Agricultural Development and Regional Income Dynamics in Uzbekistan

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Abstract: This thesis examines the relationship between agricultural development and disposable income growth across 13 regions of Uzbekistan during 2011–2024 using panel-data econometric methods. The empirical findings reveal a positive and statistically significant relationship between agricultural growth and regional income growth. The results also indicate that nationwide macroeconomic conditions played an important role in shaping regional income dynamics during the study period. Overall, the findings suggest that agricultural development remains an important contributor to regional economic growth and household welfare in Uzbekistan.

Keywords: agricultural development, disposable income growth, regional economy, panel data, Driscoll–Kraay estimator, Uzbekistan.

Introduction

Agriculture remains an important component of economic activity and household welfare in many developing and transition economies. In regions where agricultural production contributes significantly to employment and economic activity, changes in agricultural output may directly influence household income and living standards. Agricultural development may support regional income growth through higher productivity, rural employment, and broader economic linkages with non-agricultural sectors.

In recent years, economic reforms and structural transformation in Uzbekistan have affected both agricultural production and regional income dynamics. Despite ongoing economic diversification, agriculture continues to play an important role in regional economic development, particularly outside major urban centers. However, differences in regional income growth remain an important economic concern. Therefore, this thesis investigates the relationship between agricultural growth and disposable income growth across 13 regions of Uzbekistan during 2011–2024 using panel-data econometric methods.

Data and Methodology

The study uses annual regional panel data obtained from the Statistics Agency under the President of the Republic of Uzbekistan covering the period 2011–2024. Tashkent City was excluded from the analysis because agricultural growth remained equal to zero during the study period, making it structurally different from agriculturally active regions. The balanced panel dataset consists of 182 observations across 13 regional units.

The growth rate of disposable total income of the population was selected as the dependent variable, while the growth rate of agricultural, forestry, and fisheries production was included as the explanatory variable. All variables were measured in percentage terms. The baseline econometric specification is expressed as follows:

$$Y_{it} = \alpha + \beta X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where Y_{it} denotes the disposable income growth rate in region ***i*** during year ***t*** ; X_{it} represents agricultural growth; μ_i captures unobserved regional-specific effects; λ_t represents time-specific effects, and ε_{it} is the error term.

Results and Discussion

The empirical findings reveal a positive and statistically significant relationship between agricultural growth and regional disposable income growth in Uzbekistan. In the preferred specification with fixed effects, year fixed effects, and Driscoll–Kraay robust standard errors, a one percentage-point increase in agricultural growth increased disposable income growth by approximately 0.31 percentage points ($p<0.05$). This result suggests that agricultural development contributes positively to household income and regional economic activity.

The results also indicate that nationwide macroeconomic conditions played an important role in shaping regional income dynamics during the study period. After controlling for common time effects and cross-sectional dependence, the estimated agricultural coefficient declined from approximately 0.51 in the baseline fixed-effects model to 0.31 in the final specification. This finding implies that common economic shocks, structural reforms, inflationary pressures, and broader macroeconomic conditions simultaneously affected both agricultural output and household income across regions.

Nevertheless, agricultural growth remained statistically significant even under the more robust estimation framework, confirming the stability of the relationship between agricultural development and regional income growth. The findings suggest that agricultural productivity and rural economic activity continue to represent important components of regional development in Uzbekistan.

Conclusion

This thesis examined the relationship between agricultural growth and disposable income growth across 13 regions of Uzbekistan during 2011–2024 using panel-data econometric methods. The empirical findings revealed a positive and statistically significant relationship between agricultural development and regional income growth.

The results also demonstrated the important role of nationwide macroeconomic conditions in shaping regional income dynamics during the study period. Overall, the findings suggest that strengthening agricultural productivity together with maintaining macroeconomic stability may contribute positively to sustainable regional development and household welfare in Uzbekistan.

References

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