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Original Article

A CROSS-SECTIONAL STUDY ON THE RELATIONSHIP BETWEEN FAMILY INCOME AND ACCESS TO UNIVERSAL SECONDARY EDUCATION IN KAKUMIRO DISTRICT.

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Abstract.

Background

Family socioeconomic status encompasses various factors, including income, education level, occupation, and overall wealth. Family income significantly impacts a student's ability to afford secondary education. This study examined the relationship between family income and access to Universal Secondary Education in Kakumiro District.

Methodology.

Employed a descriptive, correlational, and cross-sectional survey design. The study adopted a mixed approach comprising both quantitative and qualitative data. The study used parents, students, teachers, the director of studies, inspectors of secondary schools, and the District Education Officer as the study respondents. The population size of the study was 700 people. Simple random sampling technique, convenience sampling, and purposive sampling were used to select respondents for the study. The study used two research instruments to collect primary data for the survey, i.e., questionnaires and interview guides.

Results.

131 (65.5%) of the participants were male, and 89 individuals (44.5%) fell within the 14–18 age group. The relationship between family income and access to Universal Secondary Education (USE) in Kakumiro District was statistically significant and strongly positive (Pearson's $r = 0.784$, $p = .002$). *"Low family income is one of the biggest challenges to achieving full access and retention in secondary education. Although we've made progress in school infrastructure and enrollment, many families can't sustain their children's education.*

Conclusion

Findings revealed a strong positive correlation between family income and access to Universal Secondary Education. Families with higher incomes are not only more likely to provide materially for their children but also more capable of engaging with schools.

Recommendation.

The government or NGOs should provide free school materials (books, uniforms, sanitary products, pens) to reduce the indirect costs of education.

Keywords: *Family income, Universal Secondary Education (USE), Access to education, Kakumiro District.*
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Background.

Family income significantly impacts a student's ability to afford secondary education. Lower-income families often face financial constraints that limit their ability to cover the direct costs of education, such as tuition (in the case of private schools), books, uniforms, and extracurricular activities. Dynarski & Scott-Clayton (2013) further highlight that these financial barriers can lead to lower enrollment rates and higher dropout rates among students from low-income families. In addition to direct costs, indirect costs, such as transportation and time off work for parents, also impact access to education. Blanden & Machin (2016) argue that families with lower income may struggle with these additional costs, which can affect a student's ability to attend school regularly. Opportunity costs, where parents need to work longer hours to make ends meet, can also limit their ability to support their children's educational needs.

Family income affects the quality of educational resources available to students. Ladd & Fiske (2018) find that schools in lower-income areas often receive less funding and have fewer resources, such as updated textbooks, technology, and

extracurricular programs. This disparity in resources can lead to differences in educational quality and student outcomes. The home environment, influenced by family income, also plays a crucial role in educational access. Davis-Kean (2005) shows that higher-income families can provide a more conducive learning environment, including access to private tutoring, educational materials, and a quiet space for studying. Conversely, lower-income families may lack these resources, impacting students' academic performance.

Family income is closely linked to academic performance. Jackson et al. (2016) report that students from higher-income families generally perform better academically, partly due to better access to resources and educational support. This disparity in academic achievement often perpetuates the cycle of income inequality. Income disparities also affect graduation rates. Barton & Coley (2018) find that students from low-income families are less likely to complete secondary education compared to their higher-income peers. Financial stress and lack of support contribute to higher dropout rates among low-income students. To mitigate financial barriers, various financial aid and scholarship programs have been introduced. Kane (2020) evaluates the impact of these programs and finds that they can significantly improve access to Universal Secondary Education for low-income students. However, gaps in coverage and complexity in application processes can limit their effectiveness. Policy interventions aimed at increasing equitable school funding are critical in addressing income-based disparities. Ladd (2017) discusses the effectiveness of funding reforms that aim to equalize resources across schools, which can help reduce the disparities faced by students from low-income families.

Programs designed to support low-income students and their families can also help improve access and outcomes. Epstein & Sanders (2017) highlight the role of community and family engagement programs, which provide additional academic support and resources, helping to bridge the gap for students from low-income backgrounds. Family income plays a significant role in determining access to and outcomes in secondary education. Financial constraints, disparities in educational resources, and variations in home environments contribute to unequal educational opportunities. Addressing these issues through targeted financial aid, equitable funding policies, and supportive programs can help improve access to Universal Secondary Education for students from low-income families. This study examined the relationship between family income and access to Universal Secondary Education in Kakumiro District.

Methodology.

Research Design.

The study employed a descriptive, correlational, and cross-sectional survey design. The study used a descriptive design to provide a detailed and accurate account of a phenomenon. The study focused on describing the characteristics of a particular population or situation without manipulating variables. The researcher used a correlational design to examine the relationships between two or more variables. The researcher used a cross-sectional design to collect data from the respondents at a single point in time. The study adopted a mixed approach comprising both quantitative and qualitative approaches. This helped to obtain relevant, recent, and in-depth information on the study topic.

Target Population.

The study targeted 5 Universal Secondary Schools in Kakumiro District. According to the Kakumiro District Education Department, the district had 8 Universal Secondary Schools (Kakumiro District Education Department, 2024). The study used parents, students, teachers, the director of studies, inspectors of secondary schools, and the District Education Officer as the study respondents. Therefore, the study targeted 510 students (S4) enrolled in USE schools within the district. 100 parents were also targeted for this study. The selected secondary schools had 80 teachers, 4 inspectors, 5 Directors of Studies, and the District Education Officer. Therefore, the population size of the study was 700 people (Kakumiro District Education Department, 2024). The researcher adopted Morgan & Krejcie's (1970) sampling table to determine the sample size. Therefore, 248 respondents were selected, and these included 128 senior four students, 60 parents, 50 teachers, 5 directors of studies, 4 inspectors of schools, and the District Education Officer.

Sampling Techniques.

