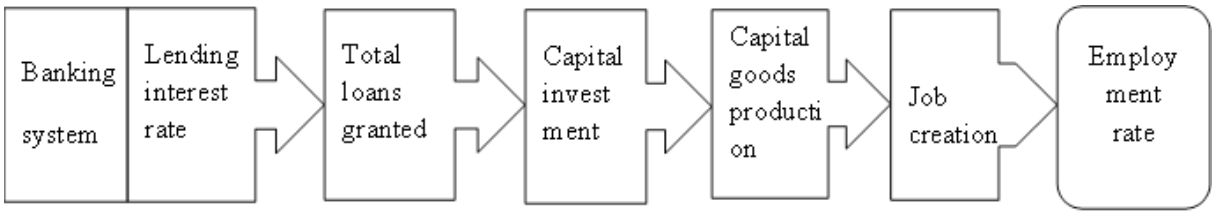

Figure 1. The chain of influence of the banking system on employment (author's version)

However, as can be seen from the data in Table 1, the share of bank loans in capital investments fluctuated on average around 8-10% and only exceeded 15% in certain years. For many years, the banking system of Ukraine worked mainly "for itself": even in the stable conditions of the pre-war decades, its loans provided only a tenth of the total investment volume. Commercial banks preferred not to lend to businesses, but rather to engage in profitable and safe transactions with domestic government bonds, deposits in National Bank accounts, and foreign exchange transactions. In addition, Ukraine's banking system was vulnerable and unreliable. It was characterized by so-called "bank collapses" – bankruptcies that became acute in the mid-1990s, then in 2008–2009, and especially strongly in 2014–2017, when almost 90 commercial banks were liquidated and tens of thousands of large depositors lost a significant part of their savings. Due to mistrust of the national banking system, authorities, law enforcement agencies, and courts, as well as for the purpose of "tax optimization," businesses often transferred funds to other countries, particularly the EU and offshore jurisdictions. This behavior by domestic entrepreneurs served as a negative example for non-residents, who avoided investing in Ukraine's economy due to large and economically unjustified risks. Final consumer spending is also a component of the labor market ecosystem. Growth in consumption, which is driven by the population's monetary income, and thus growth in demand for labor, encourages entrepreneurs to meet this demand by expanding production and hiring additional workers (Fig. 2).

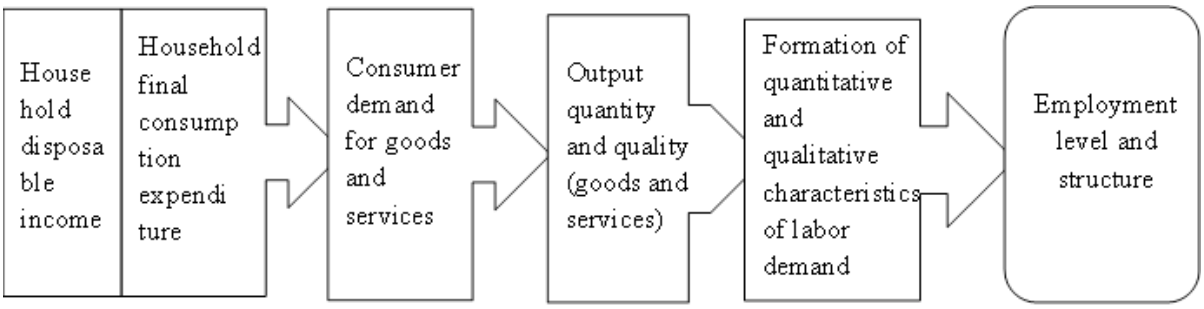

Figure 2. The chain of influence of household disposable income on the employment level

The next component of the labor market ecosystem is the export of goods and services. An increase in the volume of exports (all other things being equal) supplements domestic demand and influences the growth of consumption by foreign consumers, which stimulates producers to increase production and creates a need for additional labor (Fig. 3).

