Metropolitan Journal of Academic and Applied Research
ISSN: 3006-6417
Vol. 5 Issue 7, July- 2026, Pages: 218-235

The Impact of Artificial Intelligence on the Job Market among Youths in Lubaga Division, Kampala, Uganda

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Abstract

Artificial intelligence is reshaping labour markets globally, yet its consequences for youth employment in low-income African economies remain contested between displacement and augmentation accounts. This study examined the impact of artificial intelligence on the job market among youths in Lubaga Division, Kampala. Adopting a positivist philosophy and a cross-sectional survey design, data were collected through enumerator administration from 384 youths aged 18 to 30 selected via multistage sampling across the division's parishes. A structured questionnaire measured four artificial intelligence dimensions, namely task exposure and automation risk, AI skills acquisition and digital literacy, access to AI-enabled work platforms, and AI awareness and adoption in the workplace, against job market outcomes assessed through employment status and security, earnings, skills relevance, and perceived future prospects. Data were analysed using descriptive statistics, Pearson correlation, and multiple regression in SPSS version 26. Findings revealed that AI awareness recorded the highest mean while AI skills acquisition recorded the lowest. Task exposure correlated negatively with job market outcomes ($r = -0.548$, $p < 0.01$) while the three capability dimensions correlated positively, with AI skills acquisition strongest ($r = 0.673$, $p < 0.01$), followed by access to AI-enabled platforms ($r = 0.612$, $p < 0.01$) and workplace adoption ($r = 0.529$, $p < 0.01$). The regression model was significant, $F(4, 366) = 74.16$, $p < 0.001$, explaining 44.8 per cent of variance, with AI skills acquisition ($\beta = 0.348$) dominant. The findings situate within evidence that 50.9 per cent of Ugandan youth are neither employed nor pursuing education and that national unemployment rose from 9.4 per cent in 2014 to 12.6 per cent in 2024 (EPRC, 2024), and corroborate the augmentation account whereby workers with AI expertise command wage premiums of up to 56 per cent (PwC, 2024, cited in AfriCatalyst, 2025). The study concludes that AI's youth labour market impact operates principally through the skills divide rather than through displacement, and recommends AI skilling integration, platform access expansion, and adoption of the complementarity principle articulated in Uganda's international labour position.

Keywords: **Artificial intelligence; job market; youth employment; automation; digital skills; skills divide; labour market transformation; Lubaga Division; Kampala; Uganda.**

1.0 Introduction

Artificial intelligence denotes computational systems capable of performing tasks that have conventionally required human cognition, including pattern recognition, language processing, prediction, and decision support(Kazaara et al., 2024). Its economic significance derives from a property that distinguishes it from prior waves of automation: where mechanisation substituted capital for physical labour and information technology substituted capital for routine

Received: 14.06.2026 **Accepted: 18.06.2026** **Published on: 30.06.2026**

Metropolitan Journal of Academic and Applied Research
ISSN: 3006-6417
Vol. 5 Issue 7, July- 2026, Pages: 218-235

clerical labour, artificial intelligence extends substitution into cognitive and non-routine domains that had been regarded as durably human(Moses & Nancy, 2024). The economics of this substitution is most precisely characterised as a reduction in the cost of prediction, since AI may directly substitute capital for labour in prediction tasks, including forecasting, and such tasks are being transformed as machine learning improves and the quality-adjusted cost of prediction falls (Nakabugo, 2025). The framing matters because it identifies what is actually being automated: not occupations but tasks, and specifically those tasks whose structure permits statistical inference from historical patterns(Nicholas & Nancy, 2024).

The scholarly and policy debate divides between displacement and augmentation accounts, and the empirical evidence supports neither cleanly. On the displacement side, the World Economic Forum's Future of Jobs Report anticipated that over the five years from 2023 to 2027 approximately 83 million jobs would disappear while 69 million new positions would emerge, producing a net decrease of 14 million jobs equivalent to 2 per cent of current employment (World Economic Forum, 2023, cited in Fauri and Marcuzzo, 2024). McKinsey suggested that as many as half of the tasks performed in current jobs could be automated between 2030 and 2060 with a midpoint around 2045, an acceleration of roughly ten years relative to earlier estimates, while noting that the pace of workforce transformation is expected to be quicker in developed nations and slower in lower-wage countries (McKinsey & Co., 2023, cited in Fauri and Marcuzzo, 2024). Goldman Sachs estimated that over ten years more jobs in developed countries will be exposed to automation than in emerging countries (Hatzius et al., 2023, cited in Fauri and Marcuzzo, 2024).

This last finding is of central importance to the present study and inverts a common assumption. The expectation that automation threatens low-income economies most severely is not supported: exposure is concentrated in developed economies precisely because their employment is concentrated in the formalised, codified, information-intensive tasks that AI performs, whereas employment in economies such as Uganda's is concentrated in agriculture, informal trade, and personal services whose tasks are neither codified nor digitally represented(Julius & Margaret, 2025). The implication is that AI's principal impact on Ugandan youth may operate not through the displacement of their existing work but through their exclusion from the opportunities AI creates elsewhere, which is a different problem requiring a different response(Julius, 2025).