The study used a simple random sampling technique, convenience sampling, and purposive sampling to select respondents for the study. A simple Random Sampling Technique was used to collect information from the students (s4) who were selected for the study. The technique was used to give a chance to all the students to participate in the study. Senior four students were selected purposely because they were old enough to read questions and provide independent answers to the respondents. Further, they provided information on the socioeconomic status of their households and the challenges that deter them from accessing secondary education. Convenience sampling was used to collect information from parents who were accessible and willing to participate in this study. Purposive sampling was used to collect information from the key respondents of the study, i.e., teachers, head teachers, inspectors, and the DEO. Specifically, these provided

sensitive information on enrollments, attendance, dropouts, and completion of secondary education.

Research Instruments.

Questionnaire.

This was the main data collection instrument. It was used to collect information from students who were selected from the five secondary schools in Kakumiro District. The researcher developed questions that were clear, relevant, and designed to gather the required information. Questions were open-ended (allowing detailed responses) or closed-ended (with predefined options). The researcher organized questions logically, often starting with easier or less sensitive questions to build rapport and progressively moving to more complex or sensitive topics. The questionnaires were distributed physically to the respondents in the selected secondary schools. Further, the researcher provided clear instructions on how to complete the questionnaires. After two weeks, the researcher collected completed questionnaires.

Interview Guide.

Interviews were held with the head teachers, teachers, District Inspectors of schools, Parents and District Education Officer. The instrument was used in order to gather more detailed information about the study variables from the respondents as they were more knowledgeable about the subject under study.

Sources of Data

This study used both primary and secondary sources of data. Primary data was obtained using Self-Administered Questionnaires (SAQs) as well as interviews. SAQs were effective for collecting large amounts of standardized data from a broad audience in a short period. It allowed efficient gathering of quantitative data and some qualitative insights. Interviews provided in-depth qualitative data and allowed for a deeper exploration of complex issues that could not be fully captured through SAQs alone. Secondary data was collected from various sources, including Government Reports and Statistics, Education Department Reports, Census Data, National and Local Surveys, Academic Journals and Research Articles, Educational Institution Reports, Non-Governmental Organizations (NGOs) and Advocacy Groups, Historical Records and Archives, and International Organizations and Databases.

Validity of Instruments.

The study used both content and face validity to ascertain the validity of the questionnaire. Cooper and Schindler (2008) describe validity as the correctness and capacity of interpretations founded on study findings. The researchers conducted a pilot study to validate the study questionnaire using the supervisor as an expert who graded questions on being accurate and relevant to the study. To ensure greater chances of data validity, the questionnaires were reviewed with the research supervisor for expert input. A content Validity Index (CVI) was determined by dividing the relevant questions by the total questions (CVI=n/N). Out of 30 questions, 25 were graded correctly and relevant to the study by the researcher, hence a Content Validity Index of 0.83 was obtained. This was compared with 0.7 as suggested by Amin (2009). The researcher continued with the questionnaire since the CVI of 0.83 was greater than 0.7, and thus the instruments were correct and relevant to the study. Also, the questions that were graded as invalid were edited with the help of experts to become relevant and hence also valid for the study.

Reliability.

A test-retest method was used to test the reliability of the instruments. The researcher pretested the questions on 5 respondents before administering it to the entire sample size. The obtained answers in the first attempt were compared with responses in the second attempt and the relative values were fed into SPSS V.24 program and a Cronbach Alpha co-efficient of 0.80 was obtained. This was also compared with 0.7 thus the instruments were declared consistent in collecting data for the study hence reliable.

Data Analysis and Presentation

Descriptive statistics such as mean and frequency distribution were used to analyze the data. Inferential statistics were also used in the conclusion. Quantitative data (questionnaire) was analyzed with descriptive statistics such as frequencies, mean, and standard deviations. Qualitative data was first coded and organized into concepts from which generalizations have been made of the entire population. Data was tabulated, frequencies calculated on each variable under study, and interpretations made from the field findings on the study objectives. Pearson correlation was used to establish the significance of the relationship between the study variables, and the linear regression model was used to establish the relationship between family income and access to Universal Secondary Education in Kakumiro District.

Ethical approval

A research authorization letter was obtained from the School of Graduate Studies and Research. Participants were asked to sign consent forms to participate in the research. The study ensured that the principle of informed consent was observed and sought their voluntary consent.

Participants were asked to consent to participate in the research, and they were informed that their participation was entirely voluntary. Explained that the information provided would be used solely for the study and that meaningful data could be obtained if participants shared their views on the research topic. Informed participants that all data gathered

in the study would be treated with strict confidentiality and that the findings would be used exclusively for academic purposes. The potential respondents were not identified by name. Their confidentiality was prioritized throughout the research process. Additionally, the researcher engaged the respondents and obtained their agreement before they answered any of the study questions. All respondents were treated with respect while also ensuring they responded relevant to the objectives of the study. Questions were asked clearly and appropriately. The researcher selected participants without any form of discrimination.

Informed consent

A consent form was filled by the respondents after explaining the purpose of the study to them. The respondents were assured of confidentiality as no name will appear on the questionnaire. No participant was forced to participate in the study and all the study materials used during the interviews were safely kept under lock and key only accessible by the researcher.

Results.

Socio-Demographic Characteristics of Respondents

Table 1: Gender of respondents

Gender	Frequency	Percentage
Male	131	65.5%
Female	69	34.5%
Total	**200**	**100%**

Source: Primary data (2025)

Table 1, showed that out of the total 200 respondents, 131 (65.5%) were male, while 69 (34.5%) were female. This indicates that male respondents constituted a higher proportion of the sample compared to their female counterparts.

The gender imbalance may reflect the broader demographic realities of school and community leadership in Kakumiro District, where males are often more involved in decision-making roles, both at the household and institutional levels. In the context of Universal Secondary Education (USE), this disparity may also highlight the existing gender gap in educational access and participation, particularly in rural settings where cultural and socio-economic factors tend to disadvantage girls.

Table 2: Gender of respondents.

