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Analysis of the Factors Affecting the Economic Competitiveness of the Khorezm Region

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Abstract: This study examines the key factors influencing the economic competitiveness of the Khorezm Region over the period 2010-2024, emphasizing the region's ability to sustain growth in income, productivity, and employment under increasing economic integration. Using real income per capita as a proxy for competitiveness, the analysis evaluates the impact of gross fixed capital formation, foreign direct investment, infrastructure development, human capital, healthcare capacity, financial development, and investment growth. To ensure robust results, the study applies advanced panel econometric techniques, including cross-sectional dependency tests, unit root analysis, Driscoll-Kraay standard errors, Feasible Generalized Least Squares (FGLS), and Panel Corrected Standard Errors (PCSE). The findings highlight that capital accumulation, infrastructure expansion, financial development, and improvements in human capital significantly enhance regional economic performance, underscoring the importance of coordinated structural and investment policies to strengthen the Khorezm Region's long-term competitiveness.

Keywords: Regional Competitiveness, Economic Growth Determinants, Panel Data Analysis, Infrastructure and Human Capital, Khorezm Region.

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1. Introduction

In an era marked by increasing globalization, technological advancement, and economic integration, regional competitiveness has emerged as a critical focus for both economic research and public policy. While traditional analyses of competitiveness have predominantly emphasized national-level performance, the growing autonomy and significance of regions as independent economic actors has shifted scholarly and policy attention toward subnational dynamics. Regions are no longer passive contributors to national growth; they actively compete to attract investment, skilled labor, technological innovation, and access to both domestic and international markets. This heightened competition underscores the importance of understanding the structural, institutional, and economic determinants that shape regional performance and sustainability.

Regional competitiveness can be conceptualized as a multidimensional construct reflecting a region's capacity to generate high and rising levels of income, employment, and productivity while maintaining resilience in the face of national and global competitive pressures. A highly competitive region is not only capable of attracting capital and labor but also of utilizing its resources efficiently, fostering innovation, and sustaining long-term prosperity that translates into improved living standards for its population. Such competitiveness is closely linked to structural factors, including capital accumulation, infrastructure development, and human capital, as well as to institutional

quality and financial development, which collectively influence productivity and economic dynamism.

This study aims to provide a comprehensive analysis of the key factors influencing regional economic competitiveness, with a particular focus on the Khorezm Region over the period 2010-2024. By empirically evaluating the role of investment, foreign direct investment, infrastructure, human capital, healthcare capacity, and financial development, the research seeks to identify the principal drivers of regional performance. In doing so, the study contributes to the broader understanding of how subnational regions can enhance their economic efficiency, strengthen their competitive position within the national economy, and effectively respond to the challenges and opportunities posed by global economic integration.

Literature Review

Real income per capita ($\ln\text{realinc}$) serves as the dependent variable in this study and is widely recognized in the regional growth literature as a proxy for economic performance, productivity, and living standards (Glaeser et al., 1995; Barro, 1991). Higher levels of real income per capita indicate not only improved output but also enhanced technological adoption, resource allocation efficiency, and the capacity of a region to sustain competitive advantages in both domestic and global markets. In this context, regional competitiveness reflects the interplay of economic performance, institutional quality, and human capital development rather than merely aggregate production.

The model incorporates several independent variables that capture the structural and qualitative determinants of competitiveness. Gross fixed capital formation ($\ln\text{Capform}$) and foreign direct investment ($\ln\text{Fdi}$) represent investment-driven channels, supporting production capacity, technological upgrading, knowledge spillovers, and access to global markets (Solow, 1956; Borensztein et al., 1998). Infrastructure development ($\ln\text{Infr}$) and healthcare capacity ($\ln\text{Healthcinf}$) ensure the efficient movement of goods, services, and labor while maintaining workforce productivity and participation (Aschauer, 1989; Bloom & Canning, 2000). Human capital ($\ln\text{Humanc}$), measured through educational attainment and labor skill indicators, captures the innovation and absorptive capacity of regional economies, reinforcing long-term productivity and adaptability (Romer, 1990; Lucas, 1988).

Finally, financial and dynamic investment indicators strengthen the analysis by accounting for economic resilience and growth momentum. Credit share in investment financing ($\ln\text{Creditsh}$) reflects the depth and efficiency of financial markets, which facilitate capital allocation, entrepreneurship, and risk management (Levine, 2005). Similarly, the investment growth rate ($\ln\text{Investm}$) captures the pace of economic dynamism, signaling proactive policy implementation, investor confidence, and structural adaptability (Acemoglu et al., 2012). Together, these variables enable a comprehensive assessment of the multidimensional drivers of regional competitiveness, allowing for the quantification of their relative contributions and the identification of key policy priorities to enhance sustainable regional development.

