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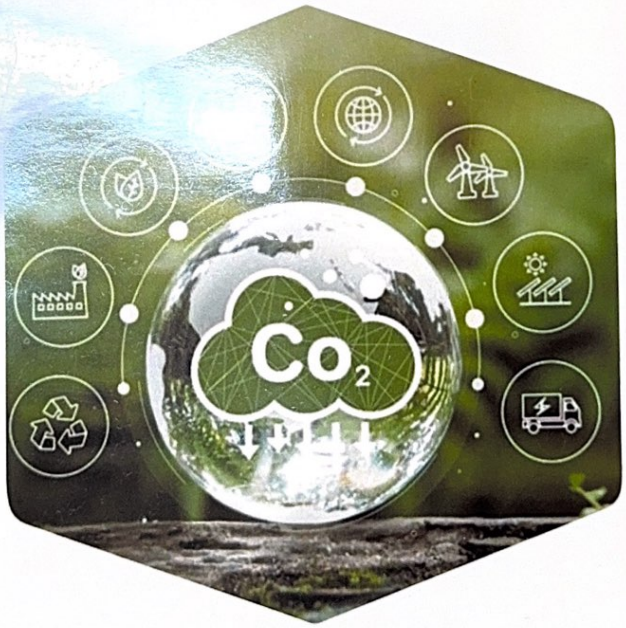

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DEVELOPMENT OF THE RURAL LABOR MARKET IN THE CONTEXT OF ACHIEVING NATIONAL SUSTAINABLE DEVELOPMENT GOALS

ABSTRACT

This article examines the structural differences between urban and rural labor markets in Kazakhstan in the context of achieving the national Sustainable Development Goals (SDGs). A comparative analysis is conducted based on key indicators such as employment structure, income levels, digital literacy, access to education, and social protection. Particular attention is given to how these disparities impact the implementation of SDGs, including poverty reduction, decent work, inequality reduction, and infrastructure development. The study identifies key limitations of the rural labor market, including a high share of informal employment, low skill levels, and limited access to digital resources. Based on the analysis, the paper outlines strategic directions for transforming rural employment through digitalization of the agri-food sector, development of rural entrepreneurship, skills enhancement, and targeted support for vulnerable rural populations.

KEYWORDS: RURAL LABOR MARKET; SDGS; DIGITALIZATION; INEQUALITY; EMPLOYMENT; AGRICULTURAL ECONOMY; SUSTAINABLE DEVELOPMENT; EDUCATION; COOPERATION; AGROTECHNOLOGIES

INTRODUCTION

In the context of global transformations driven by economic digitalization, climate change, and increasing social inequality, the development of the labor market has become a critical area of focus. One of the most vulnerable yet strategically important components of the national labor market remains the rural labor market. Its sustainable development is essential for ensuring food security, maintaining demographic balance, social stability, and territorial cohesion within the country.

This issue gains particular relevance in light of the implementation of Kazakhstan's national Sustainable Development Goals (SDGs), adapted within the framework of the UN 2030 Agenda. Achieving targets such as poverty eradication, access to decent work, quality education, and infrastructure development is impossible without a systematic transformation of employment in rural areas. Significant disparities between urban and rural labor markets — in terms of income levels, formalization of labor relations, access to digital resources, and opportunities for professional growth — highlight the need for differentiated policy approaches and prioritized investment in rural territories.

The rural labor market in Kazakhstan is characterized by a set of specific features. Physical, seasonal, and low-paid labor dominates, with a high prevalence of informal employment, ongoing outmigration of youth and qualified personnel, and limited access to educational and digital opportunities — all of which reduce the potential for human capital reproduction. At the same time, the agricultural sector possesses considerable potential for restructuring rural employment through the adoption of innovative agrotechnologies, the development of the green economy, the digitalization of agribusiness, and support for rural entrepreneurship.

Addressing the challenges associated with the transformation of the rural labor market requires an understanding of territorial specificities, integration of efforts in education, infrastructure, and digital policy, as well as alignment with global and national sustainable development priorities.

