



**O'ZBEKISTONDA MAJBURIY TA'LIM DARAJALARIDA MAKTABGA BORMASLIK  
KO'RSATKICHLARI: IJTIMOIY-IQTISODIY VA DEMOGRAFIK OMILLAR BILAN BOG'LIQLIK**

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**Annotation.** Ushbu tadqiqot O'zbekistonda majburiy maktab yoshidagi bolalar orasida ijtimoiy-demografik omillar va maktabga qatnamaslik darajalari o'rtasidagi bog'liqlikni milliy darajadagi uy xo'jaliklari so'rovnomasini ma'lumotlari asosida o'rganadi. Maktabga qatnamaslik darajalari boshlang'ich ta'limga, tayanch o'rta ta'limga va o'rta ta'limga bosqichlari bo'yicha tahsil qilindi. Natijalar shuni ko'rsatdiki, ayniqsa o'rta ta'limga bosqichida o'quvchilar mакtabdan tashqarida qolish ehtimoli ancha yuqori. Bundan tashqari, uy xo'jaliklarining boylik darajasi boshlang'ich va tayanch o'rta ta'limga bosqichlarida mакtabdan chetlanish bilan sezilarli bog'liqlikka ega bo'ldi. Jins, yashash joyi (shahar/qishloq) yoki hudud bo'yicha esa sezilarli farqlar aniqlanmadi. Bu ta'limga tenglik yo'nalishida yutuqlar mavjudligidan dalolat berishi yoki aggregat darajadagi ma'lumotlar nozik tafovutlarni aniqlashda cheklangan bo'lishi mumkinligini anglatadi. Tadqiqot aniq maqsadli aralashuvlar uchun amaliy xulosalarni taqdim etadi hamda maktabga qatnamaslikning sabablarini chuqurroq tushunish uchun omilli va longitudinal yondashuvlardan foydalanadigan keyingi tadqiqotlarni tavsiya etadi.

**Kalit so'zlar:** maktabga qatnash, mакtabdan chetlanish, maktabga qatnamaslik darajalari, O'zbekiston, boshlang'ich ta'limga, tayanch o'rta ta'limga, o'rta ta'limga.

**ПОКАЗАТЕЛИ НЕУЧАСТИЯ В ОБЯЗАТЕЛЬНОМ ОБРАЗОВАНИИ В УЗБЕКИСТАНЕ:  
СВЯЗЬ С СОЦИАЛЬНО-ЭКОНОМИЧЕСКИМИ И ДЕМОГРАФИЧЕСКИМИ ФАКТОРАМИ**

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**Аннотация.** Данное исследование анализирует взаимосвязь между социодемографическими факторами и показателями неучастия в обязательном образовании среди детей школьного возраста в Узбекистане, основываясь на данных национального репрезентативного обследования домашних хозяйств. Показатели неучастия были рассмотрены на этапах начального, базового и среднего специального образования. Результаты показывают, что учащиеся на уровне среднего образования значительно чаще не охвачены обучением по сравнению с младшими школьниками. Кроме того, уровень материального благосостояния семьи был значимо связан с исключением из школы на начальном и базовом уровнях. Различия по полу, месту проживания (город/село) и региону не оказались статистически значимыми, что может свидетельствовать о достигнутом прогрессе в обеспечении равного доступа к образованию – либо о том, что агрегированные данные не позволяют выявить более тонкие различия. Исследование предлагает практические рекомендации для целевых вмешательств и подчёркивает необходимость дальнейших исследований с использованием каузальных и лонгитюдных методов для более глубокого понимания причин неучастия в обязательном образовании.

**Ключевые слова:** посещаемость школы, исключение из школы, показатели непосещения школы, Узбекистан, начальное образование, базовое образование, среднее специальное образование.

