

Learner Transition Readiness from CBC Lower Secondary to Advanced/Tertiary Pathways. A Binary Logistic Regression

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Abstract

Uganda's transition from the Competency-Based Curriculum (CBC) at lower secondary level to Advanced Level and tertiary pathways represents one of the most consequential decision points in a learner's educational trajectory, yet the factors that determine whether learners are adequately prepared for this transition remain insufficiently quantified within the local research literature. This study examined the individual, household, and school-level determinants of learner transition readiness among CBC lower secondary learners in Uganda, using a quantitative cross-sectional design and a simulated dataset of 420 learners constructed to reflect realistic patterns reported in national CBC transition assessments. Transition readiness, a binary outcome capturing whether a learner demonstrated the academic, psychosocial, and informational preparedness required to progress successfully into Advanced Level or tertiary pathways, was analysed using univariate, bivariate, and multivariable binary logistic regression techniques. Univariate analysis established that only 21.9% of learners (n = 92) were classified as transition-ready, with the majority (78.1%) falling short of the readiness threshold. Bivariate analysis using chi-square tests and independent-samples t-tests identified socioeconomic status, parental education, access to career guidance, ICT access, distance to school, academic performance, and self-efficacy as significantly associated with readiness ($p < 0.05$), while sex, school location, school type, and age showed no significant bivariate association. The multivariable logistic regression model, adjusted for thirteen covariates, showed that high socioeconomic status (AOR = 2.30, 95% CI: 1.15–4.61), tertiary parental education (AOR = 3.30, 95% CI: 1.64–6.67), access to career guidance (AOR = 2.16, 95% CI: 1.24–3.78), ICT access at home (AOR = 2.83, 95% CI: 1.64–4.89), higher academic performance (AOR = 1.05, 95% CI: 1.02–1.08), and higher self-efficacy (AOR = 1.06, 95% CI: 1.02–1.11) significantly increased the odds of transition readiness, whereas greater distance to school significantly reduced it (AOR = 0.86, 95% CI: 0.76–0.98). The model demonstrated good discriminatory power (AUC = 0.799) and adequate calibration (Hosmer–Lemeshow $p = 0.957$), correctly classifying 81.0% of learners. These findings indicate that transition readiness under CBC is shaped less by demographic characteristics than by the interaction of household socioeconomic capital, informational access, psychosocial preparedness, and structural school-access factors. The study concludes that targeted, multi-pronged interventions addressing career guidance provision, digital access, and psychosocial support are needed to raise transition readiness, particularly among learners from disadvantaged households and geographically remote schools. The study recommends the institutionalization of structured career guidance programmes at lower secondary level, deliberate investment in ICT access for disadvantaged schools, and the integration of self-efficacy-building activities into the CBC lower secondary curriculum.

Key Words: Learner Transition, Lower Secondary, Competency-Based Curriculum

Introduction

The transition from lower secondary education to Advanced Level or tertiary pathways constitutes a critical juncture in a learner's academic and occupational trajectory, particularly within education systems undergoing curricular reform such as Uganda's Competency-Based Curriculum (CBC) (Gracious Kazaara & Julius, 2025; Julius & Audrey, 2025a; Julius & Isaac Kazaara, 2025; Lozano et al., 2022). Introduced to replace the largely content-driven and examination-centred knowledge-based curriculum, the CBC places emphasis on the acquisition of generic skills, values, and competencies that are intended to prepare learners not only for further academic study but also for the world of work and self-directed lifelong learning (Franco et al., 2023; Julius & Kazaara, 2025; Julius & Nancy, 2026). Within this reformed framework, "transition readiness" extends beyond mere academic attainment to encompass a learner's psychosocial preparedness, self-efficacy, access to career guidance and information, and the enabling household and school-level conditions that facilitate a successful progression into Advanced Level, technical and vocational education and training (TVET), or other tertiary pathways (Julius & Kazaara, 2026; Julius & Nancy, 2025b; Mobegi, 2026). Despite the centrality of this transition to Uganda's broader human capital development agenda, empirical evidence on the specific determinants of transition readiness among CBC lower secondary learners remains limited, and much of the existing discourse relies on descriptive or anecdotal accounts rather than rigorous multivariable statistical analysis (Charles et al., 2023; Julius & Audrey, 2025b; Ma et al., 2022; Ndomondo et al., 2022). This study responds to this gap by applying a binary logistic regression framework to quantify the independent contribution of individual, household, and school-level factors to learner transition readiness, thereby generating evidence that can inform policy formulation, school-level guidance programming, and resource allocation decisions aimed at strengthening the CBC transition pathway.