LITERATURE REVIEW

The development of the rural labor market in the context of sustainable development and digital transformation has been widely explored in both international and Kazakhstani research. At the international level, the Food and Agriculture Organization of the United Nations (FAO) has published numerous studies focusing on rural employment, rural poverty, and the role of the agri-food sector in achieving the Sustainable Development Goals (FAO, 2022). In particular, FAO emphasizes the need for inclusive rural transformation and the diversification of employment opportunities in rural economies.

The World Bank (2023) highlights the critical role of digital transformation in rural economic development, identifying it as a driver of inclusive growth and a key tool for reducing spatial inequality, particularly in developing countries like Kazakhstan. The Bank's findings align with broader international assessments of digital infrastructure as a determinant of rural resilience and competitiveness.

In the context of Kazakhstan, domestic researchers have also addressed the challenges facing the rural labor market. For example, Nurkeyeva (2021) examines the outmigration of the working-age population from rural regions, linking it to the absence of decent work and inadequate investment in human capital development. Similarly, Abdrakhmanov (2020) focuses on the low integration of rural employment into the innovation-driven economy and underlines the gap between labor market needs and vocational education programs. These works argue for a systemic approach that coordinates social, labor, educational, and regional development policies.

Moreover, recent academic contributions underscore that the success of digitalization in the agricultural sector depends not only on technological infrastructure but also on the presence of a qualified and digitally literate workforce, robust employment ecosystems, and effective mechanisms of rural investment support (OECD, 2020; Tokbergenova & Duisenova, 2021). However, several studies point out that Kazakhstan's practical implementation of these approaches remains limited due to institutional rigidity, infrastructural bottlenecks, and regional disparities (UNDP, 2023; World Bank, 2023).

Taken together, the reviewed literature confirms the relevance of rethinking rural labor market strategies under the lens of sustainability and digital transition. It also highlights the need for further applied research focused on region-specific adaptation mechanisms that would align rural employment policies with national sustainable development goals.

Materials and Methods

To achieve the stated objectives, the study employed methods of systematic and comparative analysis, as well as structural-logical modeling of the interrelationships between the labor market and the Sustainable Development Goals (SDGs). The empirical foundation of the research was based on statistical data from the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan, official reports on SDG implementation, and materials from international organizations such as the UN, FAO, and the World Bank.

The following methodological approaches were used:

Content analysis — to examine strategic documents, programs for the development of the agro-industrial complex (AIC), and the national sustainable development agenda;

Comparative analysis — to identify key socio-economic differences between urban and rural labor markets;

The data were aggregated and compared across key dimensions of sustainable development: employment, education, income, digital infrastructure, and social protection. The use of an integrated methodological framework ensured the validity of the conclusions and the relevance of the proposed recommendations.

force tion	High proportion of workers with higher or vocational education	Predominance of low-skilled labor
l literacy	High, good access to internet and digital services	Limited access, underdeveloped digital infrastructure
r mobility	High, well-developed transport and digital job search channels	Low, dependency on local employment sources
ration trends	Influx of labor force	Outflow of youth and qualified specialists
vation pment	Active integration of IT, platform-based economy, flexible forms of employment	Limited adoption of technologies, low innovation levels
ial protection	Developed institutions, broader coverage	Limited access, especially in informal employment

te – compiled by the author.

comparative analysis of urban and rural labor markets presented in Table 1 reveals deep ral disparities that significantly affect the inclusiveness, productivity, and resilience of yment systems across regions. Several key conclusions can be drawn:

toral concentration in rural areas limits economic diversification and resilience. While urban markets benefit from a mix of industries and services, rural employment remains vhelmingly dependent on agriculture and seasonal labor, making it more vulnerable to external s, including climate variability and market fluctuations.

formality in rural employment persists as a major structural challenge. The high proportion of mal work in rural areas limits access to labor rights, social protection, and stable income, forcing cycles of poverty and economic insecurity.

ducational and digital divides contribute to long-term labor market fragmentation. Rural kers have fewer opportunities for acquiring relevant qualifications and digital skills, reducing r competitiveness and ability to participate in modern, technology-driven sectors of the nomy.

Migration dynamics further exacerbate the imbalance. The steady outflow of youth and qualified rkers from rural regions depletes local human capital, while urban centers continue to attract or due to better job prospects, higher wages, and access to education and infrastructure.