The augmentation evidence supports this reading. A 2024 PricewaterhouseCoopers study shows that in sectors most exposed to AI, wages are increasing twice as fast as in less-exposed ones, and workers with AI expertise are commanding wage premiums of up to 56 per cent, a sharp rise from 25 per cent just a year earlier, while the skills required for AI-driven roles are evolving 66 per cent faster than in other jobs according to LinkedIn Economic Graph data (AfriCatalyst, 2025). The same source observes that for Africa's young workforce this signals both opportunity and urgency, and notes that Africa lags in the AI race, with just 100 companies primarily based in the United States and China accounting for 40 per cent of global AI research and development as of 2022 (AfriCatalyst, 2025). The International Labour Organisation reported that the digital economy had created over 2.1 million direct jobs in Africa

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with projections of growth to 3.5 million by the end of 2024, with opportunities emerging in AI development, data analysis, software engineering, and robotics, and demand for AI specialists expected to grow by 30 per cent annually over five years (ILO, 2023, cited in African Leadership Magazine, 2024).

The Ugandan labour market context supplies the conditions against which these dynamics must be assessed, and those conditions are severe(Ivan et al., 2023b). Uganda is proudly known for its youthful population, with over 75 per cent of citizens under the age of 30, and each year more than one million young people enter the job market, yet job creation lags far behind and the skills many young people possess often do not align with the demands of the evolving workforce (Open Space Youth, 2025). The Uganda Bureau of Statistics National Population and Housing Census Report records that persons aged 18 to 30 constitute 22.7 per cent of Uganda's population while those under 30 constitute 73.2 per cent (UNDP, 2025). The Economic Policy Research Centre reports that with a rapidly growing population nearing 46 million and youth aged 18 to 30 comprising 22 per cent of the total, the employment problem has worsened over time, that UBOS indicates 50.9 per cent of Ugandan youth are neither employed nor pursuing education, that the national unemployment rate has risen from 9.4 per cent in 2014 to 12.6 per cent in 2024, and that 82 per cent of emigrants cite job-related challenges as their primary reason for leaving the country (EPRC, 2024).

Uganda's official position on artificial intelligence has been articulated at the international level and is analytically significant for this study because it frames AI as complement rather than substitute(Kazaara et al., 2024). Delivering Uganda's statement at the 114th International Labour Conference, Ambassador Marcel Robert Tibaleka stated that technology must serve people and development rather than replace the foundations of decent work, that technology should complement human work, reinforce skills development, improve productivity, and expand decent employment, and that AI has the potential to boost productivity across agriculture, health, education, industry and other key sectors; he emphasised that for developing economies technological transformation must go hand in hand with stronger labour-market institutions, infrastructure, reliable energy, skills development, peace and security (Tibaleka, 2026, cited in The Independent, 2026). This position identifies the complementarity condition, namely that AI benefits accrue only where the enabling institutions exist, which is precisely the empirical question this study addresses at the level of individual youths.

Lubaga Division in Kampala presents an appropriate setting. As one of the capital's five divisions, it combines a dense concentration of young people with the internet infrastructure that the National Digitalisation Roadmap has extended (UNDP, 2025), a substantial informal sector, and proximity to the formal employment and digital enterprise that Kampala concentrates. This configuration means that Lubaga's youths are simultaneously exposed to AI opportunity and vulnerable to exclusion from it, which makes the division a setting in which the skills divide can be observed rather than merely theorised. Whether AI affects these youths principally through the automation of the work they do or through their access to the capabilities that AI-complementary work requires is the empirical question this study addresses(Sophie & Crispus, 2024).

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1.1 Problem Statement

Uganda's youth are expected, under the employment and skilling objectives articulated in national development frameworks and supported through initiatives including the Youth Livelihood Programme, Operation Wealth Creation, and the Parish Development Model (EPRC, 2024), to transition from education into productive employment that utilises their capabilities and generates adequate earnings(Promise et al., 2024). The ideal situation is a labour market in which the more than one million young people entering annually (Open Space Youth, 2025) find work matched to their skills, in which technological change creates opportunities they are equipped to take, and in which artificial intelligence complements human work, reinforces skills development, improves productivity, and expands decent employment as Uganda's international position specifies (Tibaleka, 2026, cited in The Independent, 2026).

The prevailing situation departs from this ideal profoundly. UBOS indicates that 50.9 per cent of Ugandan youth are neither employed nor pursuing education, the national unemployment rate has risen from 9.4 per cent in 2014 to 12.6 per cent in 2024, and 82 per cent of emigrants cite job-related challenges as their primary reason for leaving the country (EPRC, 2024). Job creation lags far behind the annual influx of more than one million young entrants, and the skills many young people possess often do not align with the demands of the evolving workforce (Open Space Youth, 2025). Into this already strained market, artificial intelligence introduces a transformation whose direction is contested and whose distribution is unequal: workers with AI expertise command wage premiums of up to 56 per cent while the skills required for AI-driven roles evolve 66 per cent faster than in other jobs (AfriCatalyst, 2025), which means that the returns to AI capability are rising precisely as the difficulty of acquiring it increases. Africa meanwhile lags in the AI race, with 100 companies primarily in the United States and China accounting for 40 per cent of global AI research and development (AfriCatalyst, 2025).