Age Group	Frequency	Percentage
14–18 years	89	44.5%
19–22 years	31	15.5%
23–30 years	39	19.5%
31–45 years	29	14.5%
46–60 years	10	5.0%
60+ years	2	1.0%
Total	**200**	**100%**

Source: Primary data (2025)

Table 2 indicates that the majority of respondents, 89 individuals (44.5%), fell within the 14–18 years age group. This is expected, as this group comprises most of the secondary school students targeted by the USE policy. Their input was critical in assessing the lived experiences of learners in accessing and completing secondary education in rural areas like Kakumiro District.

The 19–22 years category accounted for 31 respondents (15.5%), including older students and possibly recent school leavers who were able to reflect on their secondary education experiences. A significant portion of the respondents, 39 individuals (19.5%), were aged 23–30 years. These respondents were mainly young adults, many of whom were likely to be teachers, youth leaders, or older siblings of current students.

The 31–45 years age group contributed 29 respondents (14.5%), comprising mostly parents, teachers, and mid-level education administrators. These individuals provided valuable insights into household socio-economic conditions

and how they affect children's access to secondary education.

Respondents aged 46–60 years formed a smaller portion of the sample, with 10 individuals (5.0%), most of whom were likely senior education officers or parents of school-going children. Only 2 respondents (1.0%) were aged above 60 years, possibly retired educators or elder community members. Their contributions added intergenerational perspectives on long-standing barriers to education.

Overall, the age distribution indicates a well-balanced representation across both student and adult populations. This enabled the study to capture a comprehensive picture of the socio-economic and systemic challenges that influence access to and completion of secondary education in Kakumiro District.

Table 3: Education Level of the Respondents

Education Level	Frequency	Percentage
No education	35	17.5%
Primary	100	50.0%
Secondary	34	17.0%
Diploma	18	9.0%
Bachelors	10	5.0%
Masters	3	1.5%
Total	**200**	**100%**

Source: Primary data (2025)

Table 3 shows that 100 individuals (50.0%) had attained primary education. This finding reflects the broader educational landscape in many rural areas of Uganda, where a significant number of adults have only completed primary-level schooling. This also suggests that many parents and community members may face limitations in providing academic support to children pursuing secondary education.

A notable 35 respondents (17.5%) had no formal education, indicating that a substantial segment of the population lacks basic literacy skills. This group may include older community members or those from disadvantaged backgrounds, and their limited education may negatively impact their children's access to and success in secondary schooling due to reduced awareness of its importance or inability to support educational expenses.

Respondents who had completed secondary education comprised 34 individuals (17.0%), suggesting that a relatively small portion of the adult population had advanced beyond primary school. The number of respondents with diplomas (18 respondents, 9.0%), bachelor's degrees (10 respondents, 5.0%), and master's degrees (3 respondents, 1.5%) was significantly lower. These individuals were likely to be educators, civil servants, or community leaders whose views on educational policy and implementation were particularly valuable to the study.

Overall, the data indicate that while primary education is widely accessed, progression to higher levels of education remains limited in the district. This trend underscores the socio-economic and structural challenges that hinder educational advancement in rural areas and highlights the need for targeted interventions to improve educational attainment and support Universal Secondary Education.

Table 4: Marital Status of the Respondents.

Marital Status	Frequency	Percentage
Single	105	52.5%
Married	87	43.5%
Separated	8	4.0%
Total	**200**	**100%**

Source: Primary data (2025)

Table 4 indicates that the majority of respondents, 105 individuals (52.5%), were single. This group largely consisted of students and some younger adult participants, including recent school leavers or unmarried youth. Their input was essential in highlighting personal experiences and challenges related to schooling, including economic dependence on parents, gender-based expectations, and barriers such as early marriage or lack of scholastic materials.

Eighty-seven respondents (43.5%) were married, representing a significant portion of the adult population, including parents, teachers, and community members. These individuals provided crucial insights into household decision-making, financial priorities, and the role of parents

in supporting children through secondary education. Married respondents often bore the responsibility of paying indirect education costs such as uniforms, books, and transportation, making their perspectives particularly relevant to the socio-economic analysis of access to USE.

A smaller group, 8 respondents (4.0%), reported being separated. Separated individuals may face greater financial and emotional challenges, which can affect the educational support they provide to their children. Children from separated households were also reported to be more vulnerable to absenteeism and dropout due to instability at home and limited parental involvement.

Overall, the data reveals a fairly balanced representation between single and married individuals, which allowed the study to capture a diverse range of experiences and viewpoints. The findings suggest that marital status plays a role in shaping educational outcomes, particularly through its impact on household income, stability, and the level of support provided to school-going children.

Table 5 Occupation of parents.

Occupation	Frequency	Percentage
Business	4	8.9%
Politicians	1	2.2%
Civil Servant	6	13.3%
Peasant	34	75.6%
Total	**45**	**100%**

Source: Primary data (2025)

Table 5 shows that the majority of parents, 34 out of 45 (75.6%), were identified as peasants, engaged primarily in subsistence farming. This finding reflects the predominantly agrarian economy of rural areas such as Kakumiro District. Peasant households often rely on seasonal agricultural yields for income, which can be unstable and insufficient to meet all the indirect costs associated with secondary education. As a result, children from such families may struggle to afford necessities like uniforms, learning materials, transportation, and meals, despite tuition being covered under the USE program.

Six parents (13.3%) were civil servants, including teachers, health workers, and local government employees. This group is generally more stable economically and likely to have a better understanding of the value of education. Their children often benefit from greater academic support, access to learning resources, and a higher likelihood of completing secondary education.

Only four parents (8.9%) were involved in business, including petty trade and small-scale retail activities. While business owners may have a more flexible income compared to peasants, their earnings are often inconsistent, and many still operate within the informal economy with limited profit margins.

A single respondent (1 parent, 2.2%) was identified as a politician. Although small in representation, individuals in political leadership positions typically have greater access to income and influence, which can positively impact their ability to support children through education.