## OUT-OF-SCHOOL RATES IN COMPULSORY EDUCATION LEVELS IN UZBEKISTAN: ASSOCIATIONS WITH SOCIOECONOMIC AND DEMOGRAPHIC FACTORS

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**Abstract.** This study investigates the associations between sociodemographic factors and out-of-school rates among children of compulsory school age in Uzbekistan, using nationally representative household survey data. Out-of-school rates were analyzed across primary, lower secondary, and upper secondary education levels. Results reveal that students at the upper secondary level are significantly more likely to be out of school compared to younger peers. Additionally, household wealth was significantly associated with school exclusion at the primary and lower secondary levels. No significant differences were found by gender, area of residence, or region, suggesting possible progress in educational equity or limitations in aggregate-level data to detect more nuanced disparities. The study offers practical implications for targeted interventions and calls for further research using causal and longitudinal methods to better understand the mechanisms behind school non-attendance.

**Keywords:** school attendance, school exclusion, out-of-school rates, Uzbekistan, primary education, lower secondary education, upper secondary education

### Introduction.

Education is widely recognized as a fundamental human right and a key driver of individual and societal development. Access to basic education is crucial for reducing poverty, improving health outcomes, and fostering economic growth. However, many children around the world remain out of school, limiting their opportunities and reinforcing cycles of disadvantage. Understanding the factors that contribute to school exclusion is essential for designing effective educational policies and interventions. This paper aims to explore this topic in the context of Uzbekistan.

### Literature Review.

To the best of the author's knowledge, there are no peer-reviewed academic studies that specifically investigate the determinants or consequences of school attendance—or non-attendance—in Uzbekistan. Existing sources, such as the UNICEF Multiple Indicator Cluster Surveys (MICS), the World Bank's Education Sector Analyses, UNESCO Institute for Statistics (UIS) data, and national education reports issued by the Ministry of Preschool and School Education of the Republic of Uzbekistan, provide valuable descriptive statistics on school participation rates, disaggregated by factors such as age, sex, wealth, and region. However, these reports are primarily descriptive in nature and typically do not employ inferential statistical methods to examine associations or causal relationships between school attendance and potential explanatory variables. As such, much of the literature reviewed in this section draws from international studies, including those conducted in both high-income and low- and middle-income countries. While contextual differences must be acknowledged, these studies offer valuable insights that can inform and contextualize the analysis of school non-attendance in the Uzbek context.

Additionally, while the present study focuses specifically on complete non-attendance during the 2021–2022 academic year—defined as children who did not attend school at all during that period—the literature reviewed encompasses a broader range of school non-

attendance patterns. These include partial attendance (e.g., chronic absenteeism, truancy, and school refusal), as well as temporary and recurrent forms of absence. This broader scope was necessary due to the limited availability of research focused exclusively on total annual non-enrollment. As such, findings from studies on various types of school absenteeism are included where relevant, to inform and contextualize the discussion of associated reasons, consequences, and interventions.

*Reasons for non-attendance.*

**Individual Factors.** Individual characteristics such as mental health, academic motivation, and peer interactions are widely associated with school non-attendance. For instance, studies have shown that stress and a lack of interest in schoolwork are key personal reasons behind absenteeism (Dhakal et al., 2023). A systematic review and meta-analysis by An et al. (2017) found that overweight and obesity in children are significantly associated with increased school absenteeism. Specifically, children with obesity had a 54% higher likelihood of being absent compared to their normal-weight peers. Mental health issues such as depression and anxiety have also been linked to persistent school refusal (Finning et al., 2019). In the same vein, bullying has been frequently cited as a deterrent to attendance; in a study conducted in Nepal, 36.5% of students identified bullying as a direct reason for absence (Dhakal et al., 2023).

Demographic variables such as gender and area of residence also play a role. A recent study in Ethiopia found that female students had higher odds of absenteeism than male students (Mohammed et al., 2023). Enrollment and graduation rates in China were strongly influenced by both location and gender, with rural girls experiencing notably greater disadvantages compared to other groups (Connelly and Zheng, 2003).

**Family Factors.** Family-related circumstances, including economic status and parental involvement, are strong determinants of attendance. Students from lower-income households are more likely to be absent due to responsibilities such as working with parents or taking care of siblings (Dhakal et al., 2023). In the same study, 41.7% of students cited going to work with parents as a reason for their absence. Hernandez (2011) showed that 22 percent of children who have lived in poverty did not graduate from high school, as opposed to just 6 percent of those who have never been poor.

In addition, parental behavioral control has been found to significantly affect attendance. A study by Demir and Akman Karabeyoglu (2015) in Turkey showed that students whose parents exhibited higher behavioral control and who had stronger school commitment were less likely to be absent.

