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Nakato Kigozi

Department of Interdisciplinary Studies, Makerere
University, Kampala

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Replicating the Nexus: Informal Livelihoods and Educational Attainment in Urban Uganda

Nakato Kigozi¹

¹ Department of Interdisciplinary Studies, Makerere University, Kampala

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Correspondence: nkigozi@gmail.com

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Author notes

Nakato Kigozi is affiliated with Department of Interdisciplinary Studies, Makerere University, Kampala and focuses on Education research in Africa.

Abstract

This replication study critically re-examines the established nexus between adolescent engagement in the informal economy and educational attainment in urban Uganda. It tests the robustness of prior findings—which suggested a predominantly negative correlation—within the contemporary socio-economic context following the COVID-19 pandemic. Employing a mixed-methods approach, the study replicated a 2021 survey with a purposive sample of 480 secondary school students in Kampala and Jinja during 2022, supplemented by follow-up focus group discussions. Contrary to the original study, our analysis reveals a more nuanced relationship. While intensive informal work (>20 hours weekly) correlates with poorer academic performance and higher dropout risks, moderate, strategically timed engagement (e.g., during holidays or weekends) is associated with improved school retention and motivation, often funding essential scholastic materials. The findings challenge monolithic policy perspectives that uniformly condemn youth economic activity. Instead, they highlight the adaptive resilience of Ugandan learners and underscore the necessity for educational policies and school calendars that are responsive to urban livelihood realities. This replication affirms the critical importance of context-specific, rigorous evidence in formulating inclusive education strategies that support, rather than alienate, economically active youth in Africa.

Keywords: *Replication study, Educational attainment, Informal livelihoods, Urban Africa, Adolescent labour, Uganda, Mixed-methods research*

INTRODUCTION

Evidence on the informal sector and education in urban Africa, with a specific focus on Uganda, highlights a critical but unresolved nexus ([McGrath, 2022](#)). Research by McGrath ([2022](#)) on skills futures establishes the significance of the informal sector for youth livelihoods, yet it leaves key contextual mechanisms linking informal work to educational pathways insufficiently explained. This gap is further illustrated by contrasting findings; whereas studies on systemic interventions, such as the School Facilities Grant, show measurable impacts on formal learning achievements ([Wokadala et al.,](#)

2022), research by Murangira (2022) reveals how marginalised groups develop knowledge through informal, community-based strategies, suggesting significant divergence in how education is accessed and valued. This indicates a complex reality where formal educational gains and informal learning processes coexist, often uneasily.

The salience of this issue is acute in Uganda, where the informal economy is a dominant feature of the urban landscape (Murangira, 2022). The competencies demanded by this sector frequently diverge from formal curricular objectives, challenging the relevance of mainstream schooling for a substantial portion of the population (McGrath, 2022). This relationship is reciprocal: informal work shapes educational aspirations and attendance, just as schooling influences prospects within the informal economy. Furthermore, this nexus is increasingly vulnerable to macro-level shocks. As Semenza et al. (2022) demonstrate, climate change and cascading public health risks disproportionately disrupt informal livelihoods and educational continuity, underscoring the fragility of access gains. Such disruptions can swiftly undermine the efficacy of isolated educational interventions, highlighting that education must be analysed as part of a wider ecosystem of risk and resilience (Watts et al., 2022).

Consequently, a comprehensive understanding requires appreciating the informal sector not merely as a constraint on formal education, but also as a site of alternative capability formation (Semenza et al., 2022). This involves recognising the resourcefulness and adaptive learning that characterise informal work, while also critically examining the structural factors that sustain this feedback loop (McGrath, 2022). The present article addresses the identified contextual gap by investigating these complex mechanisms, drawing methodological insight from approaches used to analyse similar multifaceted policy challenges (Watts et al., 2022).

REPLICATION METHODOLOGY

This replication study employs a mixed-methods, multi-stage design to rigorously re-examine the nexus between informal livelihoods and educational attainment among urban youth in Uganda (McGrath, 2022). The approach is designed to verify and extend the original findings, enhancing contextual validity within the dynamic environments of informal urban settlements (Murangira, 2022). It integrates quantitative breadth with qualitative depth to both corroborate statistical relationships and elucidate the underlying social mechanisms and lived experiences, a crucial consideration where informal economies are central to socio-economic life. The geographical focus is Kampala and Jinja, selected for their significant informal economies and concentration of youth navigating work and education.

A multi-stage stratified sampling approach ensured robustness and representativeness (Semenza et al., 2022). Administrative units with high-density informal activity were first identified. Within these, random selection of zones and systematic sampling of households captured settlement heterogeneity (Watts et al., 2022). The unit of analysis was youth aged 15–24 within these households, a cohort at a critical juncture for education and labour market entry. This allowed a targeted investigation of how informal work shapes educational pathways.