Innovation and labor mobility are concentrated in urban centers, where technological integration d institutional support for flexible employment models are significantly more advanced. In ntrast, rural areas lack the infrastructure and institutional capacity to implement similar novations.

Social protection coverage remains unequal. While urban workers benefit from more developed pport systems, rural residents—particularly those engaged in informal employment—often main excluded from formal safety nets.

Taken together, these findings underscore the need for territorially differentiated labor market policies that account for the specific constraints of rural employment. Addressing the structural disadvantages of rural labor markets is critical for promoting regional equity, enhancing labor productivity, and ensuring the successful implementation of the Sustainable Development Goals across all areas of the country.

Differences between urban and rural labor markets directly affect the effectiveness of achieving the Sustainable Development Goals (SDGs), particularly in areas such as poverty reduction, access to decent work, quality education, and reduction of territorial inequality. These differences are reflected not only in employment structures, but also in access to resources, technology, and professional advancement. In rural areas, issues such as labor migration, informal employment,

ANALYSIS AND RESULTS

One of the key areas in assessing the sustainability of a labor system is the analysis of structural differences between urban and rural labor markets. These differences affect not only economic indicators, but also access to education, digital technologies, quality of employment, and social protection. Their impact on the achievement of the Sustainable Development Goals (SDGs) becomes increasingly evident amid the digitalization of the economy and growing territorial disparities.

Urban employment is largely based on a diversified economy, including industrial, financial, and service sectors. It is characterized by a high level of formalization and broader access to opportunities for professional development. In contrast, the rural labor market remains heavily dependent on seasonal and low-skilled labor, with a predominance of employment in the agricultural sector and limited access to education and career mobility.

To better understand the scale and implications of these disparities, it is essential to examine the comparative characteristics of urban and rural labor markets through key socio-economic indicators. These include employment structure, income levels, digital infrastructure, educational attainment, and labor mobility. In rural areas, the predominance of informal employment, combined with underdeveloped infrastructure and the outmigration of youth, leads to a stagnation of human capital and a weakening of long-term development potential.

Moreover, the digital divide between urban and rural regions further exacerbates inequality in labor market access and participation. While urban centers benefit from high-speed internet, e-government services, and platform-based employment models, rural communities frequently lack the technological capacity and digital literacy necessary to integrate into the modern economy. This gap not only limits employment options but also restricts access to remote education, agricultural innovation platforms, and digital entrepreneurship.

As a result, rural labor markets are less resilient to external shocks and slower to adapt to the rapidly evolving requirements of a knowledge-based and green economy. The structural misalignment between rural labor conditions and national development priorities poses a significant barrier to the achievement of multiple SDGs, including SDG 1 (No Poverty), SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequality).

To provide empirical support for these observations, the following section presents a comparative analysis of urban and rural labor markets in Kazakhstan, highlighting their key differences and assessing their implications for sustainable development.

To understand the scale of these differences and their implications for sustainable development, a comparative analysis of the main characteristics of the rural and urban labor markets in Kazakhstan is presented below (Table 1).

Table 1 – Comparative Characteristics of Urban and Rural Labor Markets

Indicator	Urban Labor Market	Rural Labor Market
Employment structure	Diversified sectors: industry, services, finance, IT	Predominance of agricultural labor, seasonal and physical employment
Form of employment	Mainly formalized	High share of informal employment
Income level	Relatively high, above the national average	Below average, unstable income
Access to education	Wide range of opportunities, presence of universities and retraining centers	Limited opportunities, shortage of specialized institutions

Labor force qualification	High proportion of workers with higher or vocational education	Predominance of low-skilled labor
Digital literacy	High, good access to internet and digital services	Limited access, underdeveloped digital infrastructure
Labor mobility	High, well-developed transport and digital job search channels	Low, dependency on local employment sources
Migration trends	Influx of labor force	Outflow of youth and qualified specialists
Innovation development	Active integration of IT, platform-based economy, flexible forms of employment	Limited adoption of technologies, low innovation levels
Social protection	Developed institutions, broader coverage	Limited access, especially in informal employment
Note – compiled by the author.		

