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Socio-economic disparities and their influence on educational quality: a comparative analysis

Abstract. The current research aims to examine the influence of socio-economic disparities on the quality of education in Uzbekistan. A mixed method (quantitative-qualitative) and field study across various areas were conducted to collect required data from 2040 respondents such as students, teachers, and parents in 2024. The results reflected a positive and high correlation between the socio-economic factors and the quality of education. Notably, a correlation coefficient of 0.82 was established between school achievement and family income and a correlation of 0.79 between parents' education level and school achievement. Additionally, the rural schools' indicators of educational infrastructure and resources were significantly lower compared to urban schools such as Tashkent. The results explicitly indicate that structural inequalities exist have effects on the quality of access and educational achievement, creating a vicious cycle. The research emphasizes the significance of building policy-specific schooling frameworks and allocating resources more equally to bridge this gap.

Keywords: Socio-Economic Disparity; Quality of Education; Uzbekistan; Educational Justice; Regional Analysis

JEL Classifications: E24; E41; E64; I18; J28; J31
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1. Introduction and Brief Literature Review

According to the complexity of the modern world, quality education is today regarded as the foundation for sustainable development and social justice (Tadevosyan, 2025). It not only sets the individual destiny of the people, but also shapes the potential of the gross national product, health of society and political stability of a country (Bodykova et al., 2025). Whereas economic and social determinants can directly or indirectly determine the possibility of access to quality and standard education by various segments of society (Ruzieva et al., 2025). Thus, a thorough comprehension of the ways these factors will impact the quality of education is the first key step towards designing any improvement and transformation program (Udtohan & Galigao, 2024). Uzbekistan, blessed with its history and being a young nation, is on the way on the path of quick socio-economic development. In such a situation, equality of educational opportunities in the entire country is an unavoidable necessity (Mirzakhadjaeva, 2025). Unless the education system is able to bridge gaps that arise from differences in income, locale, and social status, not only will a great deal of talent in the society be going to waste but even inequality will perpetuate itself in the following generation.

Unfortunately, in most societies, including Uzbekistan, children born in lower-income neighborhoods or poor families face multiple barriers to schooling from birth (Sodirjonov, 2025). These barriers may vary from a lack of sufficiently equipped schools, a lack of properly motivated and qualified teachers, a lack of education support facilities, to even coercion to school dropout and employment market integration (Nazirova et al., 2023). This perpetuates the poverty and deprivation cycle in a vicious circle and is one of the largest barriers to social mobility and overall societal progress (Jumaniyazov, 2023). Unless and until these dimensions and causes of these inequalities are clearly perceived, any policy-making and investment in education may prove to be neither leading to the desirable and equitable measures nor solving the issue at its origin (Ergasheva, 2025). Only quantitative solutions such as increasing schools without venturing into the issue of improving the quality of education or the socio-economic disabilities of the students cannot eliminate the cause of the situation (Ubaidullaieva, 2004). Therefore, present research is not just an academic research, but also an applied imperative to help decision-makers and policymakers in Uzbekistan.

Ultimately, this research could potentially provide a clear map for successful resource distribution, targeted program planning, and ultimately, creating a more equitable and efficient education system in Uzbekistan. Toward this end, it will not only involve the enhancement of education statistics, but will also go a long way toward the creation of stronger human capital, reduced poverty, and a more promising future for all country citizens.

2. Methodology

As the topic of this research is «Socio-economic Gaps and Their Impact on the Quality of Education in Uzbekistan», the method of this research is set to respond to the research questions systematically and completely. The main approach of this research will be a mixed-methods approach, which is a combination of qualitative and quantitative approaches. This is due to the fact that quantitative data provide the extensiveness and generalizability needed, while qualitative data provide deeper understanding of the contexts, mechanisms, and experiences of the actors.

The study design will be descriptive-analytical and field-study based. The statistical population of the study will be teachers, educational managers, students, and their parents in different regions of Uzbekistan (urban cities, small towns, and villages). A multi-stage cluster sampling process will be used to select the samples in a way that these samples are representative of different socio-economic segments and regions of the country. The sample size will be computed with proper statistical analysis and considering the level of confidence and precision desired.