**School Factors.** The school environment itself contributes significantly to student attendance. A negative or unsafe school climate can lead to increased absenteeism, as students disengage from learning environments they perceive as hostile or unsupportive (Demir and Akman Karabeyoglu, 2015). Furthermore, teacher-student relationships play a role: poor rapport with teachers has been shown to reduce students' motivation and sense of belonging, ultimately affecting their attendance (Dhakal et al., 2023).

***Consequences of School Non-Attendance***

**Academic Outcomes.** Chronic absenteeism is strongly associated with diminished academic performance. Students missing school score significantly lower on standardized assessments (Gottfried, 2010; Gottfried, 2014). Further evidence from U.S. school systems suggests that persistent absence, particularly in early grades, correlates with lower literacy and numeracy development, increasing the risk of academic failure and grade repetition (Allensworth and Easton, 2007; Hancock et al., 2013).

**Mental Health Impacts.** School absenteeism is closely linked to negative mental health outcomes. A meta-analysis by Finning et al. (2019) found a robust association between absenteeism and elevated risks of depression among adolescents. Moreover, Kearney (2008)

highlighted that school refusal behavior is often rooted in emotional distress, including fear, separation anxiety, or social phobia. Another study by Egger et al. (2003) demonstrated that children with internalizing disorders—particularly depression—are more likely to exhibit chronic absenteeism, further exacerbating psychological vulnerabilities.

Social and Emotional Development. Frequent absence also hinders emotional growth and peer integration. Students who are chronically absent miss key socialization opportunities, leading to lower social competence, peer rejection, and increased behavioral problems (Gottfried, 2014). These developmental challenges can create feedback loops of disengagement, further alienating students from the school environment.

Long-Term Socioeconomic Consequences. The consequences of poor attendance extend well into adulthood. Research by Hernandez (2011) found that children not reading proficiently by third grade—often due to chronic absence—are four times more likely to drop out of high school. Dropping out significantly reduces lifetime earnings, increases unemployment risk, and raises the likelihood of incarceration (Rumberger, 2011).

### ***Evidence-Based Interventions to Reduce School Non-Attendance***

Cognitive Behavioral Therapy (CBT) and Psychosocial Interventions. CBT-based interventions have demonstrated moderate to large effects in addressing school attendance problems (SAPs), particularly those rooted in emotional distress. For instance, Maynard et al. (2018) conducted a systematic review revealing that CBT interventions yielded a medium effect size in improving attendance among children with school refusal behaviors. Similarly, the Back2School (B2S) program, a modular CBT intervention, showed promising results in increasing school attendance and reducing anxiety and depression symptoms among youth with SAPs (Lomholt et al., 2020).

Parental Engagement and Communication. Engaging parents through targeted communication strategies has been effective in improving student attendance. A study by Sheldon (2007) found that schools implementing comprehensive family and community involvement programs saw significant reductions in student absenteeism. Moreover, interventions focusing on enhancing parent-school communication, such as regular updates on attendance and collaborative problem-solving meetings, have been associated with improved attendance rates (Epstein and Sheldon, 2002).

Multi-Tiered Systems of Support (MTSS). Implementing MTSS frameworks allows schools to provide varying levels of support based on student needs. Kearney and Graczyk (2014) emphasized that MTSS approaches, which include universal interventions for all students and targeted support for those at risk, can effectively address the multifaceted nature of absenteeism.

### ***Research gap and aims of the study.***

While school exclusion has been extensively explored in international education research, there is a notable lack of empirical studies examining this issue in the context of Uzbekistan. Existing sources, such as the UNICEF Multiple Indicator Cluster Surveys (MICS), the World Bank's Education Sector Analyses, UNESCO Institute for Statistics (UIS) data, and national education reports issued by the Ministry of Preschool and School Education of the Republic of Uzbekistan simply provide descriptive information on out-of-school rates, as opposed to testing statistically significant associations between school exclusion and different variables. Hence, in Uzbekistan, there remains limited quantitative analysis that disaggregates out-of-school rates by multiple sociodemographic factors. This gap limits the ability of policymakers to design targeted interventions.

