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## HUMAN CAPITAL AND PRODUCTIVE FORCES OF RURAL AREAS: ASPECTS OF ECONOMIC SECURITY OF THE STATE AND ITS REGIONS

*The article examines the interrelations between human capital, rural areas' productive forces, and the country's and its regions' economic security. It underscores the pivotal role of human capital as the main factor determining the efficiency of using productive forces in rural areas. It demonstrates that the quality of labor resources, the level of education, and the vocational training of the population are not just important, but crucial for increasing labor productivity in the agricultural sector and ensuring food security. The article also analyses the key challenges faced by rural areas, including demographic changes, youth outmigration, and climate-related risks. It offers policy recommendations aimed at developing human capital and supporting rural areas' productive forces. The article highlights the prospects for integrating these aspects into the overall strategy of ensuring Ukraine's economic security, such as through targeted investment in education and healthcare, and the promotion of sustainable agricultural practices. The article is a valuable resource for developing policy solutions that can contribute to the sustainable development of rural regions and increase the state's economic sustainability.*

*Human capital is crucial for achieving sustainable economic growth and development. Investments in education, healthcare, and training are essential to increasing the population's productivity and innovation. However, the efficient use of human capital requires creating conditions for its continuous development, adaptation to new technologies, and social equality. Rural areas' productive forces are: an important element of the country's economic system; ensuring food security protecting; natural resources, and ensuring the sustainability of the rural economy. To achieve sustainable development in rural areas, current challenges must be considered, and approaches to managing and managing productive forces must be applied to a crucial role in ensuring the economic security of the state through their significant contribution to food and environmental security, human capital development, and support for economic resilience. Rural areas play a vital role in the national security system by ensuring food and environmental security, contributing to human capital development, and supporting economic resilience. However, they face current challenges, such as demographic problems, climate change, and technological lag, which require active implementation of development strategies to preserve and strengthen the role of rural areas in the national security system. Strengthening the country's economic security through rural development is not just an important task, but a critical one. Rural areas have the potential to significantly contribute to national security through diversifying economic activities, investing in infrastructure, increasing human capital, and ensuring environmental sustainability.*

*Keywords: human capital, productive forces, rural areas, economic security, public policy.*

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## ЛЮДСЬКИЙ КАПІТАЛ І ПРОДУКТИВНІ СИЛИ СІЛЬСЬКИХ ТЕРИТОРІЙ: АСПЕКТИ ЕКОНОМІЧНОЇ БЕЗПЕКИ ДЕРЖАВИ ТА ЇЇ РЕГІОНІВ

*У статті розглядаються взаємозв'язки між людським капіталом, продуктивними силами сільських територій та економічною безпекою країни та її регіонів. Підкреслюється значення людського капіталу як основного чинника, що визначає ефективність використання продуктивних сил у сільській місцевості. Досліджено, що якість трудових ресурсів, рівень освіти та професійна підготовка населення є надзвичайно важливими для підвищення продуктивності праці в аграрному секторі та забезпечення продовольчої безпеки.*

*Стаття також аналізує ключові виклики, з якими стикаються сільські території, зокрема демографічні зміни, відтік молоді та ризики, пов'язані з кліматом. Запропоновані рекомендації щодо державної політики, що мають на меті розвиток людського капіталу та підтримку продуктивних сил сільських територій. Висвітлюються перспективи інтеграції цих аспектів в загальну стратегію забезпечення економічної безпеки України. Стаття є цінним ресурсом для розробки політичних рішень, які можуть сприяти сталому розвитку сільських регіонів та підвищенню економічної стійкості держави.*

*Людський капітал має вирішальне значення для досягнення тривалого економічного зростання та розвитку. Інвестиції в освіту, охорону здоров'я та професійну підготовку є необхідними для підвищення продуктивності та інноваційної активності населення. Однак ефективне використання людського капіталу вимагає створення умов для його постійного розвитку, адаптації до нових технологій та забезпечення соціальної рівності.*

*Продуктивні сили сільських територій становлять важливий елемент економічної системи країни, що забезпечує продовольчу безпеку, охорону природних ресурсів та стійкість сільської економіки. Для досягнення сталого розвитку сільських територій необхідно враховувати сучасні виклики та застосовувати інноваційні підходи до управління продуктивними силами.*

*Сільські території відіграють ключову роль в забезпеченні економічної безпеки держави завдяки їхньому внеску в продовольчу та екологічну безпеку, розвиток людського капіталу та підтримку економічної стійкості. Проте сучасні виклики, такі як демографічні проблеми, зміни клімату та технологічне відставання, вимагають активного впровадження стратегій розвитку для збереження та зміцнення ролі сільських територій в системі національної безпеки.*