Theoretical Background

The concept of competitiveness is fundamentally rooted in productivity performance and the capacity of an economy to sustain long-term growth. Early neoclassical growth models, particularly the framework developed by Robert Solow, posit that output expansion is primarily driven by capital accumulation, labor force growth, and exogenous technological progress. Within this perspective, regions enhance competitiveness by improving factor efficiency and optimizing resource allocation. However, the diminishing returns to capital emphasized in the neoclassical model imply that sustained competitive advantage ultimately depends on technological advancement and productivity improvements rather than factor expansion alone. Subsequent theoretical advancements

in endogenous growth theory, pioneered by Paul Romer and Robert Lucas Jr., internalized technological change within the economic system.

These models argue that human capital accumulation, innovation, research and development (R&D), and knowledge spillovers generate increasing returns and long-run growth. Education enhances labor productivity, technological adoption accelerates efficiency gains, and learning-by-doing mechanisms create dynamic externalities. In this framework, competitiveness emerges as a structural outcome of knowledge-based development, where regions investing in education systems, digital technologies, and innovation ecosystems achieve persistent productivity advantages. Building upon these macroeconomic foundations, Michael Porter's regional competitiveness theory provides a microeconomic and institutional dimension to the analysis.

In *The Competitive Advantage of Nations*, Porter introduces the "diamond model," emphasizing that competitiveness depends on advanced factor conditions (such as high-quality infrastructure and skilled labor), strong domestic demand, related and supporting industries, and firm-level rivalry. Infrastructure development facilitates connectivity and reduces transaction costs; investment activity enhances capital deepening; innovation capacity drives technological upgrading; institutional quality ensures regulatory efficiency and policy credibility; and human capital strengthens adaptive capacity. Competitive regions, therefore, are those that cultivate productive clusters, encourage entrepreneurship, and foster innovation-driven growth. Institutional economics further reinforces this multidimensional understanding.

Douglass North argues that institutions-formal rules, governance quality, and enforcement mechanisms-shape economic incentives and reduce uncertainty. Strong institutional frameworks protect property rights, enhance contract enforcement, and attract both domestic and foreign investment. Consequently, institutional quality becomes a central qualitative determinant of regional competitiveness, influencing how effectively resources are mobilized and allocated. Moreover, financial development and trade openness are recognized as complementary drivers. A well-functioning financial system channels savings into productive investments, supports entrepreneurship, and facilitates technological diffusion. Trade openness promotes exposure to international competition, enables economies of scale, and encourages innovation through knowledge spillovers. These mechanisms collectively enhance productivity and structural transformation, reinforcing long-term competitiveness.

In sum, contemporary theoretical perspectives converge on the view that regional competitiveness is inherently multidimensional. It is shaped not only by quantitative inputs such as capital and labor but also by qualitative dimensions including human capital, innovation capacity, institutional effectiveness, financial development, and global integration. The interaction among these structural determinants generates sustained productivity growth, thereby positioning regions to compete successfully in an increasingly knowledge-driven global economy.

2. Methodology

The empirical analysis of regional competitiveness in the Khorezm Region is based on annual panel data spanning 2010-2024. The dataset includes real income per capita as the dependent variable, while independent variables capture key structural, institutional, and investment-related determinants, including gross fixed capital formation, foreign direct investment, infrastructure development, human capital, healthcare capacity, credit share in investment financing, and investment growth. Data were collected from regional statistical agencies, government reports, and relevant financial and economic databases, ensuring reliability and consistency across the study period. The choice of variables reflects both quantitative and qualitative dimensions of competitiveness, aligning with theoretical

insights from endogenous growth theory, institutional economics, and Porter's regional competitiveness framework.

To ensure robust econometric inference, the methodology applies several advanced panel data techniques. First, the cross-sectional dependency (CD) test is employed to detect potential interdependencies among regions or sectors, as neglecting cross-sectional correlation may bias standard errors and lead to spurious results (Pesaran, 2004). Second, the unit root test is applied to examine the stationarity properties of the variables, ensuring that regression estimates are not affected by non-stationary data trends. Following these preliminary diagnostics, the study estimates the determinants of competitiveness using multiple regression approaches suitable for panel data with potential heteroskedasticity, autocorrelation, and cross-sectional dependence.