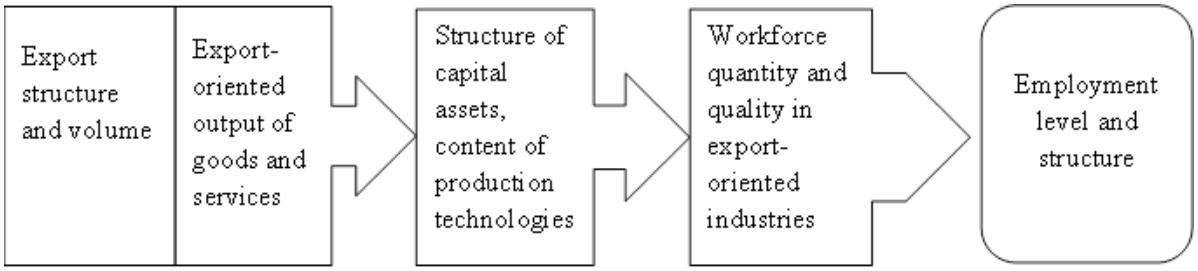

Figure 3. The chain of influence of exports of goods and services on employment level

To confirm our hypothesis regarding the components of the labor market ecosystem, we will establish the level of correlation between the level of employment and certain indicators that we have classified as components of the labor market ecosystem. The correlation analysis covers 22 years – the period from 2000 to 2021. The data for the analysis was taken from the "Statistical Yearbook of Ukraine" for 2001, 2011, 2015, 2020, and 2022 (Table 1). Subsequently, starting in 2022, due to the full-scale Russian-Ukrainian war, these indicators, like many others, are not covered by state statistical observations. To ensure the objectivity of the calculation and the accuracy of comparisons, adjustments were made: capital investment indicators to the industrial producer price index; final consumer expenditure – to the consumer price index. To calculate these indicators in 2000 prices, the deflator for a specific year was obtained by sequentially multiplying the price indices for all previous years up to 2000 (the 2000 index is equal to 1).

Table 1. Dynamics of labor market ecosystem components and their correlation with employment

Years	Employment Rate (ILO, %)	Capital Investments (bln UAH, 2000 prices)	Final Consumption Expenditures (bln UAH, 2000 prices)	Exports of Goods & Services (bln USD)	Share of Bank Loans (%)
2000	55,8	26,5	129,0	18,1	1,7
2001	55,8	33,7	108,9	19,8	4,3
2002	56,0	39,0	117,7	22,0	5,3
2003	56,2	46,6	132,5	27,3	8,2
2004	56,7	57,6	148,0	37,9	7,6
2005	57,7	61,5	179,4	40,4	14,8
2006	57,9	75,2	206,9	45,9	15,5
2007	58,7	94,0	241,1	58,3	16,6
2008	59,3	84,8	261,7	78,7	17,3
2009	57,7	56,4	229,9	49,3	14,2
2010	58,5	46,7	248,4	62,8	13,7
2011	59,2	52,4	297,4	82,2	16,3
2012	59,6	57,2	322,0	82,4	17,1
2013	60,2	52,4	350,6	76,5	15,3
Correlation coefficient for the period 2000-2013 pp.		0,57	0,98	0,97	0,90
2014	56,6	39,3	320	64,1	9,9.
2015	56,7	35,9	257,2	46,8	7,6
2016	56,3	39,2	266,8	45,1	7,5
2017	56,1	38,7	271,3	52,6	6,6
2018	57,1	42,6	395,6	57,3	7,8
2019	58,2	44,1	441,9	64,1	10,8
2020	56,2	38,5	469,4	59,4	6,7
2021	61,8	34,4	577,2	79,3	5,0
Correlation coefficient for the period 2000-2021 pp.		0,42	0,57	0,80	0,59

The results of the analysis show that for the period 2000-2021, the correlation coefficient between the level of employment and the amount of capital investment was 0.42, between the indicator of final consumer spending – 0.57, and the share of bank loans in capital investment was 0.59. These relatively low levels of correlation between the defined indicators may cast doubt on the strength of the relationship. However, we believe that the main reason for the low level of correlation between these indicators is related to the violation of the mandatory requirement for comparing indicators – "all other things being equal." It should be noted that during this period (after 2014),

a series of events took place that significantly affected the change in the specified indicators: the occupation of the Autonomous Republic of Crimea, the city of Sevastopol, and parts of the Donetsk and Luhansk regions. As a result, significant economic potential (approximately 20% of the national total) was lost. As a result of these events, the number of powerful enterprises, including exporters of industrial products, decreased, and a large number of small and micro-enterprises ceased operations. There was an internal displacement of a large number of people (over 1.5 million) to other regions of the country, most of whom were unable to find employment in their new places of residence.