*Посилення економічної безпеки країни через розвиток сільських територій є надзвичайно важливим завданням. Це можна досягти шляхом диверсифікації економічної діяльності, інвестицій в інфраструктуру, підвищення людського капіталу та екологічної стійкості.*

*Ключові слова: людський капітал, продуктивні сили, сільські території, економічна безпека, державна політика.*

## INTRODUCTION

1. *Human capital as a driver of economic development.* Human capital is a critical factor determining the long-term economic development and welfare of society. Since the introduction of the term into economic science by researchers Gary Becker and Theodor Schultz in the mid-twentieth century, the issue of investment in human capital has become central to economic theories and development practices [6]. This article aims to examine the impact of human capital on economic development by analyzing its components, the importance of education, health, and innovation, and by exploring current trends and challenges.

Rural areas are a reservoir of potential for any country's economic development. They provide the bulk of agricultural production, maintain environmental stability, and preserve cultural heritage. In the current context of globalization and industrialization, the productive forces of rural areas are undergoing significant transformations. Studying the productive forces of rural areas allows us to assess their contribution to the national economy and determine the promising prospects for development in the face of new economic challenges.

3. *Economic security of the state and the role of rural areas.* The state's economic security is an essential component of national security, which includes the country's ability to ensure the stability of the economic system, counteract internal and external threats, and maintain resilience to economic crises and global challenges. Rural areas are essential in ensuring the state's economic security through their critical functions in agricultural production, food security, ecological balance, and human capital development. In this article, we will consider the state's economic security concept and analyze the contribution of rural areas to its provision.

4. *Directions for strengthening economic security through rural development.* A state's economic security determines its ability to ensure stable development, avoid economic crises, and withstand external threats. In the context of globalization and rapid changes in the economic environment, the development of rural areas is of particular importance. They are not only a source of food but also an essential element of socioeconomic stability. This article discusses the main directions for strengthening the state's economic security through developing rural areas.

**This article aims to conduct** a thorough and comprehensive study of the basic principles and potential of human capital, as well as the productive forces of rural areas, through the prism of the economic security of the state and its regions.

## MATERIALS AND METHODS

The study is based on the systematic method. The systemic method involves an integrated approach to analysis, where the research materials are considered interrelated and interdependent.

## ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS

### 1. *Human capital: theoretical foundations.*

*Human capital* is knowledge, skills, experience, and abilities used to create economic value (Becker, 1993). According to the human capital theory, education and professional development investments lead to increased labor productivity, which is critical for rural development [12].

### 2. *Productive forces of rural areas.*

The productive forces of rural areas include various elements such as land, labor, capital, and technology. As noted by D. Hey, essential components of productive forces are physical resources and the quality of labor resources [9]. Given the specifics of rural areas, productive forces must be adapted to changing conditions and challenges associated with globalization and climate change [10].

### 3. *Economic security: conceptual aspects.*

*Economic security* is defined as the ability of a state to maintain a stable level of development, ensure food and energy security, and prevent economic crises [1].

Studies conducted in Ukraine emphasize the importance of rural development for the overall economic security of the country [3].

Rural areas, in particular, play a crucial role in maintaining socioeconomic equilibrium. They ensure food security and labor market stability, which are critical for the overall economic security of the country. Their role is not just significant but indispensable.

### 4. *The relationship between human capital, productive forces, and economic security.*

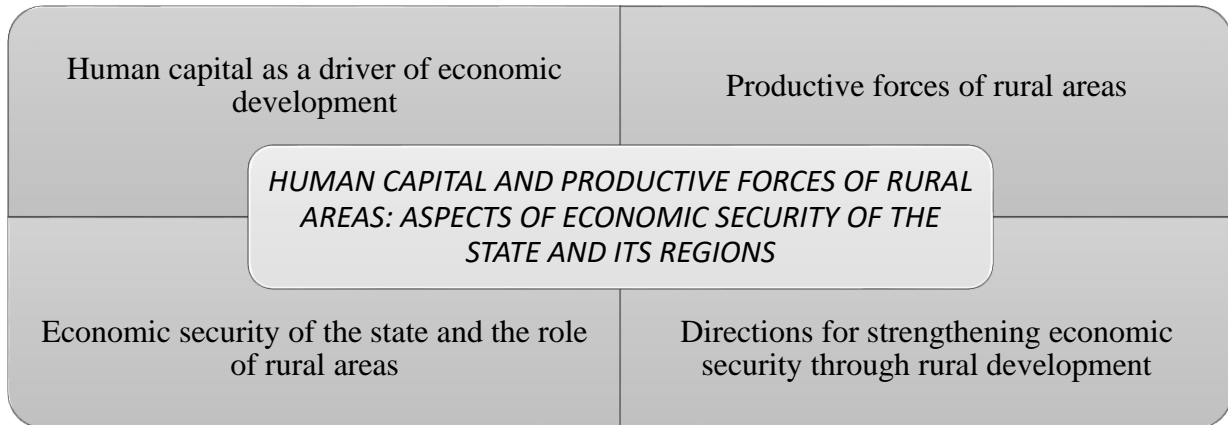
Studies show that the quality of human capital directly affects the productivity of rural areas. For example, a study conducted in Poland confirmed that investments in the education of the rural population lead to increased productivity in agriculture and, consequently, to strengthening economic security [11].