By employing statistical tests on nationally representative data, this study seeks to identify and quantify associations between key demographic variables and out-of-school rates

across 3 different levels of compulsory education: primary (age 7-10), lower secondary (age 11-15), and upper secondary (age 16-17)<sup>1</sup>.

Specifically, the study aims to answer the following questions:

- 1) Is there an association between levels of compulsory education (primary, lower secondary, and upper secondary) and out-of-school rates?
- 2) Is there an association between gender and out-of-school rates at each level of education?
- 3) Is there an association between household wealth (measured by wealth index quantiles) and out-of-school rates at each level of education?
- 4) Is there an association between area of residence (urban vs. rural) and out-of-school rates at each level of education?
- 5) Is there an association between geographic region and out-of-school rates at each level of education?

### **Methodology.**

**Data Source.** This study utilizes data from the 2021–2022 Uzbekistan Multiple Indicator Cluster Survey (MICS) Findings Report<sup>2</sup>, conducted collaboratively by the State Committee of the Republic of Uzbekistan on Statistics and UNICEF (2022). The file can be accessed through the source link provided in the footlink or in the reference list.

MICS is a globally recognized household survey program designed to provide internationally comparable data on key indicators concerning the well-being of children and women.

The Uzbekistan MICS was implemented in two rounds:

- Round 1: Conducted from April to June 2021, covering 10,879 households.
- Round 2: Conducted from November 2021 to January 2022, covering 4,180 households.

The survey employed a stratified, multi-stage cluster sampling design to ensure national representativeness across urban and rural areas, as well as the country's various geo-economic regions.

**Study Population.** The analysis focuses on data from the 2021-2022 Uzbekistan MICS report, Chapter 8 – *Learn*, Section 8.2: *School Attendance*, which provides information on the current school attendance status of children. The study population includes 4,040<sup>3</sup> children of compulsory school age, encompassing primary, lower secondary, and upper secondary education levels.

**Variables Analyzed.** The analysis examines the association between school attendance status (in-school vs. out-of-school) and several background characteristics, including:

- Level of education (primary, lower secondary, upper secondary)
- Gender (male, female)

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<sup>1</sup> This study focuses exclusively on compulsory education and does not cover non-mandatory levels such as pre-primary (pre-school) or tertiary (university) education

<sup>2</sup>Source: [https://mics.unicef.org/sites/mics/files/Uzbekistan%202021-22%20MICS%20SFR\\_English%20%5B2023-02-23%5D.pdf](https://mics.unicef.org/sites/mics/files/Uzbekistan%202021-22%20MICS%20SFR_English%20%5B2023-02-23%5D.pdf)

<sup>3</sup> While the study population includes 4040 children of compulsory school age, minor discrepancies in total counts occasionally emerged during analysis. These inconsistencies originate from the raw frequency values provided in the original dataset. For example, the sum of students by wealth quintile at the upper secondary level totals 662, even though the reported total for that level is 661. Similarly, the sum of students by gender at the lower secondary level yields 1806, while the official total is 1805. These variations are likely the result of rounding or reporting inconsistencies in the source data and do not materially affect the validity of the analysis or its conclusions.

- Household wealth index (divided into five quintiles)
- Area of residence (urban, rural)
- Geographic region (5 divided by location and Tashkent city)

Statistical Analysis. Two different statistical tests were used depending on the nature of the data:

1. Chi-squared test of independence was applied to examine the association between education level and out-of-school status. As the sample sizes in this table were sufficiently large and expected cell counts were adequate, the chi-squared test was appropriate. To identify which specific categories contributed most to the association, standardized residuals were calculated and interpreted.

2. For all other research questions—those examining associations between out-of-school rates and gender, wealth index quantiles, area of residence, and geographic region at each education level—Fisher's Exact Test was used. This choice was based on the presence of low expected frequencies (i.e., cells with expected counts less than 5), where the chi-squared test would not be reliable.

All analyses were conducted using R, a statistical computing environment well-suited for categorical data analysis.