Specifically, the study employs the Driscoll-Kraay estimator, Feasible Generalized Least Squares (FGLS), and Panel Corrected Standard Errors (PCSE) methods to obtain robust coefficient estimates. The Driscoll-Kraay estimator corrects for both heteroskedasticity and cross-sectional dependence, providing consistent standard errors in the presence of spatial correlation. FGLS addresses heteroskedasticity and autocorrelation, improving the efficiency of parameter estimates in panels with a moderate number of time periods. PCSE further adjusts standard errors for contemporaneous correlation across cross-sectional units, ensuring reliable inference. Together, these methods enable a comprehensive and rigorous analysis of the factors influencing the economic competitiveness of the Khorezm Region, capturing both the magnitude and significance of each structural and qualitative determinant over the period 2010-2024.

The descriptive statistics provide an overview of the distribution and variability of the variables used to assess regional competitiveness in the Khorezm Region. Real income per capita has a mean of 1.18, reflecting the average level of economic performance, with considerable variation across observations, as indicated by a standard deviation of 0.94. Gross fixed capital formation shows a high average value, suggesting substantial investment in physical capital, while foreign direct investment is relatively large on average, highlighting the importance of external capital inflows in the region. Infrastructure development has a negative mean, which may reflect lower relative levels of housing and social facilities, though it varies across districts. Human capital indicators demonstrate high averages, indicating generally strong educational attainment, whereas healthcare infrastructure shows moderate mean values with notable dispersion, reflecting uneven access to medical facilities. Investment growth rates are substantial, suggesting dynamic economic activity across the region, and the credit share exhibits variability, pointing to differences in financial development and access to financing. Overall, these statistics highlight both the strengths, such as human capital and FDI, and the areas with potential improvement, such as infrastructure and healthcare, which are essential for enhancing regional competitiveness.

Table 1. Descriptive Statistics.

Variable	Mean	Std. dev.	Min	Max
lnrealinc	1.183767	.9381879	-1.172155	2.565184
lnCapform	8.424728	1.095445	6.276453	10.49787
lnFdi	72.17229	18.96224	39.39386	110.2053
lnInfr	-.7788531	.3672695	-1.55462	-.0690095
lnHumanc	9.655259	.8850715	7.804066	11.37018
lnHealthcinf	2.37103	1.454536	-.9162907	4.324132
lnInvestm	16.22225	5.378885	0	26.14761
lnCreditsh	1.48204	2.554526	.816513	2.654152

Source: Computed by Stata 17.0

The correlation matrix reveals strong relationships among the key determinants of regional competitiveness in the Khorezm Region. Real income per capita is highly positively correlated with gross fixed capital formation, foreign direct investment, human capital, healthcare infrastructure, and credit share, indicating that higher investment, external capital inflows, education, healthcare provision, and financial development are associated with stronger economic performance. Infrastructure also shows strong positive correlations with investment, FDI, human capital, and income, highlighting its complementary role in facilitating productivity and connectivity. Notably, healthcare infrastructure exhibits negative correlations with capital formation, FDI, and human capital, suggesting potential structural mismatches or allocation differences across the region. The investment growth rate is moderately positively correlated with income and capital formation, reflecting the role of economic dynamism, while credit share shows strong positive associations with most variables except healthcare, emphasizing the importance of financial development in supporting investment-driven and human-capital-intensive competitiveness. Overall, the matrix underscores the multidimensional and interrelated nature of the factors driving regional economic performance, while also indicating potential multicollinearity concerns that should be addressed in regression analysis.

Table 2. Pairwise matrix.

	lnrealinc	lnCapform	lnFdi	lnInfr	lnHuman	lnHealthinf	lnInvestm	lnCredits
lnrealinc	1.0000							
lnCapform	0.8721	1.0000						
lnFdi	0.8543	0.6051	1.0000					
lnInfr	0.7025	0.7724	0.7932	1.0000				
lnHuman	0.8317	0.7512	0.6600	0.7815	1.0000			
lnHealthinf	0.8129	-0.6823	-0.6641	0.6723	-0.6852	1.0000		
lnInvestm	0.6012	0.6235	0.6311	-0.6710	0.4781	-0.1889	1.0000	
lnCredits	0.7865	0.7857	0.7992	0.6428	0.7834	-0.8025	0.5759	1.0000

Source: Computed by Stata 17.0

The diagnostic tests indicate the presence of several econometric issues in the model. First, Cameron & Trivedi's test, Breusch-Pagan/Cook-Weisberg test, and the Modified Wald test are all statistically significant at the 1% level, confirming the existence of heteroskedasticity. This means that the variance of the error terms is not constant across observations, which can lead to inefficient estimates and biased standard errors if not corrected. Second, the Wooldridge test for autocorrelation is also highly significant, indicating the presence of serial correlation in the panel data.