Similar results were obtained in Ukraine, where improving educational programs for rural residents has increased labor productivity and living standards [11].

A review of the literature shows that human capital and rural areas' productive forces are essential elements of the state's economic security. Investments in education, infrastructure, technology development, and support for rural communities will help strengthen economic resilience and improve the quality of life in rural areas. In this regard, further research should focus on developing practical recommendations for policies that integrate human capital into developing productive forces.

### SUMMARY OF THE PRIMARY MATERIAL

Thus, having considered the main characteristics of the importance and relevance of the synergistic interaction of these aspects, we can visualize them as follows (Fig. 1):



**Fig. 1. Economic security of the state: human capital, productive forces, economic security and ways to strengthen it**  
Source: [5, 8].

#### 1. Human capital as a driver of economic development.

*The concept of human capital.* Human capital is defined as the knowledge, skills, competencies, and health acquired through education, experience, training, and health care and used to increase productivity and economic growth. Economists believe that the qualitative characteristics of the labor force can have a much more significant impact on economic development than just increasing the number of employees.

Analyzing its components, such as education, health, skill level, and innovative potential of employees, plays an important role in assessing human capital. Numerous studies have shown that the educational level of the population is the most important indicator of the economic development of both developed and developing countries.

*The role of education in human capital formation.* Education is the foundation of human capital development, as it provides people with knowledge and skills that increase their productivity and competitiveness in the labor market. Global trends show that countries with high levels of investment in education demonstrate better economic performance than those with insufficient funding.

Systematic investment in education stimulates economic development through increased innovation and technological progress. Moreover, a high level of human capital contributes to the expansion of high-tech services, an essential source of economic growth in the modern economy.

A significant number of studies show that even primary and secondary education can significantly impact economic productivity in low-development countries. At the same time, higher education institutions, such as universities and research centers, build scientific and technological potential that contributes to the development of innovative industries.

*The impact of health on human capital development.* Public health is an integral component of human capital. According to World Bank research, countries that invest in healthcare achieve social and significant economic results. Healthy people are less likely to suffer from temporary disability, which increases labor productivity and reduces social costs.

Healthcare systems that provide high-level preventive and curative care create the conditions for active economic activity. Investments in fighting chronic diseases, improving sanitary conditions, and improving medical infrastructure contribute to economic growth by increasing labor productivity.

*Innovations and technologies are products of human capital.* Human capital is a source of innovation, which is the main driver of technological development and economic growth. An innovative economy requires highly skilled workers who cannot only master the latest technologies but also create them. According to an OECD study, countries with a high level of human capital development have higher innovation and technological progress rates.

Digital technologies and artificial intelligence increasingly influence the global economy and require higher employee qualification requirements. Thus, the ability of workers to adapt to new technologies is a critical factor for the long-term competitiveness of countries in the international economy.

*Challenges in human capital development.* Despite the considerable potential of human capital, numerous challenges can hinder its development, including

- Inequality in access to education: In many countries, there are significant social and economic inequalities in access to quality education, which reduces the overall level of human capital;
- Migration of highly skilled personnel: The outflow of talented professionals to countries with higher wages or better living conditions is becoming a severe problem for developing countries;
- Low level of investment in health care: In many countries, the need for sufficient investment significantly limits the opportunities for human capital development.

## 2. Rural productive forces.

Productive forces are a set of elements that ensure the production of material goods and services necessary to meet society's needs. Rural areas' productive forces include natural resources (land, water, air), labor, equipment, and technology, as well as scientific and technological progress and infrastructure that provides conditions for effective operation.

In rural areas, productive forces are mainly associated with the agricultural sector, but forestry, fishing, rural tourism, and other economic activities that support the population's welfare and ensure the sustainability of the regional economy also play an essential role.