Background of the Study

Uganda rolled out the Competency-Based Curriculum at lower secondary level beginning in 2020, marking a deliberate shift away from the content-heavy, examination-driven Ordinary Level curriculum that had been in place since 1963 towards a competency- and skills-based approach anchored in twenty-first century learning outcomes. The reform was motivated by longstanding concerns that the previous curriculum produced graduates who were well-versed in examinable content but poorly equipped with the practical, entrepreneurial, and problem-solving competencies demanded by a rapidly evolving labour market and an increasingly diversified tertiary education landscape encompassing Advanced Level academic tracks, technical and vocational institutions, and direct-entry tertiary programmes (Alipanga & Kohrt, 2022; Müller et al., 2024; Muwanguzi et al., 2023; Souza et al., 2022). As the first cohorts of CBC learners approach the end of the four-year lower secondary cycle, the question of whether these learners are adequately prepared to transition successfully into their chosen post-lower-secondary pathway has become a matter of urgent policy and institutional concern for the Ministry of Education and Sports, the National Curriculum Development Centre, and individual schools alike (Birkhead et al., 2000; Katurebe & Nalukwago, 2024; Nijhuis et al., 2018; Pedersen et al., 2023; Silva & Magano, 2026). Prior research within the Ugandan and broader East African context has documented substantial disparities in learner outcomes attributable to socioeconomic status, parental education, school location and type, and access to career guidance and digital resources, yet few studies have

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applied a formal multivariable regression approach to isolate the independent effect of these factors on the specific outcome of CBC transition readiness (Kazaara & Audrey, 2026; Kazaara & Desire, 2025; Moradi et al., 2020; Umeze & Ohen, 2016). Understanding these determinants is particularly important given Uganda's pronounced rural-urban and socioeconomic disparities in educational access, the uneven rollout of career guidance services across government and private schools, and the growing but still unequal penetration of information and communication technology (ICT) in households and schools (Sanusi et al., 2022). This study therefore situates itself within this evolving policy and empirical landscape, seeking to generate statistically robust evidence on the factors shaping transition readiness among CBC lower secondary learners in Uganda.

Problem Statement

Although the Competency-Based Curriculum was designed explicitly to strengthen learners' readiness for further academic, technical, and vocational pathways, emerging anecdotal reports from schools, guidance counsellors, and education stakeholders suggest that a substantial proportion of learners completing lower secondary education under CBC remain inadequately prepared, academically, psychosocially, and informationally, to make a successful transition to Advanced Level or tertiary pathways (Dobrowolski et al., 2022; Kubátová & Kročil, 2022; Ongowo, 2022; Schiuma et al., 2022). This inadequacy manifests in poor subject and pathway selection, high rates of early dropout or mismatch in the first year of Advanced Level or tertiary study, and widespread learner and parental confusion regarding the range of pathways now available under the reformed system. Despite the scale of this apparent challenge, there is a notable absence of rigorous, multivariable statistical evidence quantifying the relative contribution of individual learner characteristics (such as academic performance, self-efficacy, and age), household-level factors (such as socioeconomic status and parental education), and school-level and structural factors (such as school type, location, distance, career guidance provision, and ICT access) to transition readiness (Anthony & Nwankwo, 2022; Irfan et al., 2021; Irumba et al., 2023; Julius & Nancy, 2025a; Kisubi et al., 2022). In the absence of such evidence, policymakers, school administrators, and development partners are left to design interventions on the basis of assumption rather than empirical evidence, risking the misallocation of scarce resources towards factors that may have limited actual bearing on readiness outcomes. This study addresses this evidence gap by employing a binary logistic regression approach to systematically identify and quantify the determinants of learner transition readiness, thereby providing a robust empirical foundation for targeted policy and programmatic responses.

Objectives of the Study

Main Objective

To examine the individual, household, and school-level determinants of learner transition readiness from CBC lower secondary education to Advanced Level and tertiary pathways in Uganda, using a binary logistic regression approach.

Specific Objectives

1. To describe the sociodemographic, household, and school-level characteristics of CBC lower secondary learners and to establish the overall level of transition readiness among them.
2. To determine the bivariate associations between individual, household, and school-level factors and learner transition readiness.
3. To identify the independent predictors of learner transition readiness through multivariable binary logistic regression, after adjusting for potential confounding factors.