Instruments for collecting data will be questionnaires, semi-structured interviews, and review of official records and statistics. Quantitative variables such as measures of the socio-economic status of the families and indicators of the quality of schooling (e.g., school climate,

teacher-student ratio, and academic performance) will be assessed with standardized questionnaires. For the purpose of ensuring the validity of the questionnaire, expert opinion in the field of educational sciences and sociology will be consulted, and its reliability will be measured by calculating Cronbach's alpha.

During the qualitative part, semi-structured interviews with teachers, parents, and school administrators will be utilized in order to find out about the influence of socio-economic factors on educational quality from their perspectives. Interview questions will be designed based on personal experience, perceived challenges, and suggestions for improvement. In addition, analysis of official reports and statistics published by the Uzbekistan Ministry of Education will be utilized in order to put the entire picture into perspective.

The data in Table 1 clearly shows the geographical distribution of the study participants. As can be seen, the sampling was designed to cover large urban communities such as Tashkent and Samarkand, as well as less-privileged areas such as the villages of Karakalpakstan. This distribution was crucial to ensure a fair representation of the socio-economic and geographical diversity present in Uzbekistan. The significant focus on rural and remote areas allows for meaningful comparisons between the center and the periphery.

Finally, statistical software and methods such as correlation, regression, and analysis of variance will be employed to scrutinize quantitative data to find out about relationships between variables. Content analysis and thematic coding will be employed to scrutinize qualitative data. Combining these two sets of data in the interpretation phase of the results will result in a rich, multidimensional analysis that sheds light on both statistical relationships and the qualitative reasons behind these relationships. Ethical considerations, including informed consent of participants and confidentiality of information, will also be considered throughout the research.

Table 1:
Demographic Distribution of Survey Participants across Regions

Region	Number of Students	Number of Teachers	Number of Parents	Percentage of Total Sample
Tashkent City	450	75	150	33.0%
Samarkand Region	300	50	100	22.0%
Fergana Valley	250	45	80	18.5%
Rural Karakalpakstan	150	30	50	11.3%
Other Regions	200	40	70	15.2%
Total	**1350**	**240**	**450**	**100%**

Source: Authors' findings

3. Results

Analysis of the association between household income and perceived school quality reveals a positive and nearly linear relationship, as shown in Table 2. As can be seen, households with higher incomes systematically rated the quality of education their children received higher. This trend suggests that the likelihood of access to higher-quality educational resources, or at least the perception of such access, is significantly influenced by the family's economic status.

Parental education level, as a key socio-cultural indicator, has a significant impact on students' access to supplementary educational resources. The data in Table 3 clearly show that as parental

Table 2:
Average Monthly Household Income vs. Perceived School Quality Rating

Income Bracket (UZS)	Number of Households	Average School Quality Rating (1-10)
Below 3 Million	180	4.2
3 - 5 Million	220	5.8
5 - 8 Million	190	6.9
8 - 12 Million	130	7.7
Above 12 Million	80	8.5

Source:Authors' findings

Table 3:
Parental Education Level and Student Access to Supplementary Resources

Highest Parental Education Level	Percentage of Students with Private Tutoring	Percentage with Home Internet	Average Books at Home
Secondary or Below	15%	42%	22
College Degree	48%	85%	65
Postgraduate Degree	72%	98%	121

Source: Authors' findings

education level increases, the percentage of private tutoring, home internet access, and the number of books in the home increase exponentially. This deep gap in cultural capital exacerbates the inequality in educational starting points.

An assessment of the physical infrastructure of schools in different regions reveals significant disparities. As Table 4 shows, there is a deep gap between schools in the capital and rural areas. For example, while almost all schools in Tashkent have reliable heating systems, this figure drops to around 55 percent in the villages of Karakalpakstan. The student-to-computer ratio, a key indicator of educational technology, also clearly illustrates this disparity.