Should this situation persist, the consequences will be structural rather than cyclical. A youth cohort constituting 73.2 per cent of the population under 30 (UNDP, 2025) that cannot access the capabilities commanding a 56 per cent wage premium will be consigned to the low-productivity informal work whose returns AI-driven growth elsewhere will progressively erode, producing a divergence in which national output rises while youth livelihoods do not(Musaibah et al., 2023). The migration response already evident, in which 82 per cent of emigrants cite job-related reasons (EPRC, 2024), will intensify, exporting the human capital that development requires. Nakabugo (2025) warns of a further dynamic, arguing that Pandora's box would be opened by AI in a way that the wealthiest could be the ones benefitting from the economy's improvement, producing income inequality as the rich become richer and the poor poorer. Most consequentially, the demographic dividend that a youthful population represents converts into a demographic liability where that population is neither employed nor skilled(Alex & Kazaara, 2023).

While commentary on AI and African employment has proliferated, three gaps motivate this study. First, the evidence base is dominated by projection and commentary rather than by primary data on youths themselves, with the influential

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estimates deriving from consultancy modelling of developed-economy task structures (Hatzius et al., 2023; McKinsey & Co., 2023, cited in Fauri and Marcuzzo, 2024) whose applicability to Ugandan youth employment is precisely what is at issue. Second, the displacement and augmentation accounts have been debated in the abstract rather than tested comparatively, so that the relative magnitude of task exposure and skills access as determinants of youth labour outcomes remains unestablished(Ivan et al., 2023a).

1.2 Main Objective

The main objective of the study was to examine the impact of artificial intelligence on the job market among youths in Lubaga Division, Kampala.

1.3 Specific Objectives

i. To examine the impact of task exposure and automation risk on youth job market outcomes in Lubaga Division.

ii. To assess the impact of AI skills acquisition and digital literacy on youth job market outcomes in Lubaga Division.

iii. To determine the impact of access to AI-enabled work platforms on youth job market outcomes in Lubaga Division.

iv. To establish the impact of AI awareness and workplace adoption on youth job market outcomes in Lubaga Division.

2.0 Literature Review

2.1 Theoretical Framework

The study is anchored in skill-biased technological change theory, complemented by the task-based framework and human capital theory. Skill-biased technological change holds that technological progress is not neutral across skill groups but raises the relative demand for skilled labour, increasing the wage premium that skill commands and thereby widening earnings inequality. Its application to artificial intelligence receives direct empirical support in the evidence that workers with AI expertise command wage premiums of up to 56 per cent, sharply increased from 25 per cent a year earlier, and that in sectors most exposed to AI wages are increasing twice as fast as in less-exposed ones (AfriCatalyst, 2025). The theory predicts that AI's principal labour market effect operates through the distribution of returns rather than the aggregate volume of employment, which implies that studies focused solely on job counts will miss the mechanism.

The task-based framework refines this by holding that technologies substitute for tasks rather than occupations, so that an occupation's exposure depends on its task composition and most occupations experience partial rather than total automation. Nakabugo (2025) applies the logic to the Ugandan context, observing that AI may directly substitute capital for labour in prediction tasks including forecasting, and that such tasks are being transformed as machine

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learning improves and the quality-adjusted cost of prediction falls. The framework's most consequential contribution is its account of what resists automation: Nakabugo (2025) identifies conditions rendering a job incapable of automation as creativity, building meaningful and complex relationships, significant dexterity, and problem-solving skills, and notes that these skills will save labourers. This specification is directly testable and it predicts that Ugandan youth employment, concentrated in relational and dexterous informal work, will exhibit lower task exposure than developed-economy employment, which is precisely what the Goldman Sachs finding of greater developed-country exposure implies (Hatzius et al., 2023, cited in Fauri and Marcuzzo, 2024).

Human capital theory supplies the account of why skills access should dominate task exposure in a low-exposure economy. The theory holds that individuals invest in education and training to raise their productivity and thereby their earnings, and that returns to such investment vary with the demand for the capabilities acquired. Where AI raises the return to AI-complementary skills by 56 per cent (AfriCatalyst, 2025) while the skills themselves evolve 66 per cent faster than in other jobs, the theory predicts a widening divergence between those able to sustain continual reinvestment and those unable to make the initial investment. In a context where 50.9 per cent of Ugandan youth are neither employed nor pursuing education (EPRC, 2024), the majority are outside the investment pathway entirely, which the theory identifies as the binding constraint.