The data clearly shows that the overwhelming majority of students come from low-income households, particularly those engaged in subsistence farming. This socio-economic status limits the ability of parents to consistently support their children's education, even under the USE policy framework. These findings underscore the need for complementary support mechanisms, such as school feeding programs, bursaries, and targeted subsidies, especially for children from peasant families.

Table 6: Distance to the nearest School.

Distance	Frequency	Percentage
0–1 km	24	24.0%
2–4 km	37	37.0%
5+ km	39	39.0%
Total	**100**	**100%**

Source: Primary data (2025)

Table 6 shows that 24 students (24.0%) resided within 0–1 kilometer of a secondary school. These students generally had easier physical access to school, which likely contributed to more consistent attendance and punctuality. Proximity to school reduces transportation challenges and fatigue, especially for younger students, and increases

parental involvement in school activities due to geographical closeness.

A slightly larger portion, 37 students (37.0%), reported traveling a distance of 2–4 kilometers. While manageable for some, this distance can still present difficulties, particularly for students who walk to school daily without access to reliable transport. The physical strain and time spent commuting can reduce study time and lead to increased absenteeism, especially during the rainy season or in areas with poor road infrastructure.

The largest proportion, 39 students (39.0%), indicated that they travel more than 5 kilometers to the nearest secondary school. These long distances pose significant challenges, especially in rural communities where public transport is scarce or unaffordable. Students traveling these distances are more vulnerable to fatigue, lateness, absenteeism, and even school dropouts. The challenge is more pronounced for girls, who face additional safety and gender-based risks during long commutes.

These findings highlight that while the USE policy has removed direct school fees, physical access to school remains a major barrier for many rural learners. The data suggests a need for the government and stakeholders to address infrastructural and logistical challenges—such as constructing more secondary schools in underserved areas, improving roads, and offering transport support or boarding options for distant learners.

Table 7: Number of Siblings Who Have Not Attended Secondary School

Number of Siblings	Frequency	Percentage
None	46	46.0%
0–1	32	32.0%
2–4	22	22.0%
5+	0	0.0%
Total	**100**	**100%**

Source: Primary data (2025)

Table 7 shows that 46 respondents (46.0%) reported having no siblings who missed secondary school. This suggests that nearly half of the sampled students come from families where all school-age children have been allowed to pursue education beyond the primary level. These families likely place a high value on education and may have better economic capacity, awareness, or support systems that enable them to educate all their children.

Another 32 respondents (32.0%) indicated that 0–1 siblings had not attended secondary school. This reflects a fairly strong educational engagement within these families, though occasional financial or social challenges may have prevented one child from progressing beyond primary school.

Notably, 22 respondents (22.0%) reported having 2–4 siblings who had not attended secondary school. This reflects a substantial level of educational exclusion within these households, likely linked to poverty, cultural norms, or parental education levels. In such families, financial resources are often stretched thin, forcing parents to make difficult decisions about which children to send to school. Girls are especially vulnerable in these contexts, as some families may prioritize boys' education over girls.

It is important to note that none of the respondents (0.0%) reported having five or more siblings who had missed secondary education, which may reflect the relatively smaller family sizes among those who participated in the study or an increasing awareness of the value of secondary education even in rural areas.

Overall, the findings point to a strong correlation between family educational history and individual access to secondary education. Students from households with more educated siblings are more likely to attend and remain in school, suggesting that educational attainment can have a positive ripple effect within families. These insights underscore the importance of addressing household-level barriers through interventions like family-focused educational support and targeted bursaries for disadvantaged households.

Table 8: Reason for Not Completing Secondary Education.

Reason	Frequency	Percentage
School fees	52	52.0%
Long distance	24	24.0%
Culture and gender norms	16	16.0%
Health-related issues	8	8.0%
Total	**100**	**100%**

Source: *Field data (2025)*

Table 8 indicated that the leading factor identified was the inability to afford school fees, reported by 52 respondents (52.0%). Despite the implementation of the Universal Secondary Education (USE) policy in Uganda, which waives tuition fees, many families still struggle to meet indirect educational costs such as school uniforms, examination fees, scholastic materials, transport, and meals. These hidden costs continue to pose a significant barrier for learners, especially those from low-income and peasant households. This finding reinforces the argument that "free education" remains largely inaccessible to the poorest families unless accompanied by comprehensive financial support mechanisms.

Long distance to school was reported by 24 respondents (24.0%) as a major deterrent. In rural areas such as Kakumiro District, students often travel several kilometres on foot to reach the nearest secondary school. This daily journey particularly under difficult weather conditions or on unsafe roads can lead to fatigue, absenteeism, or eventual withdrawal from school. Girls, in particular, are disproportionately affected due to concerns about safety, harassment, and cultural restrictions on mobility.

Cultural and gender norms accounted for 16 respondents (16.0%). These include early marriages, domestic responsibilities assigned to girls, and a traditional preference for educating boys over girls in some households. Cultural expectations sometimes result in school-aged children, especially girls, being withdrawn from school to assist with chores, care for siblings, or prepare for marriage. These deep-seated norms pose persistent challenges to equitable education access.

Finally, health-related issues were cited by 8 respondents (8.0%). This category includes chronic illnesses, disabilities, and lack of access to basic healthcare, which can hinder consistent attendance or lead to permanent withdrawal from school. Malnutrition, reproductive health issues among adolescent girls, and inadequate school health programs further exacerbate these challenges.

In summary, the data highlights that financial constraints, distance, sociocultural attitudes, and health challenges are the primary reasons for non-completion of secondary education in the district. These findings underscore the need for a multi-sectoral approach to improving educational access—one that goes beyond fee waivers to address socio-economic, infrastructural, and cultural barriers comprehensively.

Family Income in Kakumiro Kakumiro District.

Quantitative Findings on Family Income in Kakumiro District

Table 9: Quantitative findings on Family Income in Kakumiro District.