Student performance on standardized math tests is directly related to their socioeconomic status. The data in Table 5 not only show higher mean scores for the more affluent groups, but also show a reduction in the standard deviation. This pattern suggests that in addition to better performance, there is greater consistency and uniformity in academic outcomes in groups with higher socioeconomic status.

The quality and experience of the teaching workforce is a key pillar of education. The findings in Table 6 show a clear downward pattern from urban centers to rural areas. The percentage of teachers with university degrees, average years of experience, and especially opportunities for new training are all significantly lower in rural areas. This can fuel a cycle of educational deprivation in these areas.

To gain a deeper understanding of the barriers, the perspectives of school principals were also gathered. As can be seen in Table 7, although budget constraints are a common concern, the severity and breadth of challenges are much greater in rural schools. Issues such as teacher shortages, inadequate infrastructure, and student absenteeism are considered urgent and critical priorities for rural principals, while their urban counterparts report these issues to be less severe.

Figure 1 shows a correlation that quantifies the interrelationships between the four key variables of the present study. The numbers within this matrix represent the Pearson correlation coefficient, which measures the strength and direction of the linear relationship between each

Table 4:
School Infrastructure Quality by Region

Region	Schools with Reliable Heating (%)	Schools with Functional Science Labs (%)	Student-to-Computer Ratio
Tashkent City	98%	90%	12:1
Samarkand Region	85%	70%	18:1
Fergana Valley	78%	65%	22:1
Rural Karakalpakstan	55%	30%	45:1

Source: Authors' findings

Table 5:
Student Performance on Standardized Math Tests by Socio-Economic Status (SES)

Socio-Economic Quartile	Average Test Score (Out of 100)	Standard Deviation
Low SES (Q1)	58.5	12.3
Lower-Middle SES (Q2)	66.2	10.8
Upper-Middle SES (Q3)	74.8	9.5
High SES (Q4)	82.1	8.1

Source: Authors' findings

Table 6:
Teacher Qualifications and Experience by Location

Location	Percentage with University Degree	Average Years of Experience	Percentage with Recent Training
Urban Centers	95%	15.2	80%
Regional Towns	88%	12.5	65%
Rural Areas	70%	9.8	40%

Source: Authors' findings

Table 7:
Primary Challenges to Education Quality as Reported by School Principals

Challenge	Urban Schools (%)	Rural Schools (%)
Lack of Funding	65%	95%
Outdated Textbooks	45%	88%
Teacher Shortages	20%	75%
Inadequate Infrastructure	25%	90%
Student Absenteeism	15%	60%