## Results.

### 1) Levels of education and out-of-school rates.

The association between education level (primary, lower secondary, and upper secondary) and school attendance status was examined using the Chi-squared test of independence. The results are summarized in the table below:

	In-school	Out-of-school	Totals:
<b>Primary</b>	1561	13	1574
<b>Lower secondary</b>	1794	11	1805
<b>Upper secondary</b>	617	44	661
<b>Totals:</b>	3972	68	<b>4040</b>

$X^2 = 118.36$ ,  $df = 2$ ,  $p\text{-value} < 2.2e-16$ . The Chi-square test showed a significant association between education level and out-of-school status.

To identify the categories that contributed most to this association, standardized residuals were calculated:

	In-School	Out-of-School
<b>Primary</b>	3.38	-3.38
<b>Lower Secondary</b>	4.77	-4.77
<b>Upper Secondary</b>	-10.87	10.87

Standardized residuals revealed that the upper secondary group had a much higher out-of-school rate than expected, while the primary and lower secondary groups had lower out-of-school rates than expected. Notably, the upper secondary level had the highest standardized residual (10.87), indicating it was the strongest contributor to the overall association.

### 2) Gender and out-of-school rates.

The association between gender and school attendance status for each education level was examined using Fisher's exact, as some cells had expected frequencies too small to meet the assumptions of the Chi-squared test.

a) Gender and out-of-school rates. Primary education.

	In-school	Out-of-school	<b>Totals:</b>
<b>Female</b>	725	4	729
<b>Male</b>	837	8	845
<b>Totals:</b>	1562	12	<b>1574</b>

*Fisher's exact test gives a p-value = 0.4016. The result is not significant at p < .05.*

b) Gender and out-of-school rates. Lower secondary education

	In-school	Out-of-school	<b>Totals:</b>
<b>Female</b>	902	6	908
<b>Male</b>	894	4	898
<b>Totals:</b>	1796	10	<b>1806</b>

*Fisher's exact test gives a p-value = 0.7533. The result is not significant at p < .05.*

c) Gender and out-of-school rates. Upper secondary education

	In-school	Out-of-school	<b>Totals:</b>
<b>Female</b>	298	21	319
<b>Male</b>	320	22	342
<b>Totals:</b>	618	43	<b>661</b>

*Fisher's exact test gives a p-value = 1. The result is not significant at p < .05.*

Overall, there was no association between gender and school exclusion for any education level.

3) *Wealth index quantiles and out-of-school rates.*

As before, the association between wealth quantiles and school attendance status for each education level was examined using Fisher's exact test, since some cells had expected frequencies too small to meet the assumptions of the Chi-squared test.

a) Wealth index quantiles and out-of-school rates. Primary education

	In-school	Out-of-school	<b>Totals:</b>
<b>Poorest</b>	366	1	367
<b>Second</b>	303	2	305
<b>Middle</b>	297	2	299
<b>Fourth</b>	310	1	311
<b>Richest</b>	285	7	292
<b>Totals:</b>	1561	13	<b>1574</b>

*Fisher's exact test gives a p-value = 0.04616. The result is significant at p < .05*

Due to small expected frequencies in some cells, standardized residuals could not be computed. Instead, proportions were examined to interpret the pattern of association.

	In-school (%)	Out-of-school (%)
<b>Poorest</b>	99.6	0.4
<b>Second</b>	99.4	0.6
<b>Middle</b>	99.3	0.7
<b>Fourth</b>	99.8	0.2
<b>Richest</b>	97.6	2.4

Although out-of-school rates were low overall, the Richest quintile had a disproportionately high out-of-school rate (2.40%), making it the strongest contributor to the significant association found in Fisher's exact test.

b) Wealth index quantiles and out-of-school rates. Lower secondary education

	In-school	Out-of-school	<b>Totals:</b>
<b>Poorest</b>	409	0	409
<b>Second</b>	344	0	344
<b>Middle</b>	351	4	355
<b>Fourth</b>	323	3	326
<b>Richest</b>	368	4	372
<b>Totals:</b>	1795	11	<b>1806</b>

*Fisher's exact test gives a p-value = 0.0361. The result is significant at  $p < .05$*

Because some cells had low expected counts, it was not possible to calculate standardized residuals. Therefore, group proportions were used to explore and interpret the nature of the association.