Statement	Mean	Standard deviation
The family's monthly income is sufficient to meet our basic needs	1.348	0.328
Parents have permanent jobs	1.217	0.267
Parents have permanent sources of income	1.984	0.228
The family has income from running various businesses	2.832	0.341
My parents spend two dollars (7000) on every family member daily	1.134	0.421
Some family members are actively seeking employment	4.312	0.584
My family has income-generating assets (rent, boda boda, cows)	2.621	0.312
My parents will receive Social Security benefits	2.091	0.183
My family makes monthly savings on fixed accounts	1.847	0.211
My parents arranged an education insurance policy for the children	2.634	0.352
Parents do not need any assistance in paying school fees	1.193	0.219

Source: Primary data (2025).

Table 9 shows that the statement “Family monthly income is sufficient to meet our basic needs” had a very low mean score of 1.348 (SD = 0.328), indicating strong disagreement among respondents. This suggests that the majority of families struggle to meet basic needs such as food, clothing, healthcare, and education. This economic insufficiency directly impacts school attendance and performance, as children from such households may lack the resources to fully participate in school life. Similarly, the statement “Parents have permanent jobs” recorded an even lower mean of 1.217 (SD = 0.267), showing widespread unemployment or informal labor. This aligns with the rural, agrarian nature of Kakumiro District, where many parents engage in casual labor or subsistence farming rather than

formal employment. "Parents have permanent sources of income" scored slightly higher but remained low at 1.984 (SD = 0.228), indicating the absence of financial stability for most households.

"My parents spend two dollars (7,000 UGX) on every family member daily" had a mean of 1.134 (SD = 0.421), revealing that most families live below the international poverty line. This finding further reinforces the reality of income insecurity and the challenges parents face in funding education-related expenses, even when tuition is waived under USE.

In contrast, "Some family members are actively seeking employment" scored the highest mean of 4.312 (SD = 0.584). This reflects a high level of unemployment and underemployment, with many household members searching for opportunities to supplement family income. However, the high standard deviation suggests variability in responses, likely due to differences in household size and age structure.

The statement "The family has income from running various businesses" received a moderate mean of 2.832 (SD = 0.341), indicating that some families supplement their income through petty trade or small enterprises, though not at a level sufficient to guarantee educational security. Similarly, "My family has income-generating assets (rent, boda, cows)" scored a mean of 2.621 (SD = 0.312), suggesting limited asset ownership among respondents. These assets, though modest, serve as crucial income buffers during times of hardship.

Responses to "My parents will receive social security benefits" yielded a low mean of 2.091 (SD = 0.183), reflecting limited access to formal financial protection systems. Most parents in rural Uganda are self-employed or work in informal sectors that do not qualify for pension or social security benefits, further exposing them to economic vulnerability. The statement "My family makes monthly savings on fixed accounts" also received a low mean of 1.847 (SD = 0.211), indicating limited financial literacy or disposable income to save regularly. This financial fragility compromises long-term planning, including educational investments.

Interestingly, the statement "My parents arranged an education insurance policy for the children" scored a slightly higher mean of 2.634 (SD = 0.352), though still below neutral. This suggests a few families may have considered financial planning for education, but such practices are far from widespread.

Finally, "Parents do not need any assistance in paying school fees" had a very low mean score of 1.193 (SD = 0.219), strongly indicating that most families require external support to manage education costs. This finding challenges the assumption that USE fully eliminates the burden of educational expenses and highlights the need for broader financial assistance measures such as bursaries or school feeding programs.

In conclusion, the findings demonstrate that the majority of households in Kakumiro District face significant economic challenges. Income instability, lack of savings, informal employment, and minimal asset ownership all contribute to reduced educational opportunities for children. These economic constraints, if unaddressed, will continue to undermine the objectives of the USE policy.

Qualitative Findings on Family Income in Kakumiro District.

During the interview, one of the parents said, *"Honestly, it's very hard to survive, let alone take children to school. I grow food mainly for home consumption, and sometimes I sell a little surplus to buy basics like salt or soap. When school asks for uniforms, books, or exam fees, I start to panic because I have no savings. There are times I have had to keep my daughter home for weeks because I couldn't afford the school requirements. People say education is free, but for us in the village, nothing is free. Even feeding the child to go to school is a challenge."*

Another parent said, *"I work as a bricklayer and sometimes dig in other people's gardens. My income depends on who hires me. Some weeks, I earn nothing. I have four children, and I want them all to study, but it's almost impossible. My son dropped out in Senior Two because I couldn't pay for his school shoes and other needs. Even transport to school is costly. I feel ashamed because I know education can help my children, but poverty is holding us back."*

A Director of Studies (DOS) at one of the Rural Government Secondary Schools in the District said, *"Most of our students come from very poor backgrounds. It's a common occurrence for learners to miss school because they lack basic items like pens or lunch. Sometimes they come to school hungry and can't concentrate in class. We also face high absenteeism during planting or harvesting seasons when children are forced to stay home and help their families earn income. While USE covers tuition, it doesn't cover the real cost of schooling for these families. The financial instability in most homes affects learners' performance and progression."*

The District Education Officer (DEO) said, *"Low family income is one of the biggest challenges to achieving full access and retention in secondary education. Although we've made progress in school infrastructure and enrollment, many families can't sustain their children's education. They live hand-to-mouth, so when school needs arise, education becomes a secondary priority. Some parents expect the government to provide everything, but we must also empower families economically. Until we address rural poverty, dropout rates will remain high."*

Also, one of the District Inspectors of Schools (DIS) said, *"From our school monitoring visits, it is evident that many learners are coming from homes where income is irregular or non-existent. Parents rely on seasonal farming or small*

trades that offer no financial security. We've found that a lack of school meals, learning materials, and even sanitary pads for girls has direct links to poverty. We also see that low income affects parental involvement — they are too busy hustling for survival to engage in school matters. More interventions are needed that link economic empowerment with education access."