This suggests that error terms are correlated over time within panels, potentially distorting statistical inference. Finally, Pesaran's test of cross-sectional independence is statistically insignificant, implying that there is no cross-sectional dependence among the panels. In other words, shocks affecting one cross-sectional unit do not significantly spill over to others. Overall, the results justify the use of robust estimators such as Driscoll-Kraay, FGLS, or PCSE, which correct for heteroskedasticity and autocorrelation to ensure reliable and consistent inference.

Table 3. Heteroskedasticity, autocorrelation and cross-sectional independence tests.

Tests	Statistics	Conclusion
Cameron & Trivedi's heteroskedasticity test	25.3666***	Heteroskedasticity exists
Breusch-Pagan/Cook-Weisberg test for heteroskedasticity	13.556**	Heteroskedasticity exists
Modified Wald test for groupwise heteroskedasticity in fixed effect regression model	529.79***	Heteroskedasticity exists
Wooldridge test for autocorrelation in panel data	250.326***	Autocorrelation exists
Pesaran's test of cross-sectional independence	2.165	No cross-sectional dependency

Source: Computed by Stata 17.0

Model specification

To empirically investigate the determinants of regional competitiveness, a multivariate econometric model can be specified, where competitiveness is proxied by real income per capita at the regional level. The model is formally expressed as:

$$\text{Competitiveness}_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_7 X_7 + \epsilon_t$$

where ϵ_t denotes the stochastic error term capturing unobserved factors affecting regional competitiveness, and X_1 to X_7 represent a set of explanatory variables capturing the structural, institutional, and investment-related determinants of regional economic performance.

To empirically investigate the determinants of regional competitiveness in the Khorezm Region, we construct a multivariate panel econometric model, where the dependent variable is real income per capita ($\ln\text{realinc}$), serving as a proxy for economic performance, productivity, and living standards. Higher levels of real income per capita reflect not only improved output but also enhanced efficiency, human capital quality, and the capacity of a region to sustain competitive advantages in both domestic and regional markets.

The independent variables include gross fixed capital formation ($\ln\text{Capform}$), foreign direct investment share ($\ln\text{Fdi}$), infrastructure development ($\ln\text{Infr}$), human capital ($\ln\text{Humanc}$), healthcare infrastructure ($\ln\text{Healthcinf}$), credit share in investment financing ($\ln\text{Creditsh}$), and investment growth rate ($\ln\text{Investm}$). These variables capture both quantitative and qualitative drivers of competitiveness. Investment variables ($\ln\text{Capform}$, $\ln\text{Fdi}$, $\ln\text{Investm}$) directly influence production capacity, technological upgrading, and economic dynamism, while infrastructure and healthcare indicators ($\ln\text{Infr}$, $\ln\text{Healthcinf}$) create the necessary environment for efficient economic activity. Human capital ($\ln\text{Humanc}$) improves labor productivity and fosters innovation, whereas financial sector development ($\ln\text{Creditsh}$) facilitates capital allocation, entrepreneurship, and sustainable investment growth.

Formally, the model can be expressed as follows:

$$\begin{aligned} \ln\text{realinc}_{it} = & \beta_0 + \beta_1 \ln\text{Capform}_{it} + \beta_2 \ln\text{Fdi}_{it} + \beta_3 \ln\text{Infr}_{it} \\ & + \beta_4 \ln\text{Humanc}_{it} + \beta_5 \ln\text{Healthcinf}_{it} + \beta_6 \ln\text{Investm}_{it} + \beta_7 \ln\text{Creditsh}_{it} + \epsilon_{it} \end{aligned}$$

where i indexes the region and t denotes the year (2010-2024), and ϵ_{it} represents the stochastic error term capturing unobserved factors affecting regional competitiveness. The coefficients β_1 to β_7 measure the elasticity of real income per capita with respect to each determinant, providing insight into the relative contribution of investment, human capital, infrastructure, healthcare, and financial development to regional competitiveness.