In 2020, the labor market was also significantly affected by the consequences of the COVID-19 pandemic, which led to the closure of many small and micro businesses and self-employed persons, a decline in production, and a reduction in employment at other enterprises. Together, these external (to the labor market) factors led to a decrease in consumer spending, a drop in exports, a reduction in commercial bank lending for capital investments and their size, and a decline in employment, i.e., the indicators on which the correlation coefficients are based. However, during the period 2000-2013, the events analyzed above did not occur and did not put pressure on the labor market, did not distort the correlation between the level of employment and the size of capital investments, consumer spending, exports, and the amount of capital investment lending by commercial banks. Therefore, the degree of correlation between these indicators was 0.57, 0.98, 0.97, and 0.90, respectively.

At the same time, we explain the low correlation coefficient between the level of employment and the size of capital investments by the impact of the global financial and economic crisis of 2008-2009 and the change in the methodology for calculating the number of employed people in 2009. As well as the pattern identified in previous studies as investment waves (Marshavin, 2018). The first wave is associated with the inflow of investment funds into construction and domestic enterprises that produce machinery, mechanisms, and equipment, which stimulates a fairly rapid increase in the number of physical jobs in these industries and sectors of the economy. The second wave of capital investment affects employment over a longer period of time. This inertia is associated with the employment of workers in new and modernized jobs at enterprises that produce final consumption goods and services, as well as in logistics and trade.

In Ukraine, in particular, the inertia of the positive response of the employment sector to investment in fixed capital manifested itself in 2005, 2008, and 2013 as a result of increased investment spending in 2004, 2007, and 2012, respectively. In addition, investment waves can partially overlap, which makes it difficult to determine the investment period that resulted in a change in employment. Naturally, the correlation under analysis decreases if equipment, machinery, and final consumer goods are not produced in Ukraine but are purchased abroad. Of course, the combination of these factors weakened the strength of the correlation between the volume of capital investment and the level of employment, which manifested itself in a sufficiently high correlation coefficient for both the period 2000-2021 and 2000-2013.

When analyzing investment processes, it is also important to identify its sources and priority areas. Under certain conditions, foreign investors could become the main real source of investment resources in post-war Ukraine. However, in order to attract them, it is necessary to overcome many long-standing obstacles, in particular to ensure reliable protection of the rights of owners (shareholders) and to achieve real results in the fight against corruption in government, law enforcement, and judicial systems. Under these conditions, the governments and corporations of the European Union, the United States, and other countries, as well as international financial institutions, can participate in the implementation of large-scale investment projects in Ukraine. At the same time, attracting external creditors does not exclude, but rather highlights the need to increase the efforts of Ukrainian authorities at all levels, business structures, and civil society aimed at mobilizing internal investment resources, which also serves as a signal to external investors.

The state monetary policy during the post-war recovery period should focus on preventing fraud and risky operations by commercial banks, orienting the banking system towards lending to the real sector of the economy and innovation, building trust in the Ukrainian banking system among entrepreneurs, the population, and non-residents, and ensuring the availability of credit resources. Investment should be focused on high value-added industries, as well as science and research. The international community has recognized the minimum acceptable level of funding for research and development as 2% of GDP, while in Ukraine it was only 0.4-0.5% throughout most of the 2000s (*State Statistics Service of Ukraine* ∗∗*SSSU*∗∗, 2020). In the post-war period, it is necessary not only to increase the volume of funding for scientific research and development, creative development, including by the state, but also change the algorithm of this funding. In particular, it is advisable to move from state maintenance of scientific institutions and departments (except those engaged in fundamental research) to a grant-based model of their functioning.

Despite the fact that nominal wages, as the basis for the population's purchasing power, grew in the 2000s, high inflation rates prevented this from leading to a symmetrical increase in physical consumption. The average real wage during this period was several times lower than in neighboring EU member states, and its share in GDP in 2021 was 43.8%, while in European countries that were formerly socialist, it was: Bulgaria – 51.3%, Lithuania – 52.5%, Latvia – 57.3%; Poland – 47.3; Slovakia – 53.3; Czech Republic – 56.3%; Estonia – 56.4% (UNECE, *n.d.*). Optimization of such a component of the labor market ecosystem as final consumer spending should be linked to an increase in household incomes, primarily those of employees and pensioners (these categories do not usually transfer funds abroad) and a reasonable reduction in utility bills, the cost of electricity and other energy carriers for the population, medical services, and medicines.