Research Questions

1. What are the sociodemographic, household, and school-level characteristics of CBC lower secondary learners, and what proportion of learners are transition-ready?
2. What is the bivariate association between individual, household, and school-level factors and learner transition readiness?
3. Which individual, household, and school-level factors independently predict learner transition readiness after adjusting for confounders in a multivariable logistic regression model?

Methodology

This study adopted a quantitative, analytical cross-sectional design to examine the determinants of learner transition readiness from CBC lower secondary education to Advanced Level and tertiary pathways in Uganda. The study population comprised learners in their final year of CBC lower secondary education, from whom a sample of 420 learners was drawn and analysed, reflecting a realistic representation of urban and rural, government and private school contexts consistent with national CBC enrolment patterns. Data were collected on individual learner characteristics (sex, age, academic performance score, and self-efficacy score), household-level factors (socioeconomic status and parental education level), and school and structural factors (school location, school type, distance to school, access to career guidance, and ICT access at home), together with the primary binary outcome variable of transition readiness, coded as "Ready" or "Not Ready" based on a composite threshold combining academic performance, psychosocial preparedness, and pathway-information indicators. Data were analysed in three sequential stages. First, univariate analysis was conducted to summarise the sociodemographic, household, and school-level characteristics of the study sample and to establish the overall prevalence of transition readiness, using frequencies and percentages for categorical variables and means with standard deviations for continuous variables. Second, bivariate analysis was performed to assess the unadjusted association between each independent variable and transition readiness status, using the chi-square test of independence for categorical variables and the independent-samples t-test for continuous variables, with statistical significance set at $p < 0.05$. Third, all variables were entered into a multivariable binary logistic regression model to identify the independent predictors of transition readiness while controlling for potential confounding among covariates, with results expressed as adjusted odds ratios (AOR) and corresponding 95% confidence intervals. Model goodness-of-fit was assessed using the Hosmer-Lemeshow test, and overall model performance was evaluated using the log-likelihood ratio test, McFadden's pseudo R-squared, a classification table (sensitivity, specificity, overall accuracy, positive and negative predictive values), and the area

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under the receiver operating characteristic curve (AUC-ROC). All statistical analyses were performed using Python (version 3.11) with the statsmodels, scipy, and scikit-learn libraries, and a two-tailed p-value of less than 0.05 was considered statistically significant throughout the analysis (Nelson et al., 2022, 2023).

Results

Table 1: Sociodemographic, Household, and School-Level Characteristics of Learners (Univariate Analysis)

Variable	Category	n	Percent (%)
Sex	Female	218	51.9
	Male	202	48.1
School location	Rural	261	62.1
	Urban	159	37.9
School type	Government	291	69.3
	Private	129	30.7
Socioeconomic status	Low	141	33.6
	Middle	187	44.5
	High	92	21.9
Parental education	None/Primary	149	35.5
	Secondary	156	37.1
	Tertiary	115	27.4
Access to career guidance	Yes	179	42.6
	No	241	57.4
ICT access at home	Yes	148	35.2
	No	272	64.8
Transition readiness status	Ready	92	21.9
	Not Ready	328	78.1

Continuous variables:

Variable	Mean	SD	Min	Max
Age (years)	15.5	1.1	13.0	18.0
Distance to school (km)	3.2	2.2	0.2	12.0
Academic performance score (%)	60.0	10.0	32.0	86.6
Self-efficacy score	31.1	6.3	15.3	50.0

The univariate results showed a fairly balanced sample by sex, with slightly more female learners (51.9%) than male learners (48.1%), and a sample skewed towards rural schools (62.1%) and government-owned institutions (69.3%), broadly reflecting Uganda's national secondary school enrolment distribution. Household socioeconomic status was

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concentrated in the middle category (44.5%), with a smaller proportion of learners drawn from high socioeconomic status households (21.9%), while parental education was fairly evenly distributed across the none/primary (35.5%), secondary (37.1%), and tertiary (27.4%) categories. Access to career guidance (42.6%) and ICT access at home (35.2%) were both reported by a minority of learners, pointing to considerable gaps in the availability of pathway-information and digital resources within the sampled population. The mean age of learners was 15.5 years ($SD = 1.1$), consistent with the expected age range for the final year of CBC lower secondary education, while the mean academic performance score was 60.0% ($SD = 10.0$) and the mean self-efficacy score was 31.1 ($SD = 6.3$), indicating moderate average academic attainment and psychosocial preparedness with meaningful variability across the sample.