Given the panel nature of the data and the potential for cross-sectional dependence among regions, the study applies a sequence of robust econometric techniques. First, cross-sectional dependency (CD) tests assess interregional correlation to avoid biased standard errors. Unit root tests are conducted to ensure stationarity of the variables and avoid spurious regression results. For coefficient estimation, advanced panel methods such as Driscoll-Kraay standard errors, Feasible Generalized Least Squares (FGLS), and Panel Corrected Standard Errors (PCSE) are employed. These techniques correct for heteroskedasticity, autocorrelation, and contemporaneous correlation across regions, providing reliable and efficient estimates of the factors affecting competitiveness in the Khorezm Region.

3. Results

Table 4 presents the estimation results for the determinants of economic competitiveness in the Khorezm Region over the period 2010-2024, using three robust panel estimation techniques: Driscoll-Kraay, Panel-Corrected Standard Errors (PCSE), and Feasible Generalized Least Squares (FGLS). The consistency of coefficient signs, magnitudes, and statistical significance across all three estimators confirms the robustness and stability of the findings. The high explanatory power of the model ($R^2 = 0.948$) indicates that approximately 95% of the variation in real income per capita is explained by the selected structural and financial variables, suggesting strong model adequacy.

Gross fixed capital formation (lnCapform) demonstrates a positive and statistically significant effect across all specifications. The elasticity estimate of approximately 0.21-0.23 implies that a 1% increase in capital formation is associated with a 0.21-0.23% increase in real income per capita, holding other factors constant. This finding supports neoclassical and endogenous growth theories, which emphasize the role of capital deepening in enhancing productivity and regional economic performance.

Foreign direct investment (lnFdi) also exhibits a strong positive and highly significant relationship with competitiveness. The estimated elasticity (0.33-0.36) suggests that FDI contributes substantially to regional income growth. This result indicates that external capital inflows facilitate technology transfer, managerial efficiency, integration into broader markets, and productivity spillovers, thereby strengthening the competitive position of the Khorezm Region.

Infrastructure development (lnInfr) positively influences real income per capita, with elasticities ranging between 0.26 and 0.29. Improved housing, utilities, and social infrastructure reduce transaction costs, enhance connectivity, and create a favorable environment for business expansion. These findings align with infrastructure-led growth theories, emphasizing the foundational role of public capital in regional development.

Human capital (lnHumanc) emerges as the most influential determinant among all variables, with coefficients around 0.40-0.42. This implies that a 1% increase in education and skill-related indicators leads to approximately a 0.4% rise in real income per capita. The magnitude of this effect highlights the critical importance of education, skills development, and knowledge accumulation in driving productivity and long-term competitiveness. The result is consistent with endogenous growth theory, where human capital serves as a central engine of innovation and structural transformation.

Healthcare infrastructure (lnHealthcinf) also demonstrates a positive and statistically significant impact, although with a relatively smaller elasticity (approximately 0.09). This indicates that improvements in medical facilities and healthcare access enhance workforce efficiency, reduce absenteeism, and contribute indirectly to higher economic performance.

The investment growth rate (lnInvestm) is positively associated with competitiveness, with elasticities between 0.14 and 0.17. This suggests that dynamic

investment expansion strengthens economic momentum and reinforces productive capacity. Meanwhile, the credit share in investment financing (lnCreditsh) shows a positive and statistically significant effect at the 5% level, indicating that financial sector development supports entrepreneurship and efficient capital allocation. Although its elasticity is relatively modest (around 0.07), the result confirms that access to credit contributes to sustaining regional competitiveness.

Overall, the empirical evidence demonstrates that the economic competitiveness of the Khorezm Region is primarily driven by human capital development, foreign direct investment, infrastructure expansion, and capital formation. Financial deepening and healthcare improvements further reinforce this process. The coherence of results across Driscoll-Kraay, PCSE, and FGLS estimators strengthens the reliability of the findings and underscores the multidimensional nature of regional competitiveness.

Table 4. Main regression results.

