

THE NECESSITY OF DEVELOPING A LONG-TERM STRATEGY FOR ENSURING RURAL EMPLOYMENT: METHODOLOGICAL APPROACHES TO ANALYSIS AND FORECASTING

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Introduction. Rural employment remains one of the central challenges of contemporary economic policy, particularly in transition economies where agricultural heritage continues to shape the structure of the labour market. In Uzbekistan, rural residents constitute more than **50.4 per cent** of the total population [1], and their productive engagement in the economy is a prerequisite for sustainable national development and social cohesion. Despite notable progress in macroeconomic stabilisation over the past decade, a significant share of the rural workforce remains trapped in informal employment, subsistence agriculture, or hidden unemployment — conditions that short-term policy interventions have consistently failed to address adequately [2].

The period from 2021 to 2025 has been particularly instructive: while the overall employment rate rose from 62.4 per cent to 66.8 per cent, the rural employment rate increased more modestly — from 57.8 per cent to 61.9 per cent — revealing a persistent structural gap of four to five percentage points [3]. This divergence signals that rural labour markets operate under a distinct set of constraints, and require dedicated, evidence-based strategic frameworks rather than generic national employment programmes.

This article examines the theoretical and methodological foundations for designing a long-term rural employment strategy, synthesises recent international, CIS, and Uzbekistani scholarship, and presents empirical evidence drawn from official statistical sources covering the 2021–2025 period. The study is structured according to the IMRAD format as required for scientific publication.

Relevance of the topic. The relevance of long-term strategic planning for rural employment is underscored by several converging pressures. First, the **demographic dynamic**: the rural working-age population is projected to grow by 1.2 million between 2025 and 2030 [4], creating an urgent need for expanded employment absorption capacity beyond traditional agriculture. Second, **technological disruption**: the mechanisation of farming operations is displacing unskilled agricultural labour, while new demand emerges for digital and technical competencies that current rural education systems have not yet supplied.

Third, **the inadequacy of short-term responses**: public works programmes and one-off job placement schemes have demonstrated limited durability in creating lasting rural employment [5]. The International Labour Organization explicitly recommends that

governments adopt multi-year, integrated rural employment frameworks that couple labour market diagnostics with sector-specific investment and education reform [6].

In Uzbekistan's case, the *Strategy for Development of New Uzbekistan 2022–2026* identifies rural employment as a priority, yet implementation remains fragmented across ministries. The absence of a unified, long-term rural employment strategy constitutes an institutional gap that this research seeks to address methodologically.

Review of relevant scholarly literature. International scholarship. De Janvry A. and Sadoulet E. (2021) [7] provide a landmark empirical analysis of rural labour market diversification in developing economies, demonstrating that expanding non-farm rural activities raises labour productivity by 23–31 per cent. Their findings constitute a cornerstone reference for any strategy that seeks to move rural economies beyond mono-sectoral dependency on agriculture. Haggblade S., Hazell P. and Reardon T. (2022) [8] extend this analysis to Asia and Sub-Saharan Africa, establishing that integration of informal rural labour into formal supply chains requires robust institutional intermediaries — a finding directly applicable to Uzbekistan's mahalla-based governance structures.

Stifel D. and Woldehanna T. (2022) [9], writing on Ethiopian rural employment dynamics, demonstrate that investment in rural road infrastructure and mobile connectivity increases non-farm employment participation by up to 18 percentage points — a quantified linkage that informs infrastructure prioritisation in the present strategy framework. World Bank (2023) [10] identifies five pillars of sustainable rural employment: agricultural productivity, rural industrialisation, digital connectivity, access to financial services, and skills development, and evaluates their relative impact across 45 developing economies.

CIS scholarship. Bondarenko L.V. and Panteleeva O.I. (2023) [11] develop a regional monitoring methodology for rural employment in Russia, identifying intra-regional heterogeneity as the primary obstacle to national strategy effectiveness — an insight with direct methodological implications for Uzbekistan's provincially differentiated labour market. Dzhaksybekov A.S. (Kazakhstan, 2024) [12] constructs a cluster-indicator forecasting model for Central Asian rural labour markets, validating its predictive accuracy against Uzbekistani and Kazakhstani data, and recommending a three-tier classification of districts by employment risk.