The comparative analysis of urban and rural labor markets presented in Table 1 reveals deep structural disparities that significantly affect the inclusiveness, productivity, and resilience of employment systems across regions. Several key conclusions can be drawn:

Sectoral concentration in rural areas limits economic diversification and resilience. While urban labor markets benefit from a mix of industries and services, rural employment remains overwhelmingly dependent on agriculture and seasonal labor, making it more vulnerable to external shocks, including climate variability and market fluctuations.

Informality in rural employment persists as a major structural challenge. The high proportion of informal work in rural areas limits access to labor rights, social protection, and stable income, reinforcing cycles of poverty and economic insecurity.

Educational and digital divides contribute to long-term labor market fragmentation. Rural workers have fewer opportunities for acquiring relevant qualifications and digital skills, reducing their competitiveness and ability to participate in modern, technology-driven sectors of the economy.

Migration dynamics further exacerbate the imbalance. The steady outflow of youth and qualified workers from rural regions depletes local human capital, while urban centers continue to attract labor due to better job prospects, higher wages, and access to education and infrastructure.

Innovation and labor mobility are concentrated in urban centers, where technological integration and institutional support for flexible employment models are significantly more advanced. In contrast, rural areas lack the infrastructure and institutional capacity to implement similar innovations.

Social protection coverage remains unequal. While urban workers benefit from more developed support systems, rural residents—particularly those engaged in informal employment—often remain excluded from formal safety nets.

Taken together, these findings underscore the need for territorially differentiated labor market policies that account for the specific constraints of rural employment. Addressing the structural disadvantages of rural labor markets is critical for promoting regional equity, enhancing labor productivity, and ensuring the successful implementation of the Sustainable Development Goals across all areas of the country.

Differences between urban and rural labor markets directly affect the effectiveness of achieving the Sustainable Development Goals (SDGs), particularly in areas such as poverty reduction, access to decent work, quality education, and reduction of territorial inequality. These differences are reflected not only in employment structures, but also in access to resources, technology, and professional advancement. In rural areas, issues such as labor migration, informal employment,

shortage of qualified personnel, and weak digital infrastructure significantly constrain sustainable development potential.

Table 2 – Impact of Urban–Rural Labor Market Disparities on the Achievement of the SDGs

Sustainable Development Goal	Relevance for the Rural Labor Market	Key Issues and Constraints in Rural Areas	Development Potential and Mitigation Measures
SDG 1 – No Poverty	High	Low incomes, dominance of informal employment, lack of stable income sources	Formalization of employment, development of cooperatives, support for entrepreneurship
SDG 10 – Reduced Inequality	Very high	Significant income gaps, limited access to social services and employment options	Regionally targeted employment programs, development of rural social infrastructure
SDG 4 – Quality Education	Crucial	Limited access to professional, agricultural and digital education, youth migration	Rural agri-colleges, distance learning platforms, mobile training centers
SDG 8 – Decent Work and Growth	Central	Prevalence of low-skilled labor, technological lag, low productivity	Introduction of agrotechnologies, skills upgrading, green and digital jobs
SDG 9 – Industry, Innovation and Infrastructure	Strategic	Underdeveloped transport, labor, and digital infrastructure	Investment in agro-clusters, smart villages, digital platforms for rural employment
Note – compiled by the author.			

The analysis of the above tables allows for several important conclusions regarding the impact of urban–rural labor market disparities on the achievement of the SDGs:

1. SDG 1 and SDG 10 are particularly relevant for rural areas, where poverty, informal employment, and limited access to stable income persist. This highlights the need for stronger social and economic support specifically in rural territories.

2. SDG 4, related to quality education, is realized unevenly: rural populations face significant barriers in accessing vocational and technological training, which indicates the need for investment in agricultural education and distance learning platforms.

3. SDG 8 holds strong potential in rural areas, but its implementation requires deep modernization of current labor practices, including a shift from seasonal and manual labor to productive, technological, and green employment.

4. SDG 9, focused on infrastructure and innovation, can serve as a key tool to bridge the rural–urban labor divide, but only if supported by prioritized investments in agricultural clusters, digital infrastructure, and regional connectivity.

In general, without targeted territorial policies and recognition of regional specificities, it will not be possible to achieve sustainable outcomes for many of the SDGs in rural contexts. Eliminating structural differences between urban and rural labor markets is a necessary condition for the successful implementation of Kazakhstan's national sustainable development agenda.