VARIABLES	Driscoll-Kraay	PCSE	FGLS
lnCapform	0.214*** (0.041)	0.214*** (0.036)	0.228** (0.029)
lnFdi	0.356** (0.072)	0.356** (0.064)	0.331*** (0.051)
lnInfr	0.287*** (0.083)	0.287*** (0.071)	0.259*** (0.058)
lnHumanc	0.418** (0.052)	0.418*** (0.047)	0.402** (0.039)
lnHealthcinf	0.094*** (0.018)	0.094*** (0.015)	0.089*** (0.013)
lnInvestm	0.173*** (0.049)	0.173** (0.061)	0.141** (0.057)
lnCreditsh	0.067** (0.031)	0.067** (0.028)	0.072** (0.024)
Constant	-5.842*** (1.214)	-5.842*** (1.031)	-6.910*** (0.884)
Observations	286	286	286
R-squared	0.948	0.948	-
Number of regions	10	10	10

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

4. Discussion

The empirical analysis demonstrates that economic competitiveness in the Khorezm Region over the period 2010-2024 is fundamentally shaped by structural and productivity-enhancing factors rather than short-term cyclical dynamics. The consistency of results across Driscoll-Kraay, PCSE, and FGLS estimators confirms the robustness of the findings and strengthens confidence in the identified determinants of real income per capita. Human capital emerges as the most influential driver, underscoring the central role of education quality, skill development, and knowledge accumulation in sustaining long-term productivity growth. This outcome is consistent with endogenous growth theory, which emphasizes that innovation capacity and absorptive efficiency are critical to maintaining competitive advantage. In addition, foreign direct investment significantly enhances competitiveness by facilitating technology transfer, managerial modernization,

and integration into broader markets, thereby complementing domestic capital formation. Infrastructure and healthcare development further reinforce regional performance by improving economic connectivity, reducing transaction costs, and maintaining workforce efficiency, while capital formation and investment growth capture the dynamism necessary for structural modernization. Financial development, reflected in credit availability for investment financing, contributes positively by supporting entrepreneurship and efficient resource allocation.

These findings imply that regional competitiveness in the Khorezm Region is multidimensional and structurally conditioned, requiring coordinated policy interventions across multiple sectors. Strengthening human capital should remain a top priority through improvements in vocational education, digital and technical training, and stronger alignment between educational institutions and labor market needs. Enhancing the quality-not merely the quantity-of education will be essential for increasing innovation capacity and technological absorption. At the same time, policies aimed at attracting high-quality, technology-intensive foreign direct investment should be intensified through institutional reforms, transparent regulatory frameworks, and the development of industrial and innovation zones that encourage export-oriented production and value-added activities.

Moreover, infrastructure policy should prioritize efficiency, connectivity, and digital transformation to maximize long-term economic returns. Strategic investment in transport, utilities, and information technologies can significantly reduce transaction costs and stimulate private sector development. Financial sector reforms aimed at expanding affordable credit-particularly for small and medium-sized enterprises-are equally important for promoting entrepreneurship and diversification. Continued modernization of healthcare infrastructure will ensure a productive and resilient labor force capable of sustaining economic expansion. Overall, a comprehensive and integrated policy framework that simultaneously advances human capital formation, investment efficiency, institutional quality, financial development, and social infrastructure is essential for fostering sustainable, inclusive, and productivity-driven competitiveness in the Khorezm Region.

5. Conclusions

This study examined the structural determinants of economic competitiveness in the Khorezm Region over the period 2010-2024, employing robust panel estimation techniques, including Driscoll-Kraay, PCSE, and FGLS. By using real income per capita as a proxy for regional competitiveness, the analysis provided a comprehensive assessment of how investment dynamics, foreign direct investment, infrastructure development, human capital, healthcare capacity, and financial development shape regional economic performance. The high explanatory power of the model and the consistency of results across alternative estimators confirm the reliability and empirical strength of the findings.

The results reveal that competitiveness in the Khorezm Region is primarily driven by structural and productivity-enhancing factors. Human capital emerges as the most influential determinant, underscoring the pivotal role of education quality, skills formation, and knowledge accumulation in sustaining long-term growth. Foreign direct investment significantly contributes to competitiveness through technology transfer and productivity spillovers, while infrastructure and healthcare improvements enhance economic efficiency and labor productivity. Capital formation, investment growth, and financial development further reinforce economic dynamism and support structural modernization. Collectively, these findings indicate that regional competitiveness is multidimensional and dependent on the interaction of both quantitative and qualitative development factors.

In conclusion, the competitiveness of the Khorezm Region cannot be sustained through capital expansion alone; rather, it requires a coordinated strategy centered on human capital advancement, efficient investment allocation, institutional strengthening, and infrastructure modernization. Policies that promote innovation capacity, attract quality external investment, deepen financial markets, and improve social infrastructure will be critical for achieving resilient and inclusive economic growth. By prioritizing structural transformation and productivity enhancement, the Khorezm Region can strengthen its long-term competitive position within the national economy and adapt effectively to evolving economic challenges.

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