The main components of the productive forces of rural areas are

- natural resources: land, water resources, and climatic conditions that determine the potential of agriculture. Land resources are the main factor of production in rural areas, and their rational use is crucial for the sustainable development of the agricultural sector;
- human capital: labor resources, including skilled labor. In rural areas, there is often a need for more highly qualified personnel, which is a challenge for developing productive forces.
- technology and equipment: mechanization of agriculture, introduction of modern agricultural technologies that increase labor productivity and help reduce costs;
- infrastructure: transportation, communications, energy, and water supply systems that ensure economic activity and connect rural areas with cities.

The development of rural productive forces is influenced by several factors, including

- natural and climatic conditions: regions with fertile soils and favorable climate have a much greater potential for agricultural production;
- Demographic factors: The size and structure of the population in rural areas directly affect the labor force. Rural areas often face the problem of the outflow of young people to cities, which leads to a decrease in demographic potential;
- government policy: Government programs to support agriculture, grants, subsidies, and tax incentives can stimulate the development of rural areas;
- Developing agricultural technologies: Introducing new technologies helps increase yields and production efficiency. Improving mechanization and automation of processes is critical to increasing productivity;
- social infrastructure: Access to quality education, healthcare, and other social services is an essential factor that keeps people in rural areas and contributes to developing labor potential.

The development of the productive forces in rural areas faces several current challenges that require a comprehensive approach to addressing them:

- Demographic problems and population outflow: The migration of young people to urban areas reduces the labor resources remaining in rural areas. This leads to an aging population and lower productivity;
- environmental challenges: declining soil quality, water shortages, and climate change threaten agricultural production. Degradation of natural resources can become a serious obstacle to sustainable rural development;
- Economic inequality: Rural areas often need to catch up to urban areas regarding economic development, infrastructure, and access to investment. This inequality limits the opportunities for economic growth and improvement of the quality of life in rural areas;
- Technological lag: The introduction of modern technologies in rural areas is slower due to insufficient financial resources and low level of labor force qualification;

For the successful development of the productive forces in rural areas, the following measures should be implemented

- Investments in human capital: ensuring access to quality education and vocational training for young people in rural areas, as well as supporting programs that promote the development of small and medium-sized businesses;
- support for innovations and technologies: introduction of modern agricultural technologies, digitalization of agriculture, and automation of production processes;
- preservation of the ecological balance: implementation of environmental protection programs, restoration of degraded land, and rational use of natural resources;

- State support: development and implementation of state programs aimed at stimulating rural development, including financial support for farmers, infrastructure development, and creation of favorable conditions for entrepreneurial activity.

### *3. Economic security of the state and the role of rural areas.*

A state's economic security is a state of the economic system that ensures stable economic development, the ability to counter threats, and the preservation of economic sovereignty. The components of economic security include energy, food, financial, and technological security, as well as the ability to withstand external pressure and internal crises [2].

The main criteria for economic security are as follows:

- Food security: the ability of a country to provide its population with the necessary food;
- energy security: ensuring stable energy supplies and energy efficiency;
- financial stability: protection of the national economy from currency crises, inflationary processes and defaults;
- technological independence: the ability to develop its own scientific and technological potential and reduce dependence on foreign technologies.

Rural areas significantly contribute to food security and environmental stability, critical elements of overall economic security.

Rural areas, as the main suppliers of food and natural resources, play an important role in ensuring the state's food and environmental security. Let us consider the main aspects of this role.

*Food security.* Food security is a central aspect of economic security, and rural areas are a vital source of food resources. Agriculture provides the population with staple foods such as cereals, vegetables, fruits, meat, and dairy products. In global crises or armed conflicts, a country's ability to produce enough food is crucial to its resilience.

Reducing dependence on imported products, developing domestic agricultural production, and introducing innovative agricultural technologies are the main ways to strengthen food security. For example, developing the agricultural sector in Europe and Asia has positively impacted food stability and economic security.

*Environmental security and natural resources.* Rural areas are essential in preserving natural resources, such as land, water, and forests, which are the basis for environmental sustainability. The preservation of fertile land and the rational use of natural resources directly impact the sustainability of agricultural production and, consequently, food security.

In addition, rural areas play an important role in conserving biodiversity, which is an important component of environmental security. Provided that natural resources are managed rationally, rural areas can ensure ecological balance and maintain the sustainability of the national ecosystem. Environmental security also includes adaptation to climate change and protection of land resources from degradation, erosion, and pollution.

*The economic sustainability of rural areas is critical to ensuring economic security.* It includes developing diversified forms of economic activity, such as agritourism, processing agricultural products, and introducing new technologies. This reduces agriculture's dependence on natural factors and external economic shocks.

