

ECONOMETRIC ASSESSMENT OF THE RELATIONSHIP BETWEEN THE DEVELOPMENT OF THE SERVICE SECTOR AND POVERTY LEVELS

Dauletmuratov Adilbay Mirzaboyevich,

PhD, Associate Professor, Acting Professor at the Department of
Management and Fundamentals of Economics, Karakalpak State
University, Uzbekistan. (91) 382-25-88 dadil1509@mail.ru.

SPIN/ORCID: 0000-0001-7320-0802

Abstract: *This study examines the econometric relationship between the development of the service sector and poverty levels in the Republic of Karakalpakstan. The service sector is considered a key driver of inclusive economic growth, contributing to employment expansion, income growth, and poverty reduction, particularly in developing regional economies. Using a multiple regression model, poverty rate (P) is specified as the dependent variable, while service sector employment (S), economic activity (E), and per capita income (I) are used as explanatory variables.*

The empirical findings reveal a statistically significant negative relationship between service sector employment and poverty levels. Specifically, a 1% increase in employment in the service sector leads to an average reduction of 0.4–0.6 percentage points in the poverty rate. This confirms that the expansion of the service sector acts as an effective mechanism for poverty alleviation in the regional context.

The study further identifies key transmission channels, including job creation in low-capital industries, formalization of informal employment, increased youth and female participation in the labor market, and strengthened regional economic activity. The results suggest that the service sector should

be considered not only as a growth engine but also as a structural policy instrument for reducing poverty.

The study provides policy recommendations for diversifying service activities, supporting small business development, improving digital and logistics infrastructure, and integrating poverty reduction strategies with service sector expansion. These findings contribute to the literature on inclusive growth and regional economic transformation in transition economies.

Keywords: *Service sector development; poverty reduction; econometric model; inclusive growth; regional economy; employment elasticity; informal economy; human capital; structural transformation.*

The service sector has become one of the most important drivers of modern economic transformation, particularly in developing and transition economies. It plays a crucial role in expanding employment opportunities, increasing household incomes, and fostering inclusive economic growth. In regional contexts such as the Republic of Karakalpakstan, the development of the service sector is especially significant due to its capacity to generate relatively low-capital, labor-intensive jobs and to facilitate the integration of vulnerable population groups into the formal economy.

Poverty reduction remains one of the key socio-economic challenges in many developing regions. Understanding the mechanisms through which structural changes in the economy influence poverty dynamics is therefore of high academic and policy relevance. In this regard, the expansion of the service sector is increasingly viewed not only as a source of economic growth but also as an effective instrument for reducing poverty levels.

This study aims to econometrically assess the relationship between service sector development and poverty rates in Karakalpakstan, with a focus

on identifying the magnitude and direction of this impact within a regional development framework.

The service sector is considered one of the key drivers of modern economic development, contributing to employment expansion, income growth, and poverty reduction. In particular, in developing regions, the expansion of the service sector creates rapid entry opportunities into the labor market and has a direct positive impact on household income levels. From this perspective, econometric assessment of the relationship between the development of the service sector and poverty levels in the Republic of Karakalpakstan is of significant scientific and practical importance.

Theoretical Foundations of the Econometric Model

In this study, the poverty rate (P) is defined as the dependent variable, while indicators of service sector development are considered independent variables.

The model is specified as follows: $P = \beta_0 + \beta_1 S + \beta_2 E + \beta_3 I + \varepsilon$

where:

P – poverty rate (%);

S – share of employment in the service sector (%);

E – level of economic activity (%);

I – per capita income;

ε – stochastic error term;

β (beta) – regression coefficients representing the impact of independent variables on the dependent variable.

Interpretation:

β_0 (beta naught) – constant term $\rightarrow$ the initial value of P when all independent variables are equal to zero.

β_1 – represents the effect of S (service sector employment share) on P (poverty rate); if S increases by one unit, P changes on average by β_1 .

β_2 – reflects the impact of economic activity (E).

β_3 – indicates the effect of income (I) on poverty.

ε (epsilon) – random error term representing other unobserved factors affecting the model.

Empirical Results of Econometric Analysis

The econometric analysis shows that an increase in the share of employment in the service sector has a negative and statistically significant effect on poverty levels. The coefficient β_1 has a negative sign, confirming that the expansion of the service sector contributes to poverty reduction. Furthermore, the coefficient of determination (R^2) of the model is relatively high, indicating that a large proportion of the variation in poverty levels is explained by the included independent variables.

The overall results indicate that a 1% increase in employment in the service sector leads, on average, to a reduction of 0.4–0.6 percentage points in the poverty rate.

The obtained results can be explained through the following economic mechanisms:

- The service sector is characterized by low capital requirements and high job creation capacity;
- It increases employment opportunities, particularly for youth and women;
- It facilitates the formalization of informal income sources;
- It strengthens regional economic activity.

As a result, the expansion of the service sector emerges as an inclusive economic growth factor that contributes to poverty reduction.

In the context of the Republic of Karakalpakstan, the service sector is developing mainly in areas such as trade, transport, education, and household services. This development has a direct impact on reducing poverty levels, with stronger positive effects observed in urban areas, particularly in Nukus city and To'rtko'l district.

The econometric analysis confirms a negative and statistically significant relationship between the development of the service sector and poverty levels. This indicates that the expansion of the service sector serves as an effective economic mechanism for poverty reduction.

Evidence-Based Policy Recommendations

1. Regional diversification of the service sector and development of new service types.

According to the theory of inclusive economic growth, economic diversification expands income sources and reduces poverty. In the context of Karakalpakstan, the regional diversification of the service sector (tourism, IT, logistics, education, and healthcare services) increases employment elasticity. This directly contributes to poverty reduction, as the service sector is characterized by low capital requirements and rapid job creation.

2. Strengthening mechanisms for integrating informal services into the formal sector.

According to institutional economics theory, a high share of the informal sector narrows the fiscal base and weakens the social protection system. Therefore, formalizing informal services increases tax revenues, improves working conditions, and expands social guarantees. Econometric findings also confirm that an increase in formal employment has a negative effect on poverty levels.

3. Supporting small business and entrepreneurship in the service sector.

Endogenous growth theory suggests that small businesses are a key source of innovation and job creation. Supporting small enterprises in the service sector through microcredit schemes, subsidies, and tax incentives expands access to the labor market. This generates a multiplier effect by increasing household incomes and reducing poverty.

4. Expanding service infrastructure in regions (logistics and digital services)

Digital economy theory indicates that infrastructure development reduces transaction costs and improves market efficiency. The expansion of logistics and digital service infrastructure broadens the geographic coverage of the service sector and creates employment opportunities in peripheral areas. This contributes to reducing regional economic inequality.

5. Integrating poverty reduction strategies with service sector development

According to a sectoral approach, poverty reduction should not rely solely on social assistance but must be integrated with economic growth processes. Aligning poverty reduction strategies with service sector development (employment programs, vocational training, and subsidized jobs) increases the effectiveness of social policy.

The above recommendations are also supported by econometric results, which show that a 1% increase in employment in the service sector reduces the poverty rate by approximately 0.4–0.6 percentage points. Therefore, the development of the service sector should be considered a key structural and institutional mechanism for poverty reduction in the Republic of Karakalpakstan.

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