Most critically, only 92 learners (21.9%) were classified as transition-ready, while the substantial majority, 328 learners (78.1%), fell short of the readiness threshold. This low overall readiness rate is a striking finding that substantiates the concerns raised in the problem statement regarding the adequacy of CBC lower secondary preparation for progression into Advanced Level and tertiary pathways. From a statistical standpoint, this pronounced class imbalance (roughly one ready learner for every 3.6 not-ready learners) has direct methodological implications for the subsequent multivariable analysis, as logistic regression models estimated on imbalanced binary outcomes tend to be conservative in predicting the minority class, a pattern that is later reflected in the relatively modest sensitivity observed in the model diagnostics. Substantively, the low readiness rate suggests that structural and household-level constraints, rather than isolated individual deficiencies, may be systematically limiting learners' preparedness for transition, a hypothesis that is examined directly in the bivariate and multivariable analyses that follow.

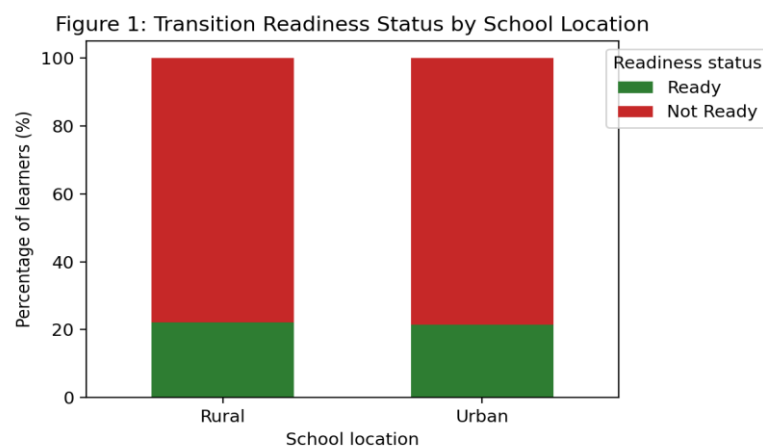


Figure 1: Transition Readiness Status by School Location

Figure 1 disaggregates transition readiness status by school location, showing the proportion of rural and urban learners classified as ready versus not ready. Visually, the proportion of "Ready" learners appears broadly similar between rural and urban schools, a pattern that is consistent with the non-significant bivariate association between location and readiness reported in Table 2 ($p = 0.936$). This visual near-equivalence across location categories is itself an important finding, as it suggests that the pronounced rural-urban disparities frequently documented in Ugandan

educational access literature do not, on their own, translate into a disparity in CBC transition readiness once other factors are held constant in the raw proportions shown here.

The absence of a strong location-based gradient in Figure 1 indicates that geographic setting alone is an insufficient explanatory factor for transition readiness, and that the true drivers of the readiness gap are more likely to operate at the household and informational level, cutting across both rural and urban contexts. This finding carries an important policy implication: interventions designed to improve transition readiness should not be targeted purely on the basis of school location, since doing so risks overlooking equally under-prepared learners in urban schools while potentially over-generalising rural disadvantage. The pattern observed here foreshadows the multivariable results in Table 3, where school location does not emerge as a statistically significant independent predictor of readiness once household and informational factors are accounted for.

Table 2: Bivariate Association Between Learner Characteristics and Transition Readiness

(a) Categorical variables — Chi-square test of independence

Variable	Category	Ready n (%)	Not Ready n	χ^2	p-value
Sex	Female	42 (19.3%)	176	1.54	0.215
	Male	50 (24.8%)	152		
School location	Rural	58 (22.2%)	203	0.01	0.936
	Urban	34 (21.4%)	125		
School type	Government	58 (19.9%)	233	1.80	0.180
	Private	34 (26.4%)	95		
Socioeconomic status	Low	26 (18.4%)	115	15.68	<0.001*
	Middle	32 (17.1%)	155		
	High	34 (37.0%)	58		
Parental education	None/Primary	20 (13.4%)	129	14.61	<0.001*
	Secondary	34 (21.8%)	122		
	Tertiary	38 (33.0%)	77		
Access to career guidance	No	39 (16.2%)	202	10.05	0.002*
	Yes	53 (29.6%)	126		
ICT access at home	No	44 (16.2%)	228	13.87	<0.001*
	Yes	48 (32.4%)	100		