As can be seen from Table 1, the correlation coefficient between export volume and employment level is very high – 0.97. However, it should be noted that despite the steady growth in export volume in the 2000s, ferrous metals, primary and intermediate products dominated its structure, and from the second decade of the 2000s – agricultural products: in 2007 – 13%, in 2012 – almost 25%, in 2021 – 53% (SSSU, 2022). At the same time, very few science-intensive and high-tech products were exported in the electronics and electrical engineering, mechanical engineering, and metalworking industries, as well as in the light and food industries. This export structure had a negative impact on the demand for skilled labor and the structure of employment. As a result of the Russian-Ukrainian war, due to the destruction of a significant part of export-oriented economic entities and the occupation of territories where many such enterprises are located, a decrease in the volume of industrial products in exports should be expected in the near future, and therefore a reduction in the demand for industrial workers. To improve the processes and increase the role of this component in the labor market ecosystem, it is necessary to stimulate exports, which should be based primarily on the production of high-tech, competitive products with high added value.

We have identified entrepreneurship as an important component of the labor market ecosystem, as its development creates jobs, increases the purchasing power of the employed population, and fills budgets and state social funds. Small businesses play an important role in expanding the role of the entrepreneurial component in the labor market ecosystem. In addition to the significant impact of small businesses on employment indicators, they also play an important role in personal fulfillment, achieving economic independence, continuing (starting) family traditions of entrepreneurship, and the opportunity to receive (transfer) a significant inheritance. Employment in small businesses during the period under review accounted for about 30% of the total employed population, taking into account the number of individual entrepreneurs.

At the same time, the importance of small businesses in the labor market ecosystem should not be exaggerated. We disagree with researchers who attribute to it the role of the “locomotive of the economy” (Vashchenko et al., 2008), a panacea for all economic woes – declining production, unemployment, inflation, etc. Small businesses have a number of inherent flaws: low labor productivity (which, according to our calculations, is 1.5-2 times lower than in medium and large businesses); the complexity of implementing costly innovative technologies; and the virtual impossibility of conducting effective marketing research and advertising activities.

In our opinion, increasing the role of entrepreneurship in the labor market ecosystem during Ukraine's recovery phase requires, first and foremost, improvements to the institutional environment, in particular the legislative definition of the scope of state bodies, the frequency and procedure for conducting inspections, and restrictions on law enforcement interference in business. Taking into account the expansion of the powers and financial capabilities of local communities and relevant authorities in accordance with the 2015 reform (*Verkhovna Rada of Ukraine*, 2010), in order to develop the labor market ecosystem, as we noted in previous publications, it is necessary to improve infrastructure support for small businesses at the local level, in particular, to stimulate the creation of business incubators, training centers, and leasing resources in cities, towns, and villages (Marshavin & Kytsak, 2023).

A key component of the labor market ecosystem is human potential, the quantitative and qualitative composition of the workforce (Petrova et al., 2022). The importance of professional competence, production and social experience, and creativity of employees is growing in the context of the reindustrialization of the domestic economy based on Industry 4.0 technologies and its digitalization. In the era of digital transformation and the spread of non-standard forms of employment, including platform-based employment, entrepreneurs require employees to have high professional competence, flexible professional skills, significant professional and territorial mobility, and creativity (Fig. 4).

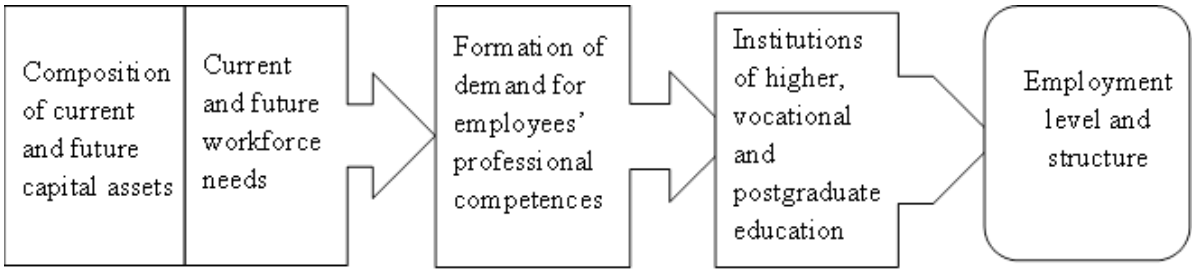

Figure 4. Chain of influence of professional competencies and other qualities of the workforce on the level and structure of employment – the professional competence component of the labor market ecosystem