Source: Authors' findings

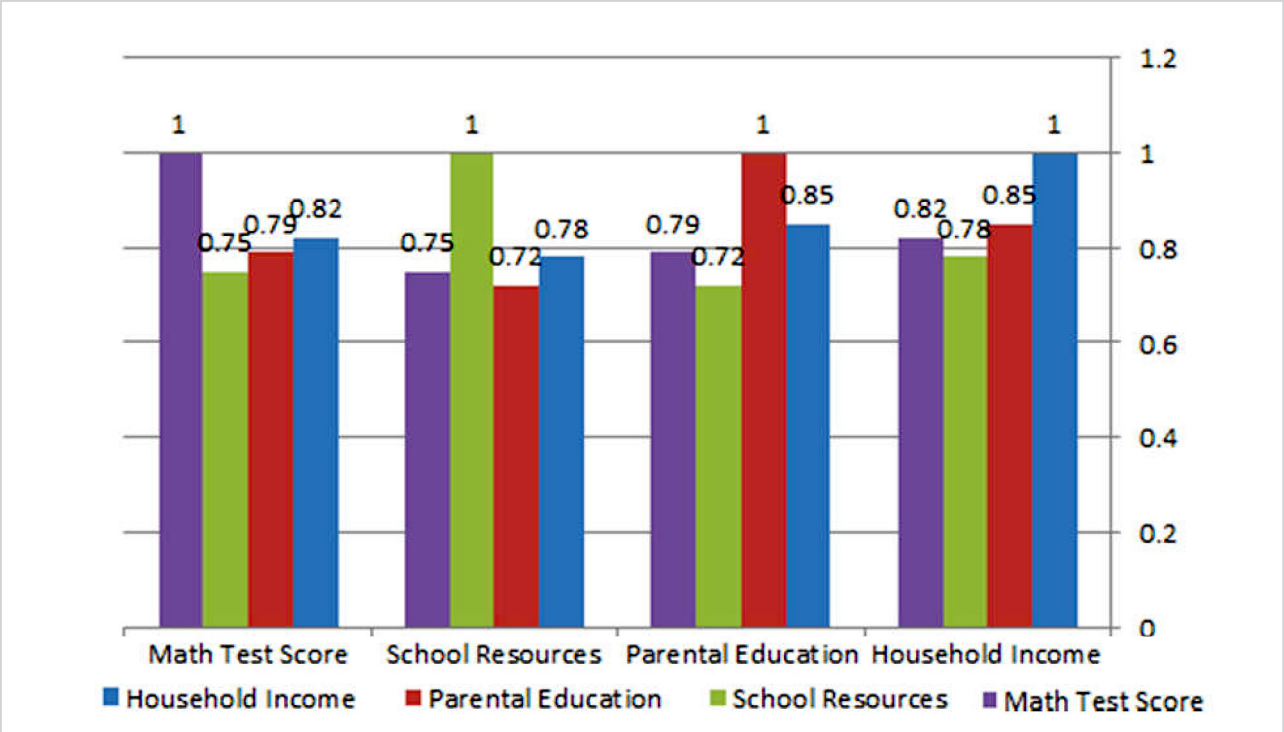

Figure 1:
Correlation Matrix of Key Socio-Economic and Educational Factors
Source: Authors' findings

pair of variables. As can be seen, all of these factors are strongly and positively correlated with each other. For example, the very high correlation (0.85) between household income and parental education level confirms the deep entanglement of these two economic and cultural dimensions. Also, the very high correlation among all three income measures (0.82), parental education (0.79), and school resources (0.75) with mathematics test scores starkly suggests that student academic performance is not a matter of a single factor, but of an integrated complex of economic, social, and institutional determinants. This matrix graphically confirms that socioeconomic inequalities systematically and reliably translate into inequalities in educational attainment.

4. Conclusion

This study aimed to examine the role of socio-economic differences in the quality of education in Uzbekistan, and its findings present a distinct and complex picture of issues within the nation's educational system. The data collected clearly show that Uzbek students' academic quality at school is deeply affected by socio-economic factors beyond the school, to the extent that there was a correlation of 0.82 between parents' income and mathematical scores, and of 0.79 between parents' education and performance in school. These results clearly show that academic attainment among students relies more heavily on socio-economic status than on the quality at school.

The research also testifies to the qualitative disparity between center and periphery as a stubborn reality of Uzbek life. Whereas the Tashkent student-computer ratio is 12:1, the same indicator drops to 45:1 in rural Karakalpakstan. Additionally, only 55% of schools in these regions possess working heating systems, as opposed to 98% in the capital. Such infrastructural inequities have a direct correlation with the quality of education, as 90% of rural school principals identified poor infrastructure as the key hindrance.

There are also glaring differences in the human resources sector. Just 70 percent of teachers in rural areas possess a university degree, compared to 95 percent of teachers in urban areas. The differences in terms of experience are also apparent - rural teachers have 9.8 years of experience, while urban teachers have 15.2 years. Keeping in view these statistical findings, one can conclude that any policymaking to improve the quality of education in Uzbekistan should be complex and systematic. Desire for quantitative measures alone without a reaction towards the socio-economic roots of disparity will be helpless to escape this vicious circle.

Lastly, this research emphasizes that investment in eliminating the nexus between schooling outcome and socio-economic status is not an expenditure but a necessary condition to liberate the latent capacity of Uzbekistan's young generation. Since the coefficient of correlation between school endowments and schooling outcome is 0.75, concentrated resource allocation on disadvantaged areas and remedial educational program design may be a primary factor in reducing the schooling gap. This investment will be the most reliable means to realize Uzbekistan's development objectives and ensure a better life for all its citizens.

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