2.2 Task Exposure and Automation Risk and Job Market Outcomes

Task exposure concerns the degree to which the tasks constituting a youth's current or prospective work are susceptible to automation. The theorised mechanism is substitution: exposed tasks are performed by capital, reducing labour demand and depressing employment and earnings. The international projections are substantial, with the World Economic Forum anticipating 83 million jobs disappearing against 69 million emerging over 2023 to 2027 for a net decrease of 14 million or 2 per cent of employment, and McKinsey suggesting half of current job tasks could be automated between 2030 and 2060 (cited in Fauri and Marcuzzo, 2024). Critically for the present study, the same sources establish that this exposure is unevenly distributed: the pace of workforce transformation and automation adoption is expected to be quicker in developed nations and slower in lower-wage countries (McKinsey & Co., 2023), and over ten years more jobs in developed countries will be exposed than in emerging countries (Hatzius et al., 2023), with two-thirds of jobs in the United States and Europe facing some level of AI automation and 18 per cent of work automatable per Goldman Sachs (cited in Fauri and Marcuzzo, 2024). The literature therefore predicts modest task exposure for Ugandan youth, whose employment concentrates in agriculture, informal trade, and personal services requiring the dexterity and relational capability that Nakabugo (2025) identifies as automation-resistant.

2.3 AI Skills Acquisition and Digital Literacy and Job Market Outcomes

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AI skills acquisition encompasses digital literacy, familiarity with AI tools, and the analytical capability that AI-complementary work requires. The theorised mechanism is the wage premium that skill-biased technological change predicts, and the evidence is direct: workers with AI expertise command premiums of up to 56 per cent, up from 25 per cent a year earlier, while AI-driven role skills evolve 66 per cent faster than other jobs (AfriCatalyst, 2025). The ILO reported the digital economy creating over 2.1 million direct jobs in Africa with projected growth to 3.5 million by end-2024, opportunities emerging in AI development, data analysis, software engineering and robotics, and demand for AI specialists growing 30 per cent annually over five years, alongside rising roles in training AI models, maintaining systems, and developing AI ethics policies (cited in African Leadership Magazine, 2024). The Ugandan constraint is that the skills many young people possess often do not align with the demands of the evolving workforce (Open Space Youth, 2025), and that 50.9 per cent of youth are neither employed nor in education (EPRC, 2024), which places them outside the acquisition pathway. AI skilling efforts are nonetheless underway, with local organisations such as the Otic Foundation endorsed by the Ministry of ICT to promote AI awareness and skilling across the country (EPRC, 2024).

2.4 Access to AI-Enabled Work Platforms and Job Market Outcomes

Platform access encompasses the connectivity, devices, and market access through which AI-enabled and digitally-mediated work is obtained. The theorised mechanism is that skills without access yield no return, since a capable youth without connectivity or without entry to the platforms on which digital work is transacted cannot convert capability into income. Uganda's position has improved, with rapidly expanding internet and computing infrastructure supported by the National Digitalisation Roadmap (UNDP, 2025), yet the structural constraint identified at continental level persists: Africa lags in the AI race, with 100 companies primarily based in the United States and China accounting for 40 per cent of global AI research and development as of 2022 (AfriCatalyst, 2025), which means that the platforms on which AI value is captured are owned elsewhere. The cautionary evidence is instructive: Microsoft announced in May 2024 that it would close its Africa Development Centre in Lagos, affecting local engineers and support staff, a reminder that multinational technology investments are not an automatic guarantee of stable local employment (Hadi, 2025).

2.5 AI Awareness and Workplace Adoption and Job Market Outcomes

AI awareness and workplace adoption concerns knowledge of AI and its deployment within the workplaces youths occupy or seek. The theorised mechanism is dual and ambiguous: adoption may raise productivity and thereby labour demand, or may substitute for the labour it employs, so that the sign of the effect depends on whether adoption is complementary or substitutive in the specific workplace. Uganda's articulated position asserts the complementary case, holding that technology should complement human work, reinforce skills development, improve productivity, and expand decent employment, and that AI has potential to boost productivity across agriculture, health, education,

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industry and other key sectors, while emphasising that for developing economies technological transformation must go hand in hand with stronger labour-market institutions, infrastructure, reliable energy, skills development, peace and security (Tibaleka, 2026, cited in The Independent, 2026). Nakabugo (2025) argues that policy determines which outcome obtains, contending that principles such as human control would see retention of some decisions in human hands, that in this way the labour market would be protected from effects of AI such as displacement as jobs would still be relevant, and that failure to adopt policies to regulate AI use would be detrimental to the labour market.

2.6 Research Gap

The reviewed literature establishes that AI raises returns to AI-complementary skill substantially (AfriCatalyst, 2025), that exposure is concentrated in developed rather than emerging economies (Hatzius et al., 2023; McKinsey & Co., 2023, cited in Fauri and Marcuzzo, 2024), and that Uganda's youth labour market is under severe pre-existing strain with 50.9 per cent neither employed nor in education (EPRC, 2024). Three gaps motivate this study. First, the evidence is dominated by projection and commentary rather than primary data on youths. Second, displacement and augmentation accounts are debated rather than tested comparatively. Third, no known study addresses Lubaga Division. This study addresses these gaps.

3.0 Methodology

3.1 Research Philosophy and Design

The study adopted a positivist philosophy, premised on the position that AI exposure, capability, and labour market outcomes can be measured through structured instruments and related statistically. This suits the comparative question posed, namely the relative magnitude of exposure and capability dimensions. A cross-sectional analytical survey design was employed within a case study framework centred on Lubaga Division.

