Economic Growth, Small-Business Employment and Poverty Reduction in Uzbekistan: An ARDL Bounds-Testing Analysis of Real Household Income, 2010–2025

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Abstract

Poverty in Uzbekistan fell from 17.0% in 2021 to 5.8% in 2025, while real income per capita rose 3.5-fold since 2010. This thesis asks whether the expansion of small business, a central instrument of the national poverty agenda, explains this income growth once aggregate growth is controlled for. Using official 2010–2025 data, an ARDL bounds test confirms a long-run relationship ($F = 6.98$). The long-run elasticity of real income with respect to real GDP per capita is 1.58, whereas the small-business share of employment has no significant long-run effect (+0.17% per percentage point, 95% CI ±1.90%). Deviations from equilibrium close within about one year. Poverty responds strongly to income growth (elasticity −4.0), and conditional projections indicate a poverty rate of about 3% in 2027 under baseline growth. Policy should therefore target productivity and job quality in small firms rather than their share of employment.

Keywords

poverty reduction; real household income; small business; growth elasticity of poverty; ARDL bounds test; Uzbekistan.

Introduction

Since official poverty measurement began in 2021, Uzbekistan has cut its poverty rate from 17.0% to 5.8% in 2025 [1]. Small business is widely regarded as a driver of

this progress: it accounts for three quarters of employment [2], and the cross-country literature links entrepreneurship and SMEs to growth and poverty reduction [3, 4]. Yet Beck et al. [3] find that SMEs accompany, rather than cause, growth and poverty reduction, and the composition of growth matters for the poor [5, 6]. In Uzbekistan the small-business share of employment declined from 78.2% in 2016 to 73.9% in 2024, precisely when incomes rose fastest. The aim of this thesis is to separate the contributions of aggregate growth and of small-business employment to real household income and, through income, to poverty. We test two hypotheses: (H1) the small-business share of employment has a positive long-run effect on real income per capita after controlling for real GDP per capita; (H2) poverty is highly elastic to real income growth.

Data and methods

All data are annual official statistics of the National Statistics Committee for 2010–2025 (T = 16): total income per capita and its real growth rate, the small-business share of employment SB_t [2], real GDP per capita growth and the investment-to-GDP ratio, and the poverty rate for 2021–2025 [1]. Real income and real GDP per capita are chain-linked indices converted to 2025 prices. KPSS tests indicate that the variables are I(1) or borderline I(0), and none is I(2), which justifies the ARDL bounds approach. Among five specifications, the AIC selects ARDL(1,0,0); adding investment or extra lags does not improve fit. The model and its long-run coefficients are:

$$\ln Y_t = \alpha_0 + \varphi \ln Y_{t-1} + \beta_1 SB_t + \beta_2 \ln G_t + \varepsilon_t, \quad \theta_j = \frac{\beta_j}{1-\varphi} \tag{1}$$

where Y_t is real income and G_t real GDP per capita. Standard errors are Newey–West, and long-run standard errors use the delta method. Short-run dynamics follow the error-correction model:

$$\Delta \ln Y_t = \delta_0 + \delta_1 \Delta SB_t + \delta_2 \Delta \ln G_t + \lambda ECT_{t-1} + u_t \tag{2}$$

Poverty P_t is linked to income through the growth elasticity of poverty, which is used for conditional projections to 2027 with 20,000 bootstrap draws of parameters and residuals:

$$\varepsilon_P = \frac{\Delta \ln P_t}{\Delta \ln Y_t}, \quad P_{t+h} = P_t \cdot exp[\varepsilon_P(\ln Y_{t+h} - \ln Y_t)] \tag{3}$$

Results

The bounds F-statistic of 6.98 exceeds the 1% upper critical value of Pesaran et al. [10] (6.36 for k = 2) and remains above the small-sample bounds of Narayan, so a long-run relationship exists. Table 1 reports the estimates.

Table 1. Determinants of real income per capita, 2011–2025

Variable	ARDL(1,0,0), eq. (1)	Long run, θ	ECM, eq. (2)
ln Y(t−1)	0.291*** (0.109)	—	—
Small-business share of employment, %	0.001 (0.007)	0.002 (0.010)	−0.016** (0.008) [a]
ln real GDP per capita	1.124*** (0.195)	1.584*** (0.046)	1.516* (0.785) [a]
ECT(t−1)	—	—	−0.846*** (0.066)
R^2; N	0.993; 15	—	0.784; 14

Growth, not the employment share, drives income. A 1% rise in real GDP per capita raises real income per capita by 1.58% in the long run, so incomes have grown faster than output, consistent with rising labour earnings and transfers. The small-business share of employment is insignificant in the long run: a one-percentage-point increase changes income by 0.17% with a 95% confidence interval of −1.72% to +2.07%. In the short run its coefficient is even negative (−0.016, p = 0.046), reflecting the 2017–2020 period when the share fell while formal wage employment and incomes rose. H1 is therefore rejected. The error-correction term of −0.85 implies that about 85% of any deviation from the long-run path is closed within a year. Out of sample (2018–

2025), the ARDL does not outperform a drift benchmark in one-step forecasts (RMSE 0.079 vs 0.050), owing to the volatile income growth of 2017–2020, so projections are presented as conditional scenarios with wide intervals.