We proceed from the assumption that the labor market ecosystem should primarily include those components (elements) that have stable links with it and interact with many other components. Moreover, each component can be considered both a component of the labor market ecosystem and a separate ecosystem. These ecosystems can intersect and interact, figuratively speaking, creating a three-dimensional structure. Together, they form a specific environment. As a result of the synergistic interaction of different levels,

The diverse and varied components form a complex synthesis – a three-dimensional dynamic structure that influences the labor market and determines the content and direction of the processes taking place, as well as the quantitative and qualitative parameters of employment. Improving the structure and content of the components of the labor market ecosystem, strengthening their organizational interconnection, interpenetration, and coordination contributes to achieving higher productivity of human, natural, economic, and intellectual factors of production.

The competitiveness of enterprises and the national economy as a whole is determined by the interest of employees in the results of production activities, in particular, in the high profitability of enterprises. However, these requirements contradict the low motivation of hired workers to work, which has prevailed in Ukraine in recent decades. This has led to widespread shadow employment and large-scale external labor emigration. Most likely, in the post-war period, due to the high cost of housing and utilities compared to the size of legal incomes in Ukraine, difficulties in finding suitable work, and domestic discomfort, it can be expected that not all migrants will actually return to Ukraine from abroad.

According to a study by the Center for Economic Strategy, many of those who previously expressed their intention to return are reconsidering their decision and are inclined to continue staying abroad. Thus, when asked, "Do you plan to return to Ukraine?", 41% of respondents answered affirmatively in May 2023, 26% in January 2024, and only 20% in December 2024 (*Centre for Economic Strategy*, 2025). This means that, most likely, no more than 1.0-1.2 million working-age people will return, and this number will continue to decrease as the migration period continues, since migrants find work abroad, solve problems with their children's education, and form new social ties. These factors will also hinder the attraction of foreign migrants to the country. At the same time, emigration sentiments within the country will intensify, leading to a reduction in the quantity and deterioration in the quality of human resources, as well as a shortage of certain professional groups of workers.

In the context of dynamic changes in technology and techniques, the dynamic development of employees' professional competencies through the formation of a need for lifelong learning is of particular importance. This necessitates the expansion and improvement of national, sectoral, and corporate systems of postgraduate education and professional training. We are confident that in the post-war period, the development of human potential as a component of the labor market ecosystem should be linked not only to wage growth, but also to moral and ethical factors – respect for employees as equal participants in the production process, their ability to participate in the management of enterprises, the distribution of profits, and the receipt of their share. In this context, it is advisable to legislate a provision on the mandatory membership of employees in the management and supervisory boards of all types of business entities.

In our opinion, there is also every reason to talk about the key role of the regulatory component of the labor market ecosystem. In our opinion, it is wrong to consider the labor market ecosystem to be completely similar to biological systems that are prone to self-development. The labor market ecosystem needs public regulation in order to minimize the negative consequences of spontaneous self-regulation. A purely market-based mechanism is unlikely to ensure compliance with the principle of "human dimension" ("human-centeredness") introduced into the concept of social ecosystems by Kolot (2024). It is also insufficient to limit oneself to James Moore's advice on protecting individuals involved in the struggle between ecosystems.

In his opinion, "society must find ways to help members of dying ecosystems move to more viable ones, avoiding the temptation to support failed ecosystems" (Moore, 1993). We are convinced that without the regulatory role of public authorities, the labor market ecosystem is unable to ensure: first, the constant reproduction of a workforce of the appropriate quality (general education and qualification characteristics, level of working capacity, physical and mental health, moral and volitional qualities); secondly, rational use of labor (productivity and content of work, job satisfaction, workplace democracy, opportunities for professional growth); thirdly, adequate social protection for the unemployed and additional assistance in finding employment for certain categories of citizens, in particular women, young people, people with disabilities, etc.