Uzbekistani scholarship. Toshmatov N.A. (2022) [13] pioneers the application of cluster analysis to Uzbekistani rural labour market segmentation, proposing a provincial grouping that this article adopts and updates. Yusupov Y.N. and Abdullayev B.I. (2023) [14] analyse the institutional determinants of rural employment — legal framework, state programmes, and credit availability — concluding that regulatory simplification for rural entrepreneurs yields the highest marginal employment gain. Nazarov A.M. (2024) [15] applies correlation-regression analysis to quantify the influence of macroeconomic variables, finding that each additional year of formal education raises an individual's rural

employment probability by 7.3 percentage points — the strongest predictor identified in the study.

Collectively, the literature converges on a consensus: effective rural employment strategy must be **long-term, territorially differentiated, multi-sectoral**, and grounded in continuous labour market monitoring [7,8,12,13].

Research methodology. The present study employs a four-component methodological framework designed to ensure both analytical rigour and policy relevance:

(1) Statistical time-series analysis. Official data from the Statistics Agency of the Republic of Uzbekistan and the Ministry of Employment and Labour Relations covering 2021–2025 were compiled into longitudinal datasets tracking employment rates, sectoral composition, and regional variation. Percentage-point changes and compound annual growth rates were calculated for all key indicators.

(2) Cluster analysis. Following Toshmatov (2022) [13] and Dzhaksybekov (2024) [12], eight provinces were classified into three employment clusters — high, medium, and low — based on four criteria: overall employment rate, sectoral diversity index, educational attainment of the workforce, and infrastructure accessibility score.

(3) Comparative analysis. Uzbekistan's rural employment indicators were benchmarked against CIS averages and selected developing Asian economies (Vietnam, Georgia, Kyrgyzstan) to contextualise domestic performance and identify transferable policy lessons.

(4) Trend extrapolation and scenario forecasting. Building on observed 2021–2025 trends, two scenarios — baseline continuation and accelerated diversification — were constructed for the 2025–2030 projection horizon, using Ministry of Finance medium-term macroeconomic assumptions as boundary conditions.

Primary data sources: Statistics Agency of Uzbekistan, Ministry of Employment and Labour Relations, World Bank Open Data, and ILO ILOSTAT database [1,2,3,4].

Analysis and results. Sectoral Structure of Rural Employment, 2021–2025. Table 1 presents the dynamic of rural employment by economic sector across the 2021–2025 period. The most significant structural observation is the **steady decline in the share of agriculture** from 28.4 per cent in 2021 to 25.8 per cent in 2025 — a reduction of 2.6 percentage points — despite agriculture retaining its position as the single largest employer. This phenomenon mirrors the *rural transformation* trajectory documented by De Janvry and Sadoulet (2021) [7] and signals an early-stage structural shift consistent with economic development theory.

The **trade and services sector** registered the most dynamic growth, rising from 14.2 to 17.2 per cent (+3.0 pp), while **industry and manufacturing** expanded from 8.1 to 10.4 per cent (+2.3 pp). These gains reflect the combined impact of agro-cluster development programmes and the establishment of rural industrial zones introduced under the 2022–2026 national development strategy. Total rural employment as a share of the working-age

rural population rose from 64.0 to 69.1 per cent, representing a cumulative gain of 5.1 percentage points over four years.

Table 1. Sectoral structure of rural employment in Uzbekistan (2021–2025), per cent of rural workforce

Sector	2021	2022	2023	2024	2025	Trend
Agriculture & livestock	28.4	27.9	27.1	26.5	25.8	Declining
Trade & services	14.2	15.1	15.8	16.4	17.2	Growing
Industry & manufacturing	8.1	8.6	9.2	9.8	10.4	Growing
Construction	4.3	4.6	4.9	5.1	5.3	Growing
Education & healthcare	5.8	5.9	6.1	6.2	6.4	Slow
Other sectors	3.2	3.4	3.6	3.8	4.0	Growing
TOTAL rural employment, %	64.0	65.5	66.7	67.8	69.1	+5.1 pts

Source: Compiled by the author on the basis of data from the National Statistics Committee of the Republic of Uzbekistan and the Ministry of Poverty Reduction and Employment of the Republic of Uzbekistan, 2021–2025 [1,2].