The interview responses from parents, a Director of Studies (DOS), the District Education Officer (DEO), and the District Inspector of Schools (DIS) point to several deeply interconnected issues. The data has been organized into the following key themes;

Poverty and Irregular Household Income

This theme highlights low or unstable incomes from subsistence farming or informal labor, which make it difficult for families to support their children's education consistently. This was supported by;

"I grow food mainly for home consumption... I have no savings."
"My income depends on who hires me. Some weeks I earn nothing."
"They live hand-to-mouth, so when school needs arise, education becomes a secondary priority."
"Parents rely on seasonal farming or small trades that offer no financial security."

Hidden Costs of 'Free' Education

Despite the Universal Secondary Education (USE) policy, families still bear many education-related costs uniforms, books, exam fees, transport, and meals which they often cannot afford.

Supporting Quotes:

"People say education is free, but for us in the village, nothing is free."
"While USE covers tuition, it doesn't cover the real cost of schooling for these families."
"I couldn't pay for his school shoes and other needs."
"Lack of school meals, learning materials... have direct links to poverty."

Food Insecurity and Hunger

This theme reflects how inadequate nutrition undermines students' ability to attend and focus in school, contributing to absenteeism and poor performance.

Supporting Quotes:

"Even feeding the child to go to school is a challenge."
"Sometimes they come to school hungry and can't concentrate in class."
"Lack of school meals... has direct links to poverty."

School Dropout and Irregular Attendance

Financial pressure often leads to interrupted education, absenteeism, and dropout, especially during peak farming seasons or when basic school needs can't be met.

Supporting Quotes:

"I had to keep my daughter home for weeks because I couldn't afford the school requirements."
"My son dropped out in Senior Two."
"High absenteeism during planting or harvesting seasons."
"Until we address rural poverty, dropout rates will remain high."

Limited Parental Involvement Due to Economic Pressure

Parents are often unable to engage with schools because they are preoccupied with survival—working long hours, hustling, or managing seasonal jobs.

Supporting Quotes:

"They are too busy hustling for survival to engage in school matters."
"Some parents expect the government to provide everything... we must empower families economically."

Access to secondary Education in Kakumiro District

Quantitative findings on Access to Secondary Education in Kakumiro District

Table 10: Quantitative findings on Access to Secondary Education in Kakumiro District

Statement	Mean	Standard deviation
There are enough secondary schools in my area to accommodate all eligible students.	1.281	0.239
Transportation to the nearest secondary school is convenient	2.272	0.341
The costs associated with attending secondary school are affordable	2.851	0.292
There are equal opportunities for both girls and boys to enroll in secondary education	2.853	0.485
There is a high level of absenteeism by students in secondary schools	4.652	0.427

A good number of students drop out of school before completing senior four	4.762	0.186
The enrollment of students has increased in the recent past	3.465	0.429
The number of pupils completing primary education is low	4.211	0.136
The distance to the nearest secondary school is short	1.873	0.532
Teachers is are scarce for specific subjects	2.442	0.322

Source: Primary data (2025)

Table 10 shows that the statement "There are enough secondary schools in my area to accommodate all eligible students" received a very low mean of 1.281 (SD = 0.239), indicating a strong consensus that secondary schools are insufficient in number. This scarcity limits access, particularly in rural and remote areas, where students may have to travel long distances to reach school, contributing to high dropout and absenteeism rates.

Relatedly, "The distance to the nearest secondary school is short" also scored low, with a mean of 1.873 (SD = 0.532). This finding supports the earlier claim of inadequate school coverage, highlighting the burden of long commutes that many learners endure, particularly girls and children with disabilities.

"Transportation to the nearest secondary school is convenient" received a mean score of 2.272 (SD = 0.341), indicating that transportation is a moderate but inconsistent challenge. This issue compounds the effects of long distances, particularly in areas lacking public transport or where the cost of travel is prohibitive for low-income families.

Economic access also remains a concern. The statement "The costs associated with attending secondary school are affordable" had a near-neutral mean of 2.851 (SD = 0.292), suggesting that while Universal Secondary Education (USE) has reduced direct school fees, indirect costs—such as uniforms, meals, and scholastic materials—still pose a financial burden to many households.

In terms of gender equity, "There are equal opportunities for both girls and boys to enroll for secondary education" also scored a neutral 2.853 (SD = 0.485). This suggests partial agreement but also points to persistent inequalities rooted in cultural and socio-economic norms. Despite policy efforts to promote gender parity, barriers such as early marriage, menstrual hygiene challenges, and domestic responsibilities continue to limit girls' access and retention.

On internal efficiency indicators, "There is a high level of absenteeism by students in secondary schools" scored a high mean of 4.652 (SD = 0.427), while "A good number of students drop out of school before completing Senior Four" had the highest mean of 4.762 (SD = 0.186). These figures reflect a significant challenge to retention, indicating that even those who access secondary education often struggle to remain in school due to socio-economic, cultural, or logistical challenges.

The statement "The enrollment of students has increased in the recent past" received a moderate mean score of 3.465 (SD = 0.429), suggesting a perception of gradual improvement in access. However, this positive trend is likely offset by high dropout rates and limited capacity, as earlier data indicated.

Interestingly, "The number of pupils completing primary education is low" recorded a high mean of 4.211 (SD = 0.136), underscoring the fact that the pipeline into secondary education is already constrained. If primary completion remains low, access to secondary education will continue to be restricted.

Finally, "There is a scarcity of teachers for specific subjects" scored 2.442 (SD = 0.322), highlighting a moderate concern about staffing shortages in critical subject areas. This affects the quality of education and student outcomes, further discouraging participation and retention.

In conclusion, the findings reveal that access to secondary education in Kakumiro District is hindered by a combination of physical inaccessibility, economic hardship, gender disparities, and systemic inefficiencies such as teacher shortages and poor transition from primary education. Addressing these challenges requires a multi-pronged approach, including infrastructure expansion, targeted financial support, and strengthened community sensitization on the importance of inclusive education.