We should agree with the opinions of V.V. Blyzniuk and L.P. Huk, who rightly link the problems of the Ukrainian labor market with "failures" in its state regulation (Blyzniuk & Huk, 2021), and Azmuk (2018), who reasonably notes that the Ukrainian labor market ecosystem lacks effective communication and well-established interaction between its elements (Azmuk, 2018). In this context, the scientific provisions formulated by representatives of the first generation of supporters of the ecosystem approach in economics, Williamson and De Meyer (2012), are of fundamental importance. In their opinion, ecosystems require "coordination of diverse and complex relationships with many different types of systems" and should be coordinated and regulated indirectly, rather than "through direct command and control" (Williamson & De Meyer, 2012). We believe that regulatory influence on the components of the labor market ecosystem should be exercised by public authorities through the formation of sound regulatory mechanisms and instruments and ensuring their proper coordination. However, the system of regulatory instruments of public authorities, which includes normative and legislative acts, state and public institutions, infrastructure and intermediary organizations, which was formed in Ukraine in the 1990s and early 2000s, needs radical reform. Although in the post-war period, the main regulatory function of public authorities will be to counterbalance the negative effects of spontaneous market forces and to restrain them.

During Ukraine's recovery phase, an important function of public authorities is to ensure the consolidation and coordination of the efforts of all components of the labor market ecosystem, directing them towards the common goal of productive employment and decent work based on a combination of regulation and self-regulation mechanisms. The synergy of the labor market ecosystem will contribute not only to the digital transformation of Ukraine's economy during the Fourth Industrial Revolution, but also to expanding the opportunities for workers to realize their abilities and talents in the social and labor sphere, as the foundation of a people-oriented society.

In the regulatory component of the labor market ecosystem, it is necessary to improve the role of its information support. It should be emphasized that this is not so much about the development of technical aspects of IT and cloud technologies, but above all about the operational provision of labor market participants with complete and reliable primary (input) information. Throughout the entire period of market reforms in Ukraine, state statistics, including information from employment centers, have contained no more than a third of the actual vacancies and job seekers. It should be added that surveys of household economic activity using the methodology of the International Labor Organization (the main source of factual data on the labor market) are conducted only at the regional level and do not cover the primary link – settlements and administrative districts. As a result, employees do not have objective data to optimize their behavior in the labor market, and employers and local authorities do not have objective data to make informed management decisions. The information component of the labor market ecosystem should help overcome the fragmentation of processes and trends in the field of employment and the low information transparency of labor market institutions.

In the era of globalization, the Ukrainian labor market is significantly influenced by international institutions (in particular, the International Monetary Fund, the World Bank, the International Labor Organization, and the International Organization for Migration), the governing bodies of the European Union, and its specialized institutions. The implementation of the function of regulating the national labor market, its means and instruments in the context of globalization, becomes dependent on a large number of variable factors that are beyond the influence of the Ukrainian state and Ukrainian institutions. This It primarily concerns global institutional and economic components: customs tariffs, quotas, phytosanitary regulations, and other barriers to exports, rules for concluding international trade agreements, foreign investment, and lending. Together, these form the global external shell of Ukraine's labor market ecosystem, which, using a variety of tools, influences the corresponding components of Ukraine's labor market ecosystem. This requires national institutions to thoroughly analyze global and European phenomena and trends in the socio-economic sphere, take them into account when designing public regulation tools and instruments, and constantly improve them.

Study Founds

The study found that the formation of Ukraine's labor market ecosystem is determined by the interaction of a number of key components, among which capital investment, final consumer spending, exports of goods and services, entrepreneurship development, human capital, and the regulatory function of public authorities are of particular importance. Correlation analysis showed a close relationship between the level of employment and these indicators during the relatively stable period of 2000–2013, confirming their decisive role in shaping employment. At the same time, the events of the last decade – economic crises, the pandemic, and war – have significantly distorted these links, highlighting the need to strengthen the regulatory component and create conditions for the development of human potential as the core of the labor market ecosystem. The results obtained indicate the advisability of combining mechanisms of state regulation and self-regulation of the labor market to achieve a synergistic effect, increase its stability, and ensure decent work in the context of modern transformations.