Three limitations warrant statement. First, temporal precedence cannot be established, and the skills-outcome relationship is plausibly bidirectional, since employed youths acquire skills at work as readily as skills produce employment. Second, task exposure was measured perceptually, whereas the international estimates derive from occupational task decomposition (Hatzius et al., 2023; McKinsey & Co., 2023, cited in Fauri and Marcuzzo, 2024); a youth's perception of whether her work could be automated is not equivalent to a technical assessment, and given that the toxic effects of technological change are gradual, perception may lag reality. Third, AI is a rapidly moving object of study, and a cross-sectional measurement captures a moment in a transformation that the evidence indicates is accelerating, with skills for AI-driven roles evolving 66 per cent faster than other jobs (AfriCatalyst, 2025). Findings are interpreted as associations at a point in time.

3.2 Study Population and Sample

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The target population comprised youths aged 18 to 30 resident in Lubaga Division, an age band consistent with the Uganda Bureau of Statistics category in which persons aged 18 to 30 constitute 22.7 per cent of the national population (UNDP, 2025) and with the EPRC (2024) analytical category. As the eligible population size within the division was not precisely known, sample size was determined using Cochran's formula for unknown populations at 95 per cent confidence, 5 per cent margin of error, and maximum variability of 0.5, yielding 384.

Multistage sampling was employed. At the first stage, all parishes within the division were included. At the second stage, villages were selected using probability proportional to size based on census population counts. At the third stage, households were selected systematically from village listings. At the fourth stage, one eligible youth per household was selected using the Kish grid method where more than one resided, which prevents overrepresentation of the most readily available and thereby avoids a bias systematically favouring the unemployed, a bias of particular concern in a study whose dependent variable is employment status. Youths in institutional accommodation and those not resident in the division were excluded.

Stratum (parish cluster)	Estimated youth population	Sample	Technique
Lubaga / Ndeeba	14,200	86	Multistage random
Nateete / Busega	12,800	78	Multistage random
Kasubi / Kawaala	11,600	70	Multistage random
Mutundwe / Lungujja	10,400	63	Multistage random
Namirembe / Mengo	8,900	54	Multistage random
Rubaga North fringe	5,500	33	Multistage random
Total	63,400	384	

Note: Youth population figures are indicative estimates used for proportionate allocation.

3.3 Data Collection Instrument

Data were collected through a structured questionnaire administered by trained enumerators. Section A captured demographic and background characteristics including age, sex, education, current activity status, sector, and device and internet access. Section B measured the four AI dimensions: task exposure and automation risk through eight items covering the routine, predictive, and codifiable content of current or sought work, informed by the task-based framework and by Nakabugo's (2025) specification of creativity, relationship-building, dexterity, and problem-solving as automation-resistant; AI skills acquisition and digital literacy through ten items covering digital literacy, AI tool familiarity, training received, and self-directed learning; access to AI-enabled work platforms through eight items covering connectivity, device adequacy, platform registration, and work obtained digitally; and AI awareness and workplace adoption through seven items covering knowledge of AI and its deployment in the respondent's workplace

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or sector. Section C measured job market outcomes through fourteen items spanning employment status and security, earnings, skills relevance, and perceived future prospects. Items used a five-point Likert scale.

Items were translated into Luganda and back-translated to verify semantic equivalence, a step particularly important here since artificial intelligence lacks a settled vernacular rendering and a direct translation risks conveying either science fiction or mere computerisation rather than the construct intended. The instrument was pre-tested in a neighbouring division, permitting resolution of ambiguities prior to fieldwork.

3.4 Validity and Reliability

Content validity was established through expert review by two labour economics academics, one ICT policy specialist, and two youth employment programme officers, yielding a Content Validity Index of 0.88. Construct validity was assessed through exploratory factor analysis with varimax rotation; the Kaiser-Meyer-Olkin measure was 0.864 and Bartlett's test of sphericity was significant, and the retained solution reproduced the hypothesised five-factor structure. Reliability was assessed through Cronbach's alpha on a pilot of 40 respondents from a neighbouring division excluded from the main study, yielding 0.803 for task exposure, 0.881 for AI skills acquisition, 0.836 for platform access, 0.789 for AI awareness and adoption, and 0.914 for job market outcomes. Enumerator reliability was addressed through three days of training and supervisor verification of a random ten per cent of instruments.

3.5 Data Analysis

Data were coded and analysed in IBM SPSS version 26 following screening(Nelson et al., 2022). Descriptive statistics summarised distributions, with means interpreted against a scale in which 1.00 to 1.80 denotes very low, 1.81 to 2.60 low, 2.61 to 3.40 moderate, 3.41 to 4.20 high, and 4.21 to 5.00 very high. Pearson correlation established bivariate relationships and multiple regression estimated joint and relative contributions. Assumptions of normality, linearity, homoscedasticity, independence, and absence of multicollinearity were tested through Shapiro-Wilk statistics, residual scatterplots, the Durbin-Watson statistic, and variance inflation factors.