Qualitative findings on Access to Secondary Education in Kakumiro District

During the interview with one of the students, she said, *"I wake up at 5:00 a.m. to walk more than 6 kilometers to school. Sometimes I don't make it on time, especially during the rainy season when the roads are slippery. We don't have enough money for a bicycle or transport. Many of my friends dropped out because of the distance or because their parents couldn't afford the school requirements. Some girls were forced into early marriage. I'm trying to hold on, but it's very hard when you're always tired and hungry."*

Another Student said, *"In our area, only one secondary school is nearby, and it is overcrowded. Some classes don't have enough desks, and we even share textbooks. Others come from far places and sometimes sleep in unfinished buildings near the school. I know boys who dropped out to work as boda boda riders or in gold mining areas because they saw no point in struggling to study without support. The government should build more schools and help with school materials."*

One of the Teachers said *"Access is still a big challenge. Even though secondary education is supposed to be*

universal, many students still struggle to join or stay in school. The hidden costs are too high for uniforms, lunch, learning materials and parents can't afford them. In many cases, bright students drop out simply because their families are too poor. The distance to school is another major problem, especially for girls who face risks along the way."

Another teacher said *"We receive students who come from very distant villages. Most of them arrive late, and by mid-morning they are too exhausted to focus. There are also serious gaps in infrastructure labs are under-equipped, and we lack enough qualified teachers in sciences and mathematics. These shortages reduce the quality of education and demotivate learners. If we want true universal access, we must invest in both facilities and staffing in rural schools."*

The District Inspector of Schools said, *"From our inspections, we find that many schools are overwhelmed by the number of students they receive. Some sub-counties don't have a single secondary school. Students must walk long distances or find informal accommodation near schools. There are also challenges with teacher distribution rural schools struggle to retain teachers. Parents often assume the government covers everything, but in reality, families still bear many costs, which discourages enrollment and retention."*

The District Education Officer (DEO) also said, *"Limited access to secondary education in Kakumiro is both a supply and demand issue. On one hand, we have inadequate school infrastructure and a shortage of teachers, especially for science subjects. On the other hand, poverty, gender norms, and distance discourage many families from sending their children to school. Despite the Universal Secondary Education policy, we still see dropout rates rising after primary school. Our department is working with partners to improve school coverage and community sensitization, but the needs remain high."*

Based on the interview excerpts from students, teachers, and education officials, several recurring and interlinked challenges emerge. The responses have been organized into the following major themes:

Long Distances to School and Transportation Challenges

This theme captures the physical barriers to access, especially in rural areas, where students must travel long distances, often on foot, and in poor weather or unsafe conditions.

Supporting Quotes:

"I wake up at 5:00 a.m. to walk more than 6 kilometers to school."
"Students must walk long distances or find informal accommodation near schools."
"Most of them arrive late, and by mid-morning, they are too exhausted to focus."

Inadequate School Infrastructure and Learning Conditions

This theme highlights the poor learning environment due to overcrowding, lack of classrooms, insufficient furniture, teaching materials, and basic facilities like laboratories.

Supporting Quotes:

"Some classes don't have enough desks, and we even share textbooks."
"Labs are under-equipped, and we lack enough qualified teachers in sciences and mathematics."
"Many schools are overwhelmed by the number of students they receive."
Teacher Shortage and Unequal Distribution
This theme reflects the critical shortage of qualified teachers, particularly in science subjects, and the difficulty in attracting or retaining teachers in rural areas.

Supporting Quotes:

"We lack enough qualified teachers in sciences and mathematics."
"Rural schools struggle to retain teachers."

Poverty and Hidden Costs of Education

This theme emphasizes that despite the Universal Secondary Education (USE) policy, **hidden costs** like uniforms, food, and materials remain a **significant barrier** to attendance and retention.

Supporting Quotes:

"The hidden costs are too high—uniforms, lunch, learning materials—and parents can't afford them."
"Families still bear many costs, which discourages enrollment and retention."

Dropout and Early Marriage Among Students

This theme focuses on high dropout rates due to poverty, distance, and gender-related challenges such as early marriage for girls and informal labor for boys.

Supporting Quotes:

"Some girls were forced into early marriage."
"Boys dropped out to work as boda riders or in gold mining areas."
"Despite the Universal Secondary Education policy, we still see dropout rates rising after primary school."

Lack of Nearby Schools and Unequal Access

This theme points to limited school coverage, especially in remote sub-counties, leading to exclusion and overcrowding in the few available schools.

Supporting Quotes:

"Some sub-counties don't have a single secondary school."
"Only one secondary school is nearby, and it is overcrowded."
"We still see dropout rates rising after primary school."

Documentary analysis of access to Universal Secondary Education

Enrollment Trends and Access

The Enrollment in USE schools **increased steadily** from 2021 to 2023, but began to **stagnate** in 2024.This is evidenced by Annual Education Reports showed enrollment rose from 11,500 (2021) to 14,300 (2023), but only increased by 200 in 2024. This was majorly due distance to schools, school-related costs, and insufficient infrastructure in rural sub-counties.

Retention and Dropout

The dropout rates remain high, particularly among girls in S1–S3. For example, in 2023, inspection reports noted a **19% dropout rate among girls** and **12% among boys**, with causes linked to pregnancy, early marriage, and child labor (Girls' Retention Strategy (2022), community sensitization proposals, 2023).

Infrastructure and Facilities

School infrastructure remains **inadequate,** especially in remote areas. Infrastructure Status Reports (2022–2024) show that 7 out of 23 USE schools lack science labs, and many have temporary or unfinished classrooms. Budget documents indicated underfunding of construction projects and delayed disbursement of funds.

Teacher Availability and Quality

There is a shortage of trained teachers, especially in science and mathematics. Teacher Deployment Reports (2021–2025) show a 35% vacancy rate in science subjects across the district. Minutes from Education Meetings, 2023, showed complaints from head teachers about burnout and large class sizes.

Correlational Findings

Table 11: Correlation Findings

		Family income
Access to Universal Secondary Education	Pearson Correlation	0.784
	Sig. (2-tailed)	.002
	N	200

. Correlation is significant at the 0.05 level (2-tailed).