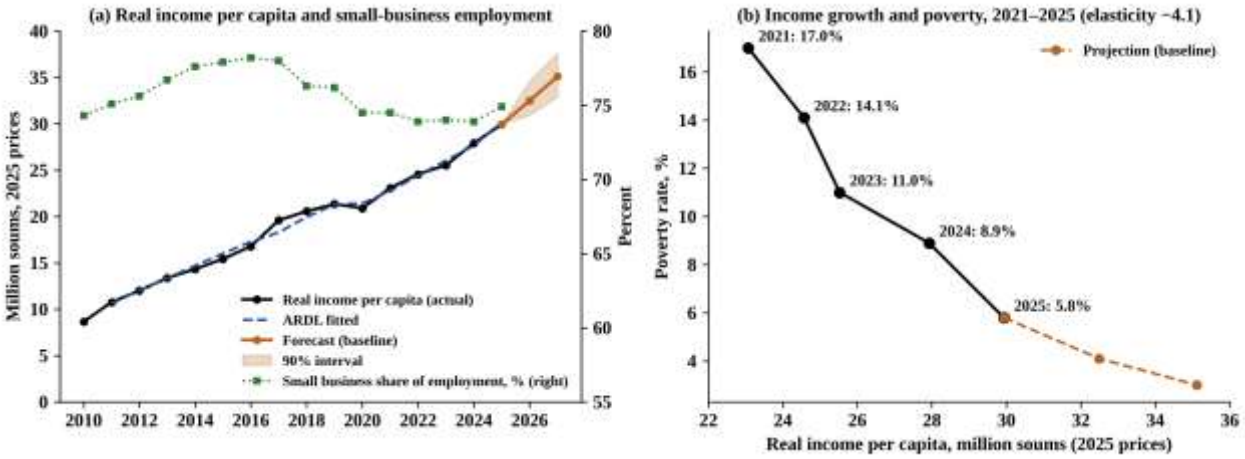


Figure 1. Real income, small-business employment and poverty in Uzbekistan

Poverty is highly responsive to income. Between 2021 and 2025 each 1% increase in real income per capita reduced the poverty rate by about 4.0% (log-log slope −4.00, SE 0.37, R^2 = 0.98; arc elasticity −4.13), well above typical cross-country estimates and consistent with a large population close to the poverty line. H2 is supported. With real GDP per capita growing at the 2021–2025 average of 4.9%, the median projection of real income per capita reaches 32.5 million soums in 2026 and 35.1 million in 2027 (90% interval 32.9–37.6 million). The implied poverty rate falls to 4.1% in 2026 and 3.0% in 2027; under a low-growth scenario (2.5%) it would be 3.8% in 2027, and under a high-growth scenario (6.5%) 2.5% (Figure 1).

Conclusion

Uzbekistan's rapid poverty reduction has been driven by broad-based income growth tied to aggregate output, not by a rising share of small business in employment, which has in fact declined. Because poverty is about four times as elastic as income, sustaining real GDP per capita growth of at least 4–5% remains the most powerful anti-

poverty instrument. Small-business policy should shift from expanding the number of small-firm jobs to raising their productivity, formality and wages, for example through access to credit, digital tax administration and support for firm growth beyond the micro scale. As the remaining poor move closer to the poverty line, the elasticity is likely to decline, so targeted social assistance will become increasingly important. With only 16 annual and 5 poverty observations, these estimates should be revisited as longer and regional series become available.

References

[1] National Statistics Committee of the Republic of Uzbekistan. Poverty rate (2.03.01.0042) [Internet]. SIAT; 2026 [cited 2026 Oct 29]. Available from: https://api.siat.stat.uz/media/uploads/sdmx/sdmx_data_3495.pdf

[2] National Statistics Committee of the Republic of Uzbekistan. Share of small businesses in total employment [Internet]. SIAT; 2026 [cited 2026 Oct 29]. Available from: https://api.siat.stat.uz/media/uploads/sdmx/sdmx_data_274.pdf

[3] Beck T, Demirguc-Kunt A, Levine R. SMEs, growth, and poverty: Cross-country evidence. Journal of Economic Growth. 2005;10(3):199–229.

[4] Naudé W. Entrepreneurship, developing countries, and development economics: new approaches and insights. Small Business Economics. 2010;34(1):1–12.

[5] Loayza NV, Raddatz C. The composition of growth matters for poverty alleviation. Journal of Development Economics. 2010;93(1):137–151.

[6] Ravallion M, Datt G. How important to India's poor is the sectoral composition of economic growth? World Bank Economic Review. 1996;10(1):1–25.