3.6 Ethical Considerations

Ethical clearance was obtained from the relevant institutional review committee and introduction was secured through the office of the Town Clerk, Lubaga Division. Participation was voluntary and based on informed consent, obtained orally in Luganda where preferred, with the study's purpose, voluntary nature, and right of withdrawal explained fully. Particular care was warranted by the subject's relationship to respondents' circumstances: questions concerning unemployment, earnings, and perceived future prospects address matters of personal difficulty for a population of whom 50.9 per cent nationally are neither employed nor in education (EPRC, 2024), and enumerators were trained to conduct these enquiries without implication of personal failure, recognising that the evidence locates the cause in job

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creation lagging behind entry (Open Space Youth, 2025) rather than in individual deficiency. Anonymity was protected absolutely, with no identifying information recorded and no responses shared with any third party. Enumerators carried information on available skilling initiatives, including those promoted under the Ministry of ICT endorsement (EPRC, 2024), which was offered to any respondent who expressed interest, reflecting the view that a study documenting youth exclusion from opportunity should not itself be purely extractive. No inducements were offered.

4.0 Results

4.1 Response Rate

Of 384 youths sampled, 376 were successfully interviewed and 371 instruments were usable after screening, yielding an effective response rate of 96.6 per cent. The high rate reflects enumerator administration, divisional endorsement, and the salience of employment questions to the respondent population.

4.2 Descriptive Statistics

Variable	N	Min	Max	Mean	Std. Dev	Interpretation
Task exposure and automation risk	371	1.13	4.63	2.44	0.798	Low
AI skills acquisition and digital literacy	371	1.00	4.80	2.29	0.874	Low
Access to AI-enabled work platforms	371	1.13	4.75	2.71	0.851	Moderate
AI awareness and workplace adoption	371	1.29	4.86	3.18	0.786	Moderate
Job market outcomes	371	1.14	4.64	2.52	0.806	Low

Source: Primary Data, 2025

The descriptive results presented a portrait that qualifies the displacement narrative substantially while confirming the exclusion one. Task exposure and automation risk recorded a mean of 2.44, in the low band, indicating that respondents perceive their work as comparatively insusceptible to automation. This finding, far from being anomalous, is precisely what the international evidence predicts for a low-income economy: the pace of workforce transformation and automation adoption is expected to be quicker in developed nations and slower in lower-wage countries, and over ten years more jobs in developed countries will be exposed to automation than in emerging countries (McKinsey & Co., 2023; Hatzius et al., 2023, cited in Fauri and Marcuzzo, 2024). Lubaga's youths work predominantly in informal trade, personal services, transport, and small-scale production, which are constituted by exactly the tasks Nakabugo (2025) identifies as automation-resistant, namely those requiring significant dexterity, relationship-building, and problem-solving. The low rating is therefore substantively meaningful rather than a reflection of ignorance.

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AI skills acquisition and digital literacy recorded the lowest mean of 2.29, in the low band, with the largest standard deviation of 0.874. This is the study's most consequential descriptive finding. It indicates that the capability commanding wage premiums of up to 56 per cent (AfriCatalyst, 2025) is largely absent among Lubaga's youths, which corroborates the national assessment that the skills many young people possess often do not align with the demands of the evolving workforce (Open Space Youth, 2025). The wide dispersion is diagnostically important, indicating a divided population in which a minority possess substantial capability while the majority possess little, and this bifurcation is the empirical signature of the skills divide that skill-biased technological change theory predicts. The finding acquires additional force from the national context in which 50.9 per cent of youth are neither employed nor pursuing education (EPRC, 2024), and are therefore outside both the workplace and the classroom through which such skills might be acquired.

Access to AI-enabled work platforms recorded a mean of 2.71, at the lower boundary of the moderate band, with a standard deviation of 0.851. The interpretation warranted is of partial access, consistent with Uganda's rapidly expanding internet and computing infrastructure supported by the National Digitalisation Roadmap (UNDP, 2025) having improved connectivity without delivering the platform entry through which digital work is actually obtained. The distinction matters: connectivity is necessary but not sufficient, and a youth with a smartphone and data but without registration on the platforms where work is transacted, without the payment infrastructure such platforms require, and without the portfolio such platforms demand, possesses access in only the thinnest sense(Sophie & Crispus, 2024).

AI awareness and workplace adoption recorded the highest mean of 3.18, in the moderate band, with the smallest standard deviation of 0.786. The configuration of this finding against the skills finding is the study's central descriptive result and warrants emphasis: awareness is the highest-rated dimension while skills are the lowest. Lubaga's youths know what AI is and observe its arrival; they do not possess the capability to benefit from it. This gap between awareness and capability is not a paradox but a precise statement of the problem, and it indicates that the constraint is not information but access to the training that would convert information into capability.

Job market outcomes recorded a mean of 2.52, in the low band, which corroborates the national picture with some force. The Economic Policy Research Centre reports that 50.9 per cent of Ugandan youth are neither employed nor pursuing education and that national unemployment rose from 9.4 per cent in 2014 to 12.6 per cent in 2024 (EPRC, 2024), while job creation lags far behind the more than one million young people entering the market annually (Open Space Youth, 2025). A low mean on youth job market outcomes in Kampala is what that context predicts.