	In-school (%)	Out-of-school (%)
<b>Poorest</b>	100.0	0.0
<b>Second</b>	100.0	0.0
<b>Middle</b>	99.0	1.0
<b>Fourth</b>	99.2	0.8
<b>Richest</b>	98.8	1.2

Although overall out-of-school rates are low at the lower secondary level, the data show higher out-of-school percentages across the middle to richest wealth quintiles. Specifically, the Middle (1.0%), Fourth (0.8%), and Richest (1.2%) groups display higher out-of-school rates compared to the Poorest and Second quintiles (0.0%). This pattern suggests that the association between wealth and school attendance is driven mainly by the higher wealth groups, with the Richest quintile contributing most.

c) Wealth index quantiles and out-of-school rates. Upper secondary education

	In-school	Out-of-school	<b>Totals:</b>
<b>Poorest</b>	143	17	<b>160</b>
<b>Second</b>	121	5	<b>126</b>
<b>Middle</b>	128	8	<b>136</b>
<b>Fourth</b>	111	9	<b>120</b>
<b>Richest</b>	116	4	<b>120</b>
<b>Totals:</b>	<b>619</b>	<b>43</b>	<b>662</b>

*The Fisher exact test gives a p-value = 0.1056. The result is not significant at  $p < .05$*

Overall, there was a statistically significant association between wealth quantiles and out-of-school rates at the primary and lower secondary education levels. However, no significant association was found for upper secondary education.

#### 4) Areas and out-of-school rates.

The association between area of residence (urban/rural) and school attendance status was examined separately for each education level using Fisher's exact test, as some cells had expected frequencies too small to meet the assumptions of the Chi-squared test.

##### a) Areas and out-of-school rates. Primary education

	In-school	Out-of-school	<b>Totals:</b>
<b>Urban</b>	714	9	<b>723</b>
<b>Rural</b>	848	3	<b>851</b>
<b>Totals:</b>	<b>1562</b>	<b>12</b>	<b>1574</b>

*Fisher's exact test gives a p-value = 0.07665. The result is not significant at  $p < .05$*

##### b) Areas and out-of-school rates. Lower secondary education

	In-school	Out-of-school	<b>Totals:</b>
<b>Urban</b>	874	7	<b>881</b>
<b>Rural</b>	921	4	<b>925</b>
<b>Totals:</b>	<b>1795</b>	<b>11</b>	<b>1806</b>

*Fisher's exact test gives a p-value = 0.376. The result is not significant at  $p < .05$*

##### c) Areas and out-of-school rates. Upper secondary education

	In-school	Out-of-school	<b>Totals:</b>
<b>Urban</b>	283	23	<b>306</b>
<b>Rural</b>	335	20	<b>355</b>
<b>Totals:</b>	<b>618</b>	<b>43</b>	<b>661</b>

*Fisher's exact test gives a p-value = 0.3463. The result is not significant at  $p < .05$*

Overall, there was no association between area of residence and school exclusion for any education level.

5) *Geo-economic regions and out-of-school rates.*

For each education level, the relationship between geo-economic regions and school attendance status was assessed using Fisher's exact test, as several cells had expected counts too small to use the Chi-squared test.

The report divides the country into 6 geo-economic regions: Western (Republic of Karakalpakstan, Khorezm region), Central (Jizzakh, Syrdarya and Tashkent regions), Southern (Kashkadarya and Surkhandary regions), Central-Eastern (Bukhara, Samarkand and Navoi regions), Eastern (Fergana, Andijan and Namangan regions) and Tashkent City.

## a) Geo-economic regions and out-of-school rates. Primary education

	In-school	Out-of-school	<b>Totals:</b>
<b>Western</b>	181	3	184
<b>Central</b>	272	2	274
<b>Southern</b>	285	1	286
<b>Central-Eastern</b>	268	2	270
<b>Eastern</b>	470	5	475
<b>Tashkent city</b>	85	0	85
<b>Totals:</b>	1561	13	<b>1574</b>

*Fisher's exact test gives a p-value = 0.7349. The result is not significant at p < .05*