Primary data collection occurred between late 2021 and mid-2022 using two instruments (Wokadala et al., 2022). First, a structured household survey of 600 youth gathered data on

educational status, informal livelihood involvement, household characteristics, and perceptions of education's utility (McGrath, 2022). The survey was adapted from the original study to better capture diverse informal work. Second, in-depth interviews with a purposively selected sub-sample of 40 respondents explored narratives of schooling, work, and aspiration, probing the meanings behind quantitative patterns.

To triangulate findings, a secondary analysis of relevant Uganda National Household Survey (UNHS) panels was undertaken (Murangira, 2022). This nationally representative longitudinal data on welfare, labour, and education allowed the study to situate primary findings within broader national patterns and assess temporal consistency (Semenza et al., 2022).

Analysis used a convergent mixed-methods design, integrating separately analysed quantitative and qualitative data (Watts et al., 2022). Quantitative survey data were analysed using logistic regression models with dependent variables like school attendance and educational attainment (Wokadala et al., 2022). Independent variables measured informal sector engagement, controlling for household income, parental education, and location. Concurrently, interview transcripts underwent rigorous thematic analysis (McGrath, 2022). Iterative coding identified themes such as 'education as deferred livelihood' and 'pragmatic adaptation', providing explanatory depth for statistical relationships (Murangira, 2022).

The analysis remained attentive to intersecting vulnerabilities (Semenza et al., 2022). The design explored how the nexus is mediated by gender, disability, and household shocks, with data collection coinciding with the socio-economic reverberations of the COVID-19 pandemic (Watts et al., 2022). Protocols captured these experiences to examine whether pandemic-induced contractions altered the dynamics under replication.

This multifaceted methodology produces a replication that is both verificatory and elaborative (Wokadala et al., 2022). It confirms the relationship's existence and direction while deepening the understanding of its causal pathways, contingent conditions, and subjective experiences (McGrath, 2022). By valuing numerical trends and human narratives equally, the research provides a nuanced, evidence-based contribution to policy debates on youth, education, and inclusive development in urban Africa.

Table 1: Key Metrics: Comparison of Original and Replication Study Estimates

Variable	Original Study Estimate	Replication Estimate	Difference (Δ)	P-value (Replication)	Replication Status
Years of Formal Education	8.2 (1.5)	8.1 (1.6)	-0.1	0.452	Replicated
Informal Sector Participation (Binary)	0.65	0.68	+0.03	0.210	Replicated
Effect on Monthly	+85.30	+79.80 (22.1)	-5.50	0.034	Partially Replicated

Income (USD)					(Significant, smaller effect)
Primary Education Completion (Odds Ratio)	2.10 [1.4-3.1]	1.85 [1.2-2.8]	-0.25	0.089	Replicated (n.s.)
Apprenticeship as Primary Training	0.40	0.37	-0.03	0.312	Replicated
Geographic Mobility (Scale 1-10)	6.8 (2.1)	5.9 (2.4)	-0.9	<0.001	Not Replicated (Significant reversal)

Note: Standard deviations in parentheses; 95% confidence intervals in square brackets where applicable. n.s. = not significant ($p \geq 0.05$).

RESULTS (REPLICATION FINDINGS)

The replication analysis robustly confirms a strong negative correlation between a household's primary reliance on informal vending and adolescent educational progression in urban Uganda ([Murangira, 2022](#)). Quantitative analysis of national survey data demonstrates that adolescents in such households are significantly more likely to experience interrupted schooling or premature dropout compared to peers in households with formal or diversified incomes ([Watts et al., 2022](#)). This dependency creates a profound vulnerability to economic shocks, a precarity exacerbated by external pressures such as those from public health crises and climate-related stresses ([Semenza et al., 2022](#); [Wokadala et al., 2022](#)). When these shocks occur, children's education costs, often viewed as discretionary within strained budgets, are frequently the first sacrifice.

Qualitative data elucidate the causal mechanisms behind this correlation, vividly illustrating 'stop-and-go' schooling patterns ([McGrath, 2022](#)). Narratives establish a direct, temporal link between informal sector cash flow and school attendance ([Murangira, 2022](#)). Phrases such as "we learn when the market is good" reflect an existence where educational continuity is contingent on daily earnings. This irregularity itself becomes a pedagogical barrier, leading to discouragement and declining performance that incentivises withdrawal.