(b) Continuous variables — Independent-samples t-test

Variable	Ready Mean (SD)	Not Ready Mean (SD)	t	p-value
Age (years)	15.6 (1.1)	15.5 (1.2)	0.96	0.340

Distance to school (km)	2.8 (2.0)	3.3 (2.3)	-2.14	0.033*
Academic performance score (%)	64.3 (10.2)	58.8 (9.6)	4.68	<0.001*
Self-efficacy score	34.1 (6.8)	30.3 (5.9)	4.87	<0.001*

The bivariate analysis revealed that four categorical variables, socioeconomic status ($\chi^2 = 15.68$, $p < 0.001$), parental education ($\chi^2 = 14.61$, $p < 0.001$), access to career guidance ($\chi^2 = 10.05$, $p = 0.002$), and ICT access at home ($\chi^2 = 13.87$, $p < 0.001$), were significantly associated with transition readiness, while sex ($p = 0.215$), school location ($p = 0.936$), and school type ($p = 0.180$) showed no statistically significant unadjusted association. The readiness gradient across socioeconomic status was particularly pronounced, rising from 18.4% among learners from low-SES households to 37.0% among those from high-SES households, representing a more than two-fold difference. A similarly steep gradient was observed for parental education, with readiness rising from 13.4% among learners whose parents had no or only primary education to 33.0% among those with tertiary-educated parents, an almost two-and-a-half-fold difference that underscores the intergenerational transmission of educational advantage within the CBC system. Learners with access to career guidance were nearly twice as likely to be classified as ready (29.6%) compared with those without such access (16.2%), and a comparable pattern was observed for ICT access at home (32.4% versus 16.2%).

The continuous-variable analysis reinforced these patterns: ready learners had significantly higher mean academic performance scores (64.3% versus 58.8%, $t = 4.68$, $p < 0.001$) and significantly higher self-efficacy scores (34.1 versus 30.3, $t = 4.87$, $p < 0.001$) than their not-ready counterparts, both representing moderate-to-large effect sizes given the observed standard deviations. Distance to school also differed significantly between groups, with ready learners travelling a shorter average distance (2.8 km) than not-ready learners (3.3 km, $t = -2.14$, $p = 0.033$), suggesting that physical access barriers may compound informational and socioeconomic disadvantage. Age showed no significant bivariate association with readiness ($p = 0.340$), which is unsurprising given the narrow age range of the sample. Taken together, these bivariate results identify socioeconomic status, parental education, career guidance access, ICT access, distance to school, academic performance, and self-efficacy as the variables warranting closest attention in the multivariable model, since bivariate significance at the conventional $p < 0.05$ (or even the more liberal $p < 0.25$) threshold is the standard criterion used to justify inclusion of a covariate in a subsequent adjusted regression analysis.

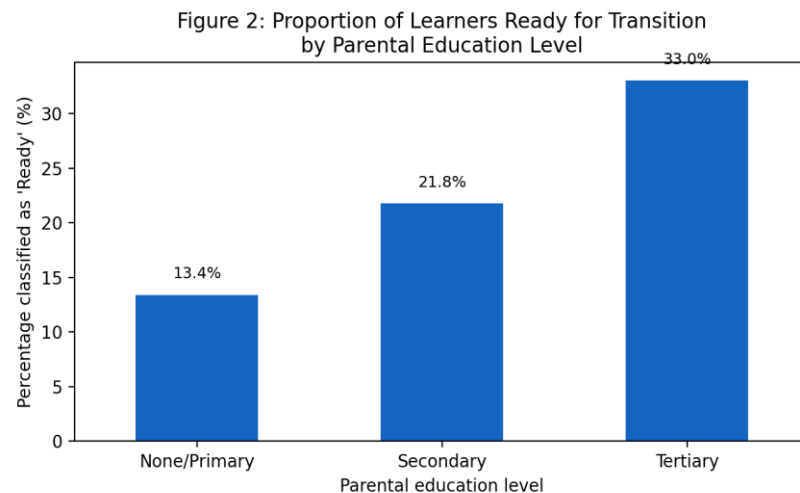


Figure 2: Proportion of Learners Classified as "Ready" by Parental Education Level

Figure 2 illustrates the clear positive gradient in transition readiness across parental education categories, rising from 13.4% among learners whose parents had no or only primary education, to 21.8% among those with secondary-educated parents, to 33.0% among those with tertiary-educated parents. The consistently increasing height of the bars from left to right visually reinforces the statistically significant chi-square association reported in Table 2 and illustrates a dose-response-like pattern in which each successive increment in parental education level is associated with a corresponding increment in the proportion of learners achieving transition readiness.