Conclusions

Overcoming the imbalances and asymmetries of Ukraine's labor market, which have resulted from years of mistakes in state socio-economic policy and have been significantly exacerbated by the shocks and destructive processes caused by the COVID-19 pandemic and Russian military aggression, is primarily associated with the implementation of the conceptual principles and provisions of the ecosystem approach in economic policy and business practices.

The labor market ecosystem encompasses many components that establish stable interconnections and complementarities, ensure flexibility and adaptability to changes, and generate a synergistic effect. Moreover, the components of the ecosystem form their own ecosystems (chains), which may intersect and interact, figuratively speaking, creating a three-dimensional (3D) structure. As a result of the synergistic interaction of multilevel, multidirectional, and diverse ecosystems, a complex synthesis is formed – a dynamic three-dimensional structure that influences the labor market, defining the content and direction of processes, as well as the quantitative and qualitative parameters of employment.

The identification and definition of the functions of labor market ecosystem components and the disclosure of their interaction mechanisms make it possible to apply targeted regulatory influence by public authorities and social institutions aimed at overcoming defects and disproportions in the employment sphere and facilitating Ukraine's accelerated innovative recovery. The correlation analysis carried out, along with the use of research methods such as theoretical generalization, induction and deduction, abstract-logical reasoning, econometric and hypothetical approaches, supported the justification of key identification features and the definition of labor market ecosystem components. These include the volume, structure, and direction of capital investment, final consumer spending, exports of goods and services, commercial bank lending for capital investment, and the system of public labor market regulation.

The successful reindustrialization of Ukraine's economy and the application of Industry 4.0 technologies will largely depend on the key component of the labor market ecosystem – human capital, particularly workers' professional competence, production and social experience, creativity, and interest in the outcomes of production activities. The content of employee motivation is becoming increasingly relevant, especially in the context of the development of industrial democracy – employees' opportunities in both material and non-material spheres. The development of the labor market ecosystem, especially the implementation of the principle and fundamentals of "human dimension", requires improvement of its regulatory component, the essence of which lies in the public determination of development priorities, ensuring and coordinating the functioning of ecosystem components, creating counterbalances to spontaneous market forces, and restraining them while preserving mechanisms of internal self-regulation.

Recommendations

It is advisable to strengthen the role of the state in creating a favorable institutional environment for investment and entrepreneurship development, orienting the banking system toward supporting the real sector. It is necessary to stimulate exports of high value-added products, increase household incomes to boost domestic demand, and invest in human capital development through education, professional retraining, and innovation. An important condition is to improve information transparency and communication between elements of the labor market ecosystem, which will contribute to its sustainability and balanced development.

Scientific Ethics Declaration

* The authors declares that the scientific ethical and legal responsibility of this article published in EPESS journal belongs to the authors.

Conflict of Interest

* The authors declare that they have no conflicts of interest.

Funding

* This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Acknowledgements or Notes

* This article was presented as an oral presentation at the International Conference on Management Economics and Business (www.iconmeb.net) held in Budapest/Hungary on August 28-31, 2025.

* The authors would like to thank the conference organizers for providing them with the opportunity to present their research to the wider scientific community.

References

Azmuk, N. A. (2018). Labor market ecosystem. *Rynok Pratsi ta Zainiatist Naselennia*, (2), 33–41.

Baruch, Y., & Altman, Y. (2016). The ecosystem of labor markets and careers. *People & Strategy*, *39*(3), 16–18.

Blyzniuk, V. V., & Huk, L. P. (2021). The failures of the state regulation at the labor market and the possibilities of their minimization. *Ekonomika Ukrainy*, *12*, 22–43.

Centre for Economic Strategy. (2025, March). *Ukrainian refugees after three years abroad: How many and who will return? Fourth wave of research*. Retrieved from https://ces.org.ua/wp-content/uploads/2025/03/ukrainian-refugees.-fourth-wave.pdf

Gutl, C., & Chang, V. (2008). Ecosystem-based theoretical models for learning in environments of the 21st century. *International Journal of Emerging Technologies in Learning*, *3*, 50–60

Kolot, A. M. (2024). Ecosystem approach as an imperative of sustainable human-centered development. In *Ecosystemicity as an imperative for sustainable human-centered development.* KNEU.