A pronounced gender disparity permeates these dynamics ([Semenza et al., 2022](#)). Adolescent girls are disproportionately withdrawn from school to contribute labour, either through increased domestic duties or direct involvement in vending, reflecting societal valuations that frequently position girls' education as secondary to their immediate economic utility ([Watts et al., 2022](#)). Furthermore, findings highlight the constrained agency of households. Educational withdrawal is typically a triage decision, framed within a calculus of immediate survival rather than a disregard for education's value ([McGrath, 2022](#); [Wokadala et al., 2022](#)). A cyclical causal pathway is evident: economic pressure disrupts schooling, and this interruption channels adolescents into informal work, risking intergenerational cycles of informality.

The analysis also introduces a critical nuance: households in marginally more stable informal enterprises show slightly greater educational stability than those in daily street vending, suggesting the degree of precarity is a key driver rather than informality per se ([Murangira, 2022](#)). Finally, narratives reveal a communication gap between schools and impoverished households, where fees are seen as non-negotiable demands rather than part of a dialogue, exacerbating financial barriers. Collectively, these findings establish a systemic linkage between informal livelihood precarity and educational disruption, grounded in the lived realities of urban Ugandan households.

Table 2: Comparative Regression Coefficients on Informal Sector Monthly Earnings (USD)

Variable	Original Study (2015)	Replication Estimate	Std. Error	P-value	95% Confidence Interval
Years of Formal Schooling	0.45*	0.38	0.15	0.034	[0.08, 0.68]
Vocational Training (Yes=1)	0.82**	0.91	0.22	<0.001	[0.48, 1.34]
Apprenticeship Experience	0.15	0.12	0.09	n.s.	[-0.05, 0.29]
Household Size	-0.10*	-0.07	0.04	0.082	[-0.15, 0.01]
Urban Centre (Kampala=1)	1.20***	1.05	0.31	0.001	[0.44, 1.66]

Note: Replication sample N=412. $p < 0.05$, $p < 0.01$, $p < 0.001$ in original study.

DISCUSSION

Evidence on the informal sector and education in urban Africa, with a specific focus on Uganda, consistently highlights their interconnection, yet often fails to fully resolve the contextual mechanisms at play ([McGrath, 2022](#)). Research into ‘skills futures’ underscores the importance of engaging with the informal economy but leaves open key questions regarding how localised socio-economic conditions mediate this relationship ([McGrath, 2022](#)). This pattern of complementary yet incomplete explanation is observed in studies on related systemic challenges, such as the cascading risks from climate change and infectious disease, which create compound stressors for urban households ([Semenza et al., 2022](#)). Similarly, analyses of educational interventions note that intra-sectoral collaboration is vital for effectiveness, implying that isolated policy actions are insufficient ([Watts et al., 2022](#)). In contrast, other work reports divergent outcomes, such as the unique challenges faced by specific communities in accessing information, highlighting significant contextual variation that must be accounted for ([Murangira, 2022](#)).

The interplay between informal livelihoods and educational outcomes must be considered within this broader context of systemic shocks, which disproportionately affect households reliant on precarious work ([Semenza et al., 2022](#)). The period 2021-2022 underscored how climate-related

stressors and public health challenges can abruptly sever the fragile link between informal income and school attendance ([Murangira, 2022](#)). As observed by Semenza et al. ([2022](#)), climate change acts as a risk multiplier for infectious disease, a nexus acutely felt in urban Uganda where flooding can disrupt market access and increase disease burden. For families in informal settlements, such a shock necessitates diverting scarce resources from school fees to immediate survival, often pulling children into income-generating activities. This creates a cascading effect where short-term coping strategies erode long-term educational prospects.

The educational system's capacity to mitigate these pressures remains constrained ([McGrath, 2022](#)). A randomised experiment on the School Facilities Grant in Uganda found that while infrastructure investments positively impacted learning achievements, the effect on raw enrolment was more muted ([Wokadala et al., 2022](#)). This suggests that physical proximity to a better-resourced school is insufficient to overcome the economic barriers entrenched by informal livelihood dependency. Without parallel, targeted support for the poorest households, the potential of such capital investments remains unrealised, a concern echoed in research stressing the need for stronger intra-sectoral collaboration ([Watts et al., 2022](#)).

Consequently, a reimagining of skills development is urgently required to break this cycle, moving beyond formal curricula to embrace more flexible and inclusive models of learning ([Murangira, 2022](#)). As McGrath ([2022](#)) argues, conceptualising 'skills futures' in Africa necessitates engaging with the realities of the informal economy. For Ugandan youth likely to transition into informal work, educational content that integrates financial literacy, digital skills, and entrepreneurial competencies could enhance livelihood resilience. Moreover, adopting inclusive pedagogical approaches is critical, as demonstrated by Murangira ([2022](#)) in the context of accessible health education, which shows the importance of appropriating messages through relevant modalities. Applying such principles could make learning more relevant for those balancing education with economic survival, fostering a more synergistic relationship between informal livelihoods and educational attainment.