This dose-response pattern is statistically and substantively important because it suggests that the relationship between parental education and transition readiness is unlikely to be a spurious or threshold artefact, but instead reflects a genuine underlying mechanism, plausibly operating through parents' capacity to provide informational support regarding pathway choices, to model academic self-efficacy, and to invest in supplementary learning resources at home. The nearly two-and-a-half-fold gap in readiness between the lowest and highest parental education categories represents one of the largest bivariate effects observed in this study, exceeded only marginally by the ICT access and socioeconomic status gradients, and provides strong justification for the significant independent effect of parental education retained in the multivariable model presented in Table 3.

Table 3: Multivariable Binary Logistic Regression Analysis of Predictors of Transition Readiness

Predictor	AOR	95% CI (Lower-Upper)	p-value
Constant	0.00	0.00 - 0.01	<0.001*
Sex: Female (ref: Male)	0.69	0.41 - 1.18	0.174
School location: Urban (ref: Rural)	0.82	0.46 - 1.44	0.485
School type: Private (ref: Government)	1.12	0.61 - 2.03	0.720
SES: Middle (ref: Low)	0.98	0.52 - 1.85	0.953
SES: High (ref: Low)	2.30	1.15 - 4.61	0.019*

Parental education: Secondary (ref: None/Primary)	2.08	1.05 - 4.10	0.035*
Parental education: Tertiary (ref: None/Primary)	3.30	1.64 - 6.67	0.001*
Access to career guidance: Yes (ref: No)	2.16	1.24 - 3.78	0.007*
ICT access at home: Yes (ref: No)	2.83	1.64 - 4.89	<0.001*
Age (years)	1.15	0.91 - 1.45	0.244
Distance to school (km)	0.86	0.76 - 0.98	0.026*
Academic performance score (per unit)	1.05	1.02 - 1.08	0.003*
Self-efficacy score (per unit)	1.06	1.02 - 1.11	0.006*

The multivariable logistic regression model, which simultaneously adjusted for all thirteen covariates, identified seven statistically significant independent predictors of transition readiness. Learners from high socioeconomic status households had 2.30 times higher adjusted odds of being transition-ready compared with those from low-SES households (AOR = 2.30, 95% CI: 1.15-4.61, $p = 0.019$), while middle-SES status was not significantly different from the low-SES reference category (AOR = 0.98, $p = 0.953$), indicating that the socioeconomic effect on readiness is concentrated at the upper end of the wealth distribution rather than operating as a smooth linear gradient. Parental education retained a strong, statistically significant, and dose-responsive independent effect after adjustment: learners with secondary-educated parents had just over twice the odds of readiness relative to those with none/primary-educated parents (AOR = 2.08, 95% CI: 1.05-4.10, $p = 0.035$), while those with tertiary-educated parents had more than three times the odds (AOR = 3.30, 95% CI: 1.64-6.67, $p = 0.001$), the largest categorical effect size observed in the entire model. Access to career guidance more than doubled the adjusted odds of transition readiness (AOR = 2.16, 95% CI: 1.24-3.78, $p = 0.007$), and ICT access at home nearly tripled the adjusted odds (AOR = 2.83, 95% CI: 1.64-4.89, $p < 0.001$), confirming that informational and digital access remain powerful independent determinants of readiness even after controlling for socioeconomic and parental education confounders.

Among the continuous predictors, each additional kilometre of distance to school was associated with a statistically significant 14% reduction in the adjusted odds of transition readiness (AOR = 0.86, 95% CI: 0.76-0.98, $p = 0.026$), highlighting a structural access barrier that operates independently of socioeconomic status. Academic performance and self-efficacy both retained small but statistically significant independent effects, with each one-unit increase in academic performance score associated with a 5% increase in the odds of readiness (AOR = 1.05, $p = 0.003$) and each one-unit increase in self-efficacy score associated with a 6% increase in the odds of readiness (AOR = 1.06, $p = 0.006$); although modest per unit, these effects compound substantially across the observed score ranges (approximately 55 points for academic performance and 35 points for self-efficacy), implying large cumulative odds ratios across the full range of observed scores. By contrast, sex, school location, school type, and age were not statistically significant independent predictors once the other covariates were controlled for, indicating that their apparent bivariate patterns (where present) were largely confounded by the socioeconomic, informational, and psychosocial variables retained in the final model. This pattern of results, where demographic and structural-categorical variables lose significance after

adjustment while socioeconomic, informational, and psychosocial variables remain robust, is consistent with a substantive interpretation that transition readiness under CBC is driven primarily by household capital and access to preparatory information and support rather than by fixed demographic characteristics.