Kolot, A. M., Herasymenko, O. O., Shevchenko, A. S., & Babii, Yu. M. (2023). The ecosystem of human resources of organizations as a conceptual and applied platform of human-centrism. *The Problems of Economy*, (3), 282–294.

Marshavin, Yu. M. (2018). Modernization of the system of workplaces as an imperative of employment sphere development. *Rynok Pratsi ta Zainiatist Naselennia*, *(2),* 5–14.

Marshavin, Yu. M., & Kytsak, T. H. (2023). Development of managerial competencies of local self-government officials as a prerequisite for socio-economic recovery of territorial communities. *Efektyvna Ekonomika (7)*, 12588.

Moore, J. F. (1993). Predators and prey: A new ecology of competition. *Harvard Business Review*, *71*(3), 75–86.

Petrova, I. L., Sandugey, V. V., & Mamedova, Sh. (2022). Preservation and development of human potential of Ukraine in modern conditions. *Theoretical and Applied Issues of Economics*, *2*(45), 46–57.

Pickett, S. T. A., & Cadenasso, M. L. (2002). The ecosystem as a multi-dimensional concept: Meaning, model, and metaphor. *Ecosystems*, *5*(1), 1–10.

Schlauch, M. (2014). *The integrative analysis of economic ecosystems: Reviewing labour market policies with new insights from permaculture and systems theory* (MPRA paper no. 53757). Munich Personal RePEc Archive. Retrieved from https://mpra.ub.uni-muenchen.de/53757/

State Statistics Committee of Ukraine. (2002). *Statistical yearbook of Ukraine 2001*. Tekhnika.

State Statistics Service of Ukraine. (2012). *Statistical yearbook of Ukraine 2011*. Avhust Treid.

State Statistics Service of Ukraine. (2016). *Statistical yearbook of Ukraine 2015*. State Statistics Service of Ukraine.

State Statistics Service of Ukraine. (2021). *Statistical yearbook of Ukraine 2020*. Retrieved from https://ukrstat.gov.ua/druk/publicat/kat_e/2021/zb/Yearbook_2020_e.pdf

State Statistics Service of Ukraine. (2023). *Statistical yearbook of Ukraine 2022*. Retrieved from https://ukrstat.gov.ua/druk/publicat/kat_e/2023/zb/year_22_e.pdf

UNECE. (n.d.). *Labor share of GDP, comprising wages and social protection transfers.* Retrieved from https://w3.unece.org/SDG/en/Indicator?id=30

Vashchenko, K. O., Varnalii, Z. S.,…& Voronin, V. (2008). *On the state and prospects of entrepreneurship development in Ukraine: National report*. Derzhkompidpryiemnytstvo.

Verkhovna Rada of Ukraine. (2010, July 8). *Budget code of ukraine* (Law No. 2456-VI). Retrieved from https://zakon.rada.gov.ua/laws/show/2456-17

Williamson, P. J., & De Meyer, A. (2012). Ecosystem advantage: How to successfully harness the power of partners. *California Management Review*, *55*(1), 24–46.

Author(s) Information

Yurii Marshavin
Kyiv National Economic University named after Vadym Hetman, 54/1 Beresteysky prospect (Prospect Peremogy)
03057 Kyiv Ukraine
Contact e-mail: *olmarshavin@gmail.com*

Iryna Petrova
KROK University
30-32 Tabirna St, Kyiv, Ukraine

Taras Kytsak
Kyiv National Economic University named after Vadym Hetman, 54/1 Beresteysky prospect (Prospect Peremogy)
03057 Kyiv Ukraine

Oleg Marshavin
Kyiv National Economic University named after Vadym Hetman, 54/1 Beresteysky prospect (Prospect Peremogy)
03057 Kyiv Ukraine

Ruslan Atamaniuk
Kyiv National Economic University named after Vadym Hetman, 54/1 Beresteysky prospect (Prospect Peremogy)
03057 Kyiv Ukraine

To cite this article:

Marshavin, Y., Petrova, I., Kytsak, T., Marshavin, O., & Atamaniuk, R. (2025). Structural and functional concept of the labor market ecosystem. *The Eurasia Proceedings of Educational and Social Sciences (EPESS), 44,* 10-21.