Rural areas also play a role in preserving and developing human capital, which is the basis for the country's economic security. The development of educational programs and support for entrepreneurship in rural areas contribute to raising living standards and economic activity.

Rural areas face several challenges that may weaken their role in ensuring the state's economic security. The main challenges include

- Demographic problems: the outflow of population to cities and the aging of the rural population reduces labor potential and the ability to produce;
- climate change: Climate change has a negative impact on agriculture, reducing productivity and causing land degradation;
- technological lag: Rural areas often have limited access to the latest technologies, which reduces production efficiency;
- Infrastructure deficiencies: Poor infrastructure, such as roads, communications, and access to energy, hinders rural development and reduces economic resilience.

To improve the economic security of rural areas, comprehensive development strategies need to be implemented, including

- Investment in infrastructure: modernization of transport and communication networks will improve rural access to markets and services;
- technology development: introduction of modern agricultural technologies, automation, and digital innovations will increase the efficiency of agriculture;
- support for human capital: Educational programs and professional development for rural workers will help to increase productivity and develop new types of economic activity;
- rational use of natural resources: Environmental programs aimed at preserving fertile land and water resources will ensure the sustainability of agricultural production;

### *4. Directions for strengthening economic security through rural development.*

The economic security of the state covers the following aspects:

- food security: provision of the population with sufficient food
- energy security: availability of stable energy sources;
- financial security: the ability of the financial system to withstand economic shocks;
- social security: the level of welfare and social guarantees.

Rural development directly impacts these components by providing food, resources, and human capital [4].

*Diversification of the economy.* One of the critical areas is the diversification of economic activity in rural areas. This involves the development of not only agriculture but also other sectors of the economy:

- agricultural production: increasing the efficiency of traditional types of agriculture through the introduction of new technologies;
- agritourism: development of tourist services that help attract investment and create new jobs;
- Agricultural processing: Investing in companies that process products increases added value and creates jobs.

*Investments in infrastructure.* Infrastructure development is an essential factor for increasing economic security. Improving roads providing access to communications and energy resources helps to

- Reducing the cost of transportation of agricultural products;
- providing access to markets for local producers;
- Improving living conditions in rural areas helps retain the population.

*Increasing human capital.* Human capital is an essential resource for economic development. To increase it, it is necessary to

- Improving educational programs: providing access to quality education for children and youth in rural areas;
- professional development: organizing courses and training for the adult population to enable them to adapt to changing labor market conditions;
- Stimulating entrepreneurship: supporting start-ups and small businesses in rural areas through financial programs and consultations.

*Environmental sustainability.* Rural areas have a significant potential for ensuring environmental safety. Areas in this context may include:

- Sustainable agriculture: introduction of environmental technologies in production;
- environmental protection: implementation of projects to restore natural resources and prevent their depletion;
- Use renewable energy sources: Development of bioenergy in rural areas.

Rural areas require a comprehensive approach to development, including:

- government support: development of programs that promote rural development;
- public engagement: involvement of local communities in the planning and implementation of projects;
- Cooperate with international organizations by attracting investments and implementing joint projects.

## CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH IN THIS AREA

1. *Human capital as a driver of economic development.* Human capital plays a central role in ensuring long-term economic growth and development. Education, healthcare, and training investments are essential for increasing productivity and innovation. At the same time, the efficient use of human capital requires creating conditions for its continuous development, adaptation to new technologies, and ensuring social equality. Only with a comprehensive approach to human capital development will countries be able to achieve sustainable economic progress and ensure the well-being of their citizens.

2. *Productive forces of rural areas.* Rural productive forces are an essential element of the state's economic system, which ensures food security, preservation of natural resources, and sustainability of the rural economy. To ensure sustainable development of rural areas, it is necessary to take into account current challenges and use innovative approaches to managing productive forces. In particular, investments in human capital, support for innovation, and environmental protection can improve agricultural production efficiency and raise living standards in rural areas.

3. *Economic security of the state and the role of rural areas.* Rural areas play a crucial role in ensuring the state's economic security through their contribution to food and environmental security, human capital development, and support for economic resilience. However, current challenges, such as demographic problems, climate change, and technological lag, require active implementation of development strategies to preserve and strengthen the role of rural areas in the national security system. Only through an innovative approach and support for agriculture can the stability and resilience of the state be ensured in the face of global change.

4. *Directions for strengthening economic security through rural development.* Strengthening the state's economic security by developing rural areas is critical. This can be achieved through the diversification of economic activities, investment in infrastructure, human capital, and environmental sustainability. The successful implementation of these areas will ensure the stable development of rural areas and increase the state's economic security.

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