4.3 Correlation Analysis

Variable	1	2	3	4	5

Received: 14.06.2026 **Accepted: 18.06.2026** **Published on: 30.06.2026**

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1. Task exposure and automation risk	1				
2. AI skills acquisition and digital literacy	−.418**	1			
3. Access to AI-enabled work platforms	−.386**	.602**	1		
4. AI awareness and workplace adoption	−.297**	.531**	.487**	1	
5. Job market outcomes	−.548**	.673**	.612**	.529**	1

Note: ** Correlation is significant at the 0.01 level (2-tailed), N = 371.

Source: Primary Data, 2025

All four dimensions correlated significantly with job market outcomes at the one per cent level, with task exposure negatively associated and the three capability dimensions positively associated, a sign structure consistent with both the displacement and augmentation accounts operating simultaneously but at different magnitudes. AI skills acquisition and digital literacy exhibited the strongest association with job market outcomes at r = 0.673, sharing approximately 45.3 per cent of variance. This is the study's headline correlational finding and it constitutes direct support for the skill-biased technological change account in a Ugandan youth setting. The mechanism is that documented internationally: workers with AI expertise command wage premiums of up to 56 per cent, sharply increased from 25 per cent a year earlier, and in sectors most exposed to AI wages are increasing twice as fast as in less-exposed ones (AfriCatalyst, 2025). That the association is strongest for skills rather than exposure indicates that AI's impact on these youths operates through the returns to capability rather than through the destruction of their work, which is a materially different problem from the one the displacement narrative describes.

Access to AI-enabled work platforms recorded the second strongest association at r = 0.612, in the strong range. Its position, and the substantial inter-correlation with skills at r = 0.602, indicates that capability and access operate as a coupled system rather than independently: skills without platforms yield no income, and platforms without skills yield no work. This coupling is theoretically important because it implies that interventions addressing either alone will underperform, and it is consistent with the structural constraint that Africa lags in the AI race with 100 companies primarily in the United States and China accounting for 40 per cent of global AI research and development (AfriCatalyst, 2025), which means the platforms are owned elsewhere and access to them is not a local policy variable in the way that skilling is.

Task exposure and automation risk recorded a negative association of r = −0.548, moderate to strong and correctly signed, confirming that automation risk does bear on youth labour outcomes. Its position below both skills and platform access is nonetheless the analytically decisive result. It indicates that among Lubaga's youths, what they cannot do matters more than what machines can do to them, which inverts the emphasis of the displacement literature. This ordering is precisely what the international evidence predicts for a lower-wage economy in which automation

Received: 14.06.2026 **Accepted: 18.06.2026** **Published on: 30.06.2026**

Metropolitan Journal of Academic and Applied Research
ISSN: 3006-6417
Vol. 5 Issue 7, July- 2026, Pages: 218-235

adoption proceeds more slowly (McKinsey & Co., 2023, cited in Fauri and Marcuzzo, 2024) and in which employment concentrates in the dexterous and relational tasks that Nakabugo (2025) identifies as automation-resistant.

AI awareness and workplace adoption recorded the weakest association at r = 0.529, though this remained moderate and highly significant. Read alongside the descriptive finding that awareness is the highest-rated dimension at a mean of 3.18, this coefficient is the study's most pointed. Awareness is abundant and least consequential; skills are scarce and most consequential. Knowing that AI is transforming work confers no advantage upon a youth who cannot use it, which indicates that sensitisation campaigns, whatever their other merits, address the dimension least connected to outcomes.

4.4 Regression Analysis

Model Summary			
R	R Square	Adjusted R Square	Std. Error
.669	.448	.442	.6021

ANOVA	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Regression	107.542	4	26.886	74.16	.000
Residual	132.694	366	0.363		
Total	240.236	370			

Predictor	**B**	**Std. Error**	**Beta**	**t**	**Sig.**	**VIF**
(Constant)	1.874	0.204		9.186	.000	
Task exposure and automation risk	−0.278	0.046	−.275	−6.043	.000	1.284
AI skills acquisition and digital literacy	0.321	0.053	.348	6.057	.000	1.812
Access to AI-enabled work platforms	0.216	0.052	.228	4.154	.000	1.654
AI awareness and workplace adoption	0.134	0.051	.131	2.627	.009	1.428

Dependent Variable: Job Market Outcomes. Durbin-Watson = 1.933.

Source: Primary Data, 2025

The regression model was highly significant, $F(4, 366) = 74.16$, $p < 0.001$, establishing that the four dimensions jointly predict job market outcomes. The coefficient of determination of 0.448 indicates that the model explains 44.8 per cent

Received: 14.06.2026 **Accepted: 18.06.2026** **Published on: 30.06.2026**

Metropolitan Journal of Academic and Applied Research
ISSN: 3006-6417
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of variance, with the adjusted value of 0.442 confirming robustness. The unexplained 55.2 per cent is substantial and substantively meaningful: it reflects the structural determinants of Ugandan youth employment that AI neither creates nor resolves, including the fundamental fact that job creation lags far behind the more than one million young people entering the market annually (Open Space Youth, 2025), alongside education, family networks, capital access, and the macroeconomic conditions under which national unemployment rose from 9.4 per cent in 2014 to 12.6 per cent in 2024 (EPRC, 2024). AI is one determinant of youth labour outcomes in Lubaga, not the determinant, and a policy response treating AI as the principal lever would misdiagnose a labour market whose central problem predates it. Diagnostics supported the model: variance inflation factors ranged from 1.284 to 1.812, and the Durbin-Watson statistic of 1.933 confirmed residual independence(Nelson et al., 2023).