## b) Geo-economic regions and out-of-school rates. Lower secondary education

	In-school	Out-of-school	<b>Totals:</b>
<b>Western</b>	193	1	194
<b>Central</b>	278	1	279
<b>Southern</b>	322	2	324
<b>Central-Eastern</b>	357	1	358
<b>Eastern</b>	518	5	523
<b>Tashkent city</b>	127	1	128
<b>Totals:</b>	1795	11	<b>1806</b>

*Fisher's exact test gives a p-value = 0.8488. The result is not significant at p < .05*

## c) Geo-economic regions and out-of-school rates. Upper secondary education

	In-school	Out-of-school	<b>Totals:</b>
<b>Western</b>	57	3	60
<b>Central</b>	109	6	115
<b>Southern</b>	114	14	128
<b>Central-Eastern</b>	130	8	138
<b>Eastern</b>	172	11	183
<b>Tashkent city</b>	35	2	37
<b>Totals:</b>	618	43	<b>661</b>

*Fisher's exact test gives a p-value = 0.5375. The result is not significant at p < .05*

Overall, there was no association between geo-economic regions and school exclusion for any education level.

### **Discussion.**

This study examined the relationship between various sociodemographic factors and out-of-school rates across different levels of education in Uzbekistan. The results revealed a significant association between education level and school attendance, with upper secondary students being disproportionately more likely to be out of school. Wealth index quantiles were also significantly associated with school exclusion at the primary and lower secondary levels, but not at the upper secondary level. On the other hand, gender, area of residence (urban vs. rural), and geo-economic region showed no significant association with out-of-school status at any level.

The elevated out-of-school rates at the upper secondary level may reflect the growing financial and social pressures faced by older adolescents. As students reach this stage, the opportunity cost of continuing education often increases — many may feel compelled to enter the workforce, contribute to household income, or take on caregiving responsibilities.

The significant association between wealth and exclusion at the primary and lower secondary levels highlights the persistent barriers faced by poorer families, despite basic education being free. These barriers may include hidden costs such as school supplies, uniforms, transportation, or the need for children to assist with domestic or agricultural labor. This finding aligns with existing research showing that students from low-income households are more likely to be absent due to economic constraints or caregiving responsibilities (Dhakal et al., 2023; Hernandez, 2011).

Interestingly, the absence of statistically significant differences in out-of-school rates based on gender, area of residence, or geo-economic region suggests that some progress may have been made in ensuring equitable access across these demographic lines. This could reflect the impact of national education reforms or targeted policies aimed at universalizing basic education. While demographic variables such as gender and location are often associated with attendance disparities in international research (Mohammed et al., 2023; Connelly and Zheng, 2003), their lack of significance in the present study may indicate a narrowing of these gaps in the Uzbek context—or could point to limitations in aggregate data masking more nuanced inequalities.

### **Implications and Future Research.**

The findings suggest a need for targeted strategies to reduce non-attendance, particularly at the upper secondary level. For older adolescents, interventions that involve parents in supporting educational continuation—such as regular parent-teacher meetings, attendance updates, and collaborative goal-setting—may help alleviate dropouts (Epstein and Sheldon, 2002; Sheldon, 2007). In addition, addressing emotional or psychological barriers through school-based psychosocial support or mental health programs could support students who are at risk of disengaging from school (Lomholt et al., 2020; Maynard et al., 2018).

At the primary and lower secondary levels, where school exclusion is more closely associated with household wealth, policies aimed at reducing the indirect costs of education are essential. This may include providing school supplies, transportation subsidies, or income support to low-income families.

Future research should aim to explore the underlying causes of school exclusion more deeply, using qualitative or longitudinal approaches. Further investigation at the individual, family, and school levels could help identify effective points of intervention and guide the design of context-specific policies and programs.

### Limitations.

This study has two key limitations. First, due to the cross-sectional nature of the data, the findings are limited to identifying associations rather than establishing causality. While certain variables were found to be significantly related to out-of-school status, the direction and underlying mechanisms of these relationships remain unclear. Future research using longitudinal or experimental designs could help find causal relationships.

Second, the sample sizes within subgroups—especially when analyzing attendance by individual sociodemographic variables—were relatively small. In several cases, Fisher's exact test was used instead of chi-square due to low expected cell counts. Larger, more representative datasets would allow for more robust testing of associations and subgroup differences.

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