Thus, the identified disparities between urban and rural labor markets extend far beyond economic indicators—they encompass social justice, access to basic services, opportunities for self-realization, and the overall resilience of local communities. These differences not only reinforce existing inequalities, but also directly impact the country's ability to meet its strategic sustainable development goals.

Differences between urban and rural labor markets have a direct impact on the achievement of several Sustainable Development Goals (SDGs), as clearly illustrated in **Table 3.**

TABLE 3 – THE IMPACT OF URBAN–RURAL LABOR MARKET DISPARITIES ON THE ACHIEVEMENT OF SDGS

Sustainable Development Goal	Relevance for the Rural Labor Market	Challenges and Constraints in Rural Areas	Development Potential and Solutions
SDG 1 – No Poverty	High	Low incomes, high share of informal employment, lack of stable income	Employment formalization, development of cooperatives, support for rural entrepreneurship
SDG 10 – Reduced Inequality	Very high	Wide income gaps, limited access to social services and employment	Place-based employment programs, development of rural social infrastructure
SDG 4 – Quality Education	Crucial	Limited access to vocational, agricultural, and digital education; youth outmigration	Development of rural agri-colleges, online learning platforms, mobile training centers
SDG 8 – Decent Work and Economic Growth	Central	Prevalence of low-skilled labor, technological lag, low productivity	Introduction of agrotechnologies, skill upgrading, creation of green and digital jobs
SDG 9 – Industry, Innovation and Infrastructure	Strategic	Underdeveloped transport, labor, and digital infrastructure	Investment in agro-clusters, «smart villages», digital platforms for rural employment

Note – compiled by the author.

A comparative analysis confirms the existence of a persistent imbalance between urban and rural labor markets, which hinders equitable socio-economic development. To effectively implement the SDGs, it is not enough to address rural employment solely within the framework of agricultural policy. Rather, it must be integrated into national strategies for digital transformation, innovation-led growth, and social inclusion.

Focusing on reducing the digital and educational divide, developing sustainable and technology-driven rural employment, and ensuring equal access to opportunities are essential conditions for establishing a fair and resilient growth model in Kazakhstan.

CONCLUSIONS AND RECOMMENDATIONS

The comparative analysis of urban and rural labor markets in Kazakhstan has revealed systemic disparities that obstruct the achievement of several key national Sustainable Development Goals (SDGs), including poverty eradication (SDG 1), access to quality education (SDG 4), decent work (SDG 8), infrastructure and innovation development (SDG 9), and the reduction of inequality (SDG 10).

The rural labor market continues to be characterized by low income levels, a high share of informal employment, limited access to modern education and digital technologies, and ongoing

outmigration of youth and skilled workers. These factors reinforce territorial inequality and constrain the sustainable socio-economic development of rural regions.

At the same time, rural employment holds significant potential for sustainable transformation through the integration of digital and smart technologies, the growth of the green economy, the development of rural entrepreneurship, and the expansion of cooperative models. Bridging the urban–rural labor gap requires a comprehensive approach, cross-sector collaboration, and territorially tailored policies.

The following policy recommendations are proposed:

1. **Develop a national program for rural labor market transformation,** focusing on the digitalization of the agri-food sector, the development of cooperatives, sustainable agribusiness models, and labor mobility.
2. **Invest in agricultural and digital education in rural areas,** including the creation of agri-tech parks, rural schools, and online educational platforms adapted to regional needs.
3. **Establish a support system for green and technology-oriented professions,** including climate-resilient agriculture, renewable energy, digital farming, and agro-ecological risk management.
4. **Reduce institutional and infrastructural gaps between urban and rural areas** by expanding digital employment services, online entrepreneurship support, broadband internet access, and logistics networks.
5. **Focus employment policy on vulnerable rural groups**—such as youth, women, self-employed individuals, and people with disabilities—through subsidized employment programs, mentorship, and targeted professional adaptation.

The comprehensive implementation of these measures will contribute to the balanced development of Kazakhstan's labor market, improve quality of life in rural areas, and ensure the effective achievement of the national sustainable development agenda by 2030.

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