Table 12 shows a strong positive correlation between family income and access to Universal Secondary Education, with a Pearson correlation coefficient of r = 0.784 and a p-value of .002, which is statistically significant ($p < 0.05$). This indicates that higher family income levels are strongly associated with improved access to secondary education. In practical terms, families with stable or higher incomes are more likely to afford the indirect costs of education, such as school materials, transport, and meals, thereby enabling their children to attend and remain in school.

Regression analysis

Table 12: Linear Regression Analysis of Socioeconomic Factors and Access to Universal Secondary Education.

Model	Unstandardized Coefficients (B)	Standard Error	Standardized Coefficients (Beta)	T	Sig. (p-value)
(Constant)	1.245	0.312	—	3.99	0.000
Family Income	0.582	0.067	0.662	8.69	0.000

R = 0.795
F (3, 196) = 112.78, p < 0.001

Table 13 shows that the regression model is statistically significant ($F(3,196) = 112.78$, $p < 0.001$), indicating that the three predictors together significantly explain variations in access to Universal Secondary Education.

$\beta = 0.662$, $p < 0.001$) is the strongest predictor, indicating that as income increases, access to education significantly improves.

The regression model yielded statistically significant results across all variables. The constant/intercept of the model is 1.245, which represents the expected level of access to secondary education when all independent variables are held at zero. While not practically interpretable in isolation, it provides the baseline from which the contribution of each predictor is measured.

The variable family income emerged as the strongest predictor of access to secondary education, with an unstandardized coefficient (B) of 0.582, a standard error of 0.067, and a highly significant p-value of 0.000. The standardized coefficient (Beta) is 0.662, indicating a strong positive relationship. This suggests that for every one-unit increase in family income, access to secondary education increases by 0.582 units, holding all other variables constant. The high t-value ($t = 8.69$) further affirms the robustness of this predictor. This finding implies that children from families with higher or stable incomes are significantly more likely to access and stay in secondary education, likely due to the ability to meet both direct and indirect schooling costs.

Discussion of results.

Family Income and Access to Universal Secondary Education in Kakumiro District

The relationship between family income and access to Universal Secondary Education (USE) in Kakumiro District was statistically significant and strongly positive (Pearson's $r = 0.784$, $p = .002$). This empirical evidence aligns closely with existing literature that emphasizes the crucial role of household income in determining educational access, quality, and outcomes.

As the findings show a strong positive correlation, they reinforce Chetty et al. (2017) and Dynarski & Scott-Clayton (2013), who argue that financial constraints directly limit a family's ability to meet costs such as school uniforms, examination fees, learning materials, and lunch. These costs, though education may be publicly funded in theory, remain significant in practice especially in rural settings like Kakumiro. Your data indicates that children from higher-income families are more likely to enroll and remain in school, directly supporting this literature.

The findings also reflect the concerns raised by Blanden & Machin (2016), who explain that, beyond tuition, indirect costs (e.g., transport, lost labor hours, caregiving roles for siblings) disproportionately affect poor households. In Kakumiro, long distances to school coupled with food insecurity and unstable employment may mean that schooling is not prioritized in low-income households. This supports the statistically significant regression result for income ($B = 0.582$), showing how economic challenges translate into reduced educational access.

The positive impact of income on school access also echoes Ladd & Fiske (2018), who show that schools in low-income areas are under-resourced. Your results imply that students from wealthier households may opt for better-equipped private schools or supplement their education with resources at home. Where public schools are underfunded, income offers a pathway to improved learning environments through private means, bridging the equity gap.

Consistent with Davis-Kean (2005), the findings suggest that higher-income households offer environments more conducive to learning, quiet study areas, access to reading materials, and parental involvement, all of which indirectly support better attendance and performance. In Kakumiro, where many households struggle with food insecurity and low wages, such advantages are largely out of reach for poorer families.

The findings also validate Jackson et al. (2016) and Barton & Coley (2018), who note that income disparities lead to achievement gaps and lower graduation rates. Financial strain likely contributes to the high levels of absenteeism and dropout observed in the district, as your interviews and quantitative data suggest. Students from wealthier families are more likely to complete their education uninterrupted due to consistent support.

The literature emphasizes the role of targeted interventions in closing income-related gaps. Kane (2020) and Ladd (2017) stress the importance of financial aid and equitable funding. Your findings underscore this need, as income remains the most powerful predictor in your model. This suggests that without systemic reforms such as expanding scholarships, subsidizing school meals, and providing transportation, the cycle of exclusion will persist.

Finally, Epstein & Sanders (2017) argue for stronger community and family engagement initiatives. Your findings support this approach, as families with higher income are not only more likely to provide materially for their children but also more capable of engaging with schools. This gap needs to be bridged for poorer families through programs that offer both financial and social support.

Conclusion

The relationship between family income and access to Universal Secondary Education (USE) in Kakumiro District was statistically significant and strongly positive (Pearson's $r = 0.784$, $p = .002$). Families with higher incomes are not only more likely to provide materially for their children but also more capable of engaging with schools. This gap needs to be bridged for poorer families through programs that offer both financial and social support.

Recommendation.

The government or NGOs should provide free school materials (books, uniforms, sanitary products, pens) to reduce the indirect costs of education.

The government should introduce school transport subsidies or provide school buses for students who travel long distances.

The government should support parents through skills training, microfinance programs, and agricultural extension **services** to improve their household income.

List of abbreviations

CVI	Content Validity Index
MOE	Ministry of Education
SPSS	Special Package for Social Scientists
S4	Senior Four
UNICEF	United Nations Children's Fund
USE	Universal Secondary Education

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Availability of data.

Data used in this study are available upon request from the corresponding author.

Authors contribution.

MRA designed the study, conducted data collection, cleaned and analyzed data and draft the manuscript and PT supervised all stages of the study from conceptualization of the topic to manuscript writing and submission.

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