



THE IMPACT OF INVESTMENT ON REGIONAL ECONOMIC GROWTH IN UZBEKISTAN: AN ECONOMETRIC ANALYSIS

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Abstract. This thesis examines whether prior-year fixed-asset investment intensity predicts short-run regional economic growth in Uzbekistan. A balanced panel of 14 first-level territories for 2018–2024 (98 region-year observations) combines official investment, gross regional product (GRP) and real GRP growth series. A two-way fixed-effects regression controls for persistent regional differences and common year shocks; standard errors are clustered by region. The estimated association between a one-percentage-point increase in the lagged investment-to-GRP ratio and subsequent real GRP growth is -0.009 percentage points (standard error 0.029 ; 95% confidence interval -0.072 to 0.053 ; $p = 0.752$). Excluding Navoi region and Tashkent city yields a similar estimate. The data do not establish a detectable one-year growth response, but this result cannot rule out effects over longer horizons or differences in investment quality. The estimates describe association, not a causal impact.

Keywords: fixed-asset investment; gross regional product; economic growth; panel data; Uzbekistan

Introduction

Investment can expand productive capacity, while its growth effects depend on project type, implementation time and complementary factors. International evidence has highlighted the relevance of machinery and equipment investment for long-run growth [1]. That evidence does not establish how quickly aggregate investment is reflected in output across Uzbekistan's regions. The present study asks a narrower



question: do regions with higher investment relative to their GRP in one year record faster real GRP growth in the following year?

Data and econometric specification

The National Statistics Committee’s SIAT series provide annual fixed-asset investment and current-price GRP for 2017–2023, together with real annual GRP growth for 2018–2024 [2–4]. The sample covers the Republic of Karakalpakstan, 12 regions and Tashkent city. Investment intensity is 100 times annual fixed-asset investment divided by the same year’s GRP; both amounts are reported in billion soums. The dependent variable is the official real GRP growth index minus 100, expressed in percentage points. Thus a 2017 investment ratio is paired with 2018 growth, and so forth through 2023 investment and 2024 growth. No observations are imputed. The GRP source marks 2024 values as preliminary [3, 4].

The estimated equation is $g(i,t) = \alpha(i) + \lambda(t) + \beta s(i,t-1) + \varepsilon(i,t)$. Here g is real GRP growth, s is lagged investment intensity, α is a territory fixed effect and λ is a year fixed effect. Ordinary least squares uses all 98 observations; uncertainty is estimated with standard errors clustered across the 14 territories and a t reference distribution with 13 degrees of freedom [5]. Region effects absorb time-invariant differences, while year effects absorb shocks shared by all territories. A lag reduces mechanical same-year co-movement but does not eliminate reverse causality or omitted variables.

Results

The lagged investment-to-GRP ratio averages 31.3% across the 98 observations and ranges from 11.7% to 63.8%. Real GRP growth averaged 2.5% across the regions in 2020 and 9.0% in 2021, illustrating the importance of common year conditions. After controlling for territory and year effects, the estimated coefficient β is -0.0093 percentage points of subsequent real growth for a one-percentage-point increase in lagged investment intensity. The region-clustered standard error is 0.0289; the 95% confidence interval is -0.0718 to 0.0532 , and $p = 0.752$. The interval crosses zero, so the model does not detect a statistically reliable short-run association.



For scale, a 10-percentage-point difference in prior-year investment intensity corresponds to an estimated -0.09 percentage-point difference in next-year growth; the confidence interval spans approximately -0.72 to $+0.53$ percentage points. Omitting Navoi region and Tashkent city, which may have distinctive economic structures, changes the estimate only slightly to -0.0105 (clustered standard error 0.0336 ; $p = 0.761$; 84 observations). This check does not identify an effect; it shows that the principal result is not driven solely by these two territories.

Discussion and conclusion

A statistically insignificant one-year coefficient should not be read as proof that investment has no economic return. Construction periods, imported equipment, the sectoral destination of projects and differences in utilization can separate expenditure from output. Investment may also respond to expected regional growth, leaving the estimated association endogenous even with a one-year lag. The fixed-asset investment measure is not identical to national-accounts gross fixed capital formation. Both investment and GRP have volumes that are not fully allocated to regions [2, 3], and the investment ratio uses current-price amounts; these features limit interpretation.

The available panel provides no evidence of a uniform immediate growth response to higher regional investment intensity in 2018–2024. A stronger assessment of impact would track projects over several years, distinguish infrastructure from private productive assets, and address investment placement with a credible source of exogenous variation. Regional policy should therefore avoid treating the volume of investment alone as a verified measure of its growth return.

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