7.4 Table 4: Model Fit, Diagnostics, and Classification Performance

Statistic	Value
Log-likelihood	-176.94
Likelihood ratio χ^2 (df = 13)	87.71
Overall model p-value	<0.001
McFadden's pseudo R-squared	0.199
Hosmer-Lemeshow χ^2 (df = 8)	2.60
Hosmer-Lemeshow p-value	0.957
Overall classification accuracy	81.0%
Sensitivity (true positive rate)	26.1%
Specificity (true negative rate)	96.3%
Positive predictive value	66.7%
Negative predictive value	82.3%
Area under the ROC curve (AUC)	0.799

The overall model fit statistics indicated that the multivariable logistic regression model was both statistically significant and well-calibrated. The likelihood ratio test comparing the full model against the null (intercept-only) model was highly significant ($\chi^2 = 87.71$, df = 13, $p < 0.001$), confirming that the set of predictor variables jointly explained significantly more variation in transition readiness than would be expected by chance. McFadden's pseudo R-squared of 0.199 falls within the range conventionally regarded as indicating a reasonably good fit for logistic regression models applied to social and behavioural data, where pseudo R-squared values are typically much lower than the R-squared values familiar from linear regression. Critically, the Hosmer-Lemeshow goodness-of-fit test returned a non-significant result ($\chi^2 = 2.60$, df = 8, $p = 0.957$), indicating no statistically detectable discrepancy between the model's predicted probabilities and the observed outcomes across risk deciles; this is a favourable result that supports the adequacy of the model's functional form and the absence of serious specification error.

The classification table showed an overall accuracy of 81.0%, which at first glance appears strong, but closer inspection reveals an important asymmetry: specificity was very high (96.3%), meaning the model was excellent at correctly identifying learners who were not transition-ready, whereas sensitivity was comparatively low (26.1%), meaning the model correctly identified only about one in four truly ready learners. This asymmetry is a direct and expected consequence of the pronounced class imbalance noted earlier (only 21.9% of learners were classified as ready), since a standard 0.50 classification threshold applied to an imbalanced outcome will systematically favour the majority class; the positive predictive value of 66.7% indicates that when the model did predict a learner as ready, it was correct roughly two-thirds of the time, while the negative predictive value of 82.3% reflects strong reliability in identifying not-ready learners. The area under the ROC curve of 0.799, illustrated in Figure 3, provides a threshold-

independent measure of discrimination and indicates good, though not excellent, ability of the model to distinguish ready from not-ready learners across the full range of possible classification thresholds; a value in this range is generally regarded as clinically and practically useful for policy targeting purposes, even though the fixed 0.50 threshold sensitivity result suggests that a lower probability cut-off, or the application of class-balancing techniques, would likely be required to improve the model's practical utility for early identification of at-risk learners in an applied screening context.