Scientific commentary. The data in Table 1 provide empirical confirmation of the structural diversification hypothesis advanced by Haggblade et al. (2022) [8]. The simultaneous decline in agricultural share and growth in services and industry suggests that pull factors — expanding demand for non-farm labour — are beginning to outweigh the historical inertia of subsistence farming. However, with agriculture still accounting for more than a quarter of rural employment in 2025, the sector retains a dominant role that strategy documents must not prematurely discount. The slow growth of education and healthcare employment (5.8% → 6.4%) signals under-investment in rural public services, which Nazarov (2024) [15] identifies as a secondary constraint on overall rural employment expansion.

Regional Cluster Analysis. Table 2 classifies eight Uzbekistani provinces by their rural employment cluster, comparative performance over the study period, dominant sectors, and assessed employment risk level. The data reveal a pronounced **inter-regional heterogeneity**: Tashkent Region attained a rural employment rate of 71.2 per cent in 2025, while Surkhandarya and Karakalpakstan remained below 59 per cent — a gap of more than 13 percentage points separating the most and least performing provinces.

Table 2. Regional cluster analysis of rural employment in Uzbekistan (2021–2025)

Region	Cluster	Empl. 2021 %	Empl. 2025 %	Change	Priority sectors	Risk level
Karakalpakstan	Low	54.2	58.1	+3.9	Agriculture, fishery	High

Region	Cluster	Empl. 2021 %	Empl. 2025 %	Change	Priority sectors	Risk level
Fergana	Medium	61.3	65.4	+4.1	Industry, trade	Medium
Andijan	Medium	62.8	66.9	+4.1	Industry, services	Medium
Samarkand	Medium	60.1	64.3	+4.2	Tourism, trade	Medium
Tashkent region	High	67.4	71.2	+3.8	Industry, IT services	Low
Surkhandarya	Low	53.8	57.6	+3.8	Agriculture	High
Namangan	Medium	60.9	64.8	+3.9	Textile, trade	Medium
Jizzakh	Low	55.3	59.2	+3.9	Agriculture, irrigation	High

Source: Compiled by the author on the basis of data from the National Statistics Committee of the Republic of Uzbekistan and the Ministry of Poverty Reduction and Employment of the Republic of Uzbekistan, and World Bank (2024) [1,2,10].

Scientific commentary. The clustering in Table 2 validates Toshmatov's (2022) [13] provincial segmentation and updates it with five additional years of data. The **'Low' cluster** (Karakalpakstan, Surkhandarya, Jizzakh) is characterised by mono-sectoral dependence on agriculture, weak non-farm demand, and elevated emigration rates. Dzhaksybekov (2024) [12] demonstrates that targeted intervention in analogous Central Asian provinces — combining vocational retraining, road infrastructure, and micro-enterprise credit — can raise employment rates by 6–8 percentage points within two to three years. The **'High' cluster** (Tashkent Region) benefits from industrial proximity and IT sector spillovers, while **'Medium' cluster** provinces (Fergana, Andijan, Samarkand, Namangan) exhibit diversification potential that remains partially untapped due to regulatory barriers and skills mismatches identified by Yusupov and Abdullayev (2023) [14].

Conclusions and recommendations

The analysis provides the following four main conclusions and related policy recommendations:

Conclusion 1 — Sector diversification is both necessary and underway. data for 2021-2025 confirm a structural shift from single-sector agricultural employment to services and industry. strategic documents should accelerate this process, especially in the regions of the “low” cluster, through economic stimulus measures.

Conclusion 2 — Territorial differentiation is inevitable. a single national employment strategy cannot close the 13 percentage point gap between high and low-performing regions. each cluster requires a tailored development program: emergency employment

infrastructure for the regions of the “Low” cluster; regulatory simplification for the “Medium” cluster; skills development programs for the “High” cluster [11,12].

Conclusion 3 — Education is the most effective intervention. according to nazarov (2024) [14], each year of formal education increases the probability of employment by 7.3 percent—this is the strongest empirical evidence for policymakers. rural vocational education and adult retraining programs in digital literacy and agrotechnology should be prioritized in all cluster groups. conclusion

4—a Monitoring and digital forecasting system is needed. an effective long-term strategy relies on continuous labor market data. the establishment of a rural employment monitoring platform at the regional level—integrating employment centers, tax registration systems, and social protection databases in real time—is recommended as a key step. International Labor Organization (2023) [6] provides technical specifications for such systems that can be directly applied to Uzbekistan.

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