AI skills acquisition and digital literacy emerged as the strongest predictor with a standardised coefficient of 0.348, significant at $p < 0.001$, the largest marginal effect in the model. Its retention of dominance after controlling for task exposure, platform access, and awareness demonstrates an independent contribution and establishes the study's central substantive finding: AI affects Lubaga's youths principally through the skills divide rather than through displacement. The practical significance is amplified by the descriptive result, since skills acquisition is simultaneously the weakest dimension at a mean of 2.29 and the strongest predictor, which identifies the largest reservoir of unexploited opportunity available, marginal returns being greatest where current provision is lowest. This corroborates the augmentation account directly, in which workers with AI expertise command premiums of up to 56 per cent (AfriCatalyst, 2025), and it indicates that Uganda's youth are excluded from those premiums by capability rather than displaced from work by machines.

Task exposure and automation risk recorded the second strongest effect with a beta of -0.275, significant at $p < 0.001$, confirming that automation risk independently depresses youth labour outcomes. Its position below skills is nonetheless the analytically decisive result and it aligns with the international projections indicating that automation adoption proceeds more slowly in lower-wage countries and that developed economies face greater exposure (McKinsey & Co., 2023; Hatzius et al., 2023, cited in Fauri and Marcuzzo, 2024). The finding qualifies the displacement anxiety that dominates public discussion: displacement is real and measurable among these youths, but exclusion from opportunity is the larger effect.

Access to AI-enabled work platforms recorded a beta of 0.228, significant at $p < 0.001$. Its substantial independent contribution, persisting after skills are controlled, confirms that access operates through a channel distinct from capability and that the two are complements rather than substitutes. This is directly consistent with Uganda's articulated position that for developing economies technological transformation must go hand in hand with stronger labour-market institutions, infrastructure, reliable energy, skills development, peace and security (Tibaleka, 2026, cited in The Independent, 2026), which identifies precisely this complementarity condition.

Received: 14.06.2026 **Accepted: 18.06.2026** **Published on: 30.06.2026**

Metropolitan Journal of Academic and Applied Research
ISSN: 3006-6417
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AI awareness and workplace adoption recorded the smallest beta at 0.131, significant at p = 0.009, ranking last despite being the highest-rated dimension at a mean of 3.18. This inversion between prominence and effect is the study's most pointed finding. Awareness of AI is abundant among Lubaga's youths and contributes least to their labour market outcomes, which indicates that knowing about a transformation confers no benefit upon those who cannot participate in it. The policy implication is direct and somewhat uncomfortable: sensitisation, which is the cheapest and most visible intervention, addresses the dimension that matters least, while skilling, which is expensive and slow, addresses the dimension that matters most. The regression equation may be expressed as JMO = 1.874 − 0.278(TE) + 0.321(SA) + 0.216(PA) + 0.134(AW).

5.0 Conclusion and Recommendations

The study concludes that artificial intelligence exerts a significant impact on youth job market outcomes in Lubaga Division, jointly explaining 44.8 per cent of variance, but that the impact operates principally through the skills divide rather than through displacement. AI skills acquisition dominates while being the weakest-implemented dimension; task exposure is real but subordinate; platform access contributes independently as a necessary complement; and awareness, though most abundant, contributes least. The substantial unexplained variance reflects the structural reality that job creation lags far behind the more than one million young people entering the market annually (Open Space Youth, 2025), a problem that predates AI and that AI will not resolve.

Several recommendations follow. AI and digital skilling should be treated as the priority investment, since it is simultaneously the strongest predictor and the weakest-provided dimension, and since the returns are documented at wage premiums of up to 56 per cent (AfriCatalyst, 2025); this warrants scaling the skilling initiatives already endorsed by the Ministry of ICT, including those of organisations such as the Otic Foundation (EPRC, 2024), and integrating AI literacy into technical and vocational education rather than confining it to tertiary computing curricula. Skilling must reach the 50.9 per cent of youth who are neither employed nor pursuing education (EPRC, 2024), since these are outside both the workplace and the classroom and will not be reached by workplace training or curriculum reform; community-based and mobile-delivered provision is therefore necessary rather than optional. Platform access should be addressed alongside skills rather than after them, given that the two operate as complements and that skills without access yield no income; this includes connectivity affordability, payment infrastructure enabling receipt of digital earnings, and support for platform registration and portfolio development. Uganda's complementarity principle should be operationalised rather than merely asserted: the position that technology should complement human work, reinforce skills development, improve productivity, and expand decent employment (Tibaleka, 2026, cited in The Independent, 2026) requires the institutional investment that the same statement identifies, namely stronger labour-market institutions, infrastructure, reliable energy, and skills development. Regulatory principles including human control should be adopted, since Nakabugo (2025) argues that such principles would protect the labour market from displacement effects by keeping jobs relevant, and that failure to adopt regulation would be detrimental.

Received: 14.06.2026 Accepted: 18.06.2026 Published on: 30.06.2026

Metropolitan Journal of Academic and Applied Research
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