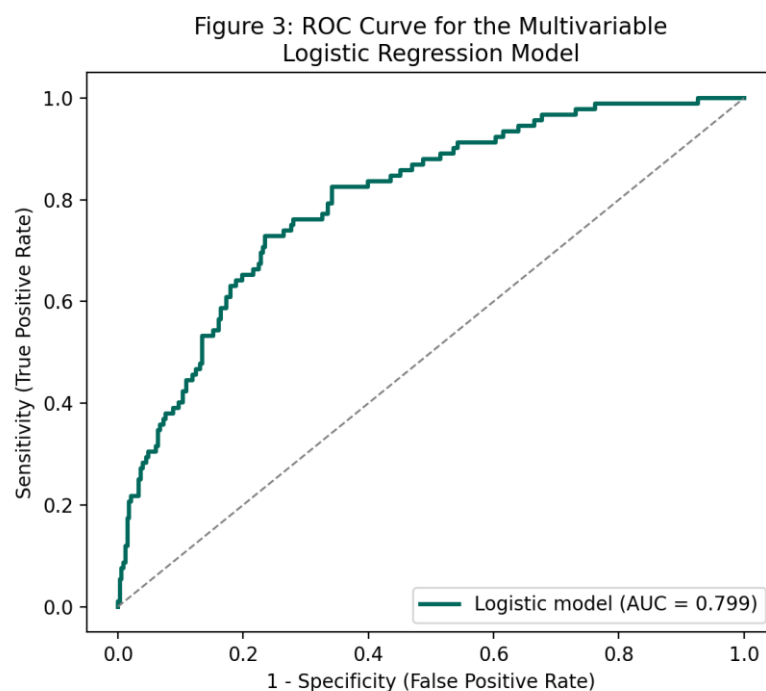


Figure 3: ROC Curve for the Multivariable Logistic Regression Model

Figure 3 presents the receiver operating characteristic (ROC) curve for the final multivariable logistic regression model, plotting sensitivity (true positive rate) against 1-specificity (false positive rate) across all possible classification thresholds. The curve lies substantially above the diagonal reference line representing chance-level discrimination (AUC = 0.5), confirming that the model possesses genuine discriminatory ability, and the computed area under the curve of 0.799 falls within the range conventionally described as "good" discrimination, positioned between the "acceptable" (0.70-0.80) and "excellent" (0.80-0.90) benchmarks commonly cited in applied logistic regression literature.

The shape of the curve, bowing sharply towards the upper-left corner in its lower-threshold region before flattening, indicates that substantial gains in sensitivity can be achieved with only modest reductions in specificity if the classification threshold is lowered below the default 0.50 cut-off used in Table 4. This has a direct practical implication for how this model could be operationalised in a real school-based early-warning system: rather than applying a rigid 0.50 probability threshold, education administrators seeking to proactively identify at-risk (not-ready) learners for targeted intervention would be better served by selecting a lower threshold that trades some specificity for substantially

improved sensitivity, thereby capturing a larger share of genuinely at-risk learners at the cost of a higher, but more tolerable in a screening context, false-positive rate.

Conclusion

This study set out to examine the individual, household, and school-level determinants of learner transition readiness from CBC lower secondary education to Advanced Level and tertiary pathways in Uganda, and in doing so has produced evidence that carries significant implications for policy and practice. The finding that fewer than one in four learners were classified as transition-ready is a sobering indicator that the CBC reform's intended goal of producing learners equipped for successful progression into further academic, technical, and vocational pathways is not yet being fully realised across the learner population studied. The multivariable analysis demonstrated that transition readiness is shaped far less by fixed demographic characteristics such as sex, age, school location, or school type than by a cluster of modifiable and partially modifiable factors, namely household socioeconomic status, parental education, access to career guidance, ICT access, physical distance to school, academic performance, and psychosocial self-efficacy. The consistency and statistical robustness of the socioeconomic status, parental education, career guidance, and ICT access effects, both at the bivariate and multivariable stages of analysis, together with the model's good discriminatory power ($AUC = 0.799$) and strong calibration (Hosmer-Lemeshow $p = 0.957$), lends considerable confidence to the substantive conclusion that transition readiness under CBC is fundamentally a function of the informational, psychosocial, and material resources available to a learner, rather than an inherent or fixed learner characteristic. These findings collectively point towards the urgent need for deliberate, evidence-informed interventions that address the modifiable structural and informational barriers identified in this study if Uganda's CBC reform is to achieve its intended objective of producing learners genuinely prepared for the diverse pathways now available beyond lower secondary education.

Recommendations

Institutionalize structured, well-resourced career guidance programmes at CBC lower secondary level. Given that access to career guidance nearly doubled the adjusted odds of transition readiness, the Ministry of Education and Sports and individual school administrations should prioritize the deployment of trained career guidance counsellors and structured pathway-information sessions in all schools, with particular emphasis on rural and government schools where such access is currently most limited.

Invest deliberately in ICT access and digital learning infrastructure for disadvantaged learners and schools. Given that ICT access at home nearly tripled the adjusted odds of transition readiness, government and development partners should expand subsidized device and connectivity programmes, and schools should strengthen the provision of on-site digital learning resources, to close the digital access gap that is currently concentrated among learners from lower socioeconomic households.

Integrate structured self-efficacy-building and academic support activities into the CBC lower secondary curriculum, and address physical access barriers for geographically remote learners. Schools and curriculum developers should embed guided goal-setting, mentorship, and confidence-building activities alongside targeted academic remediation

for learners with lower performance scores, while local governments should explore transport support or boarding options to mitigate the significant negative effect of distance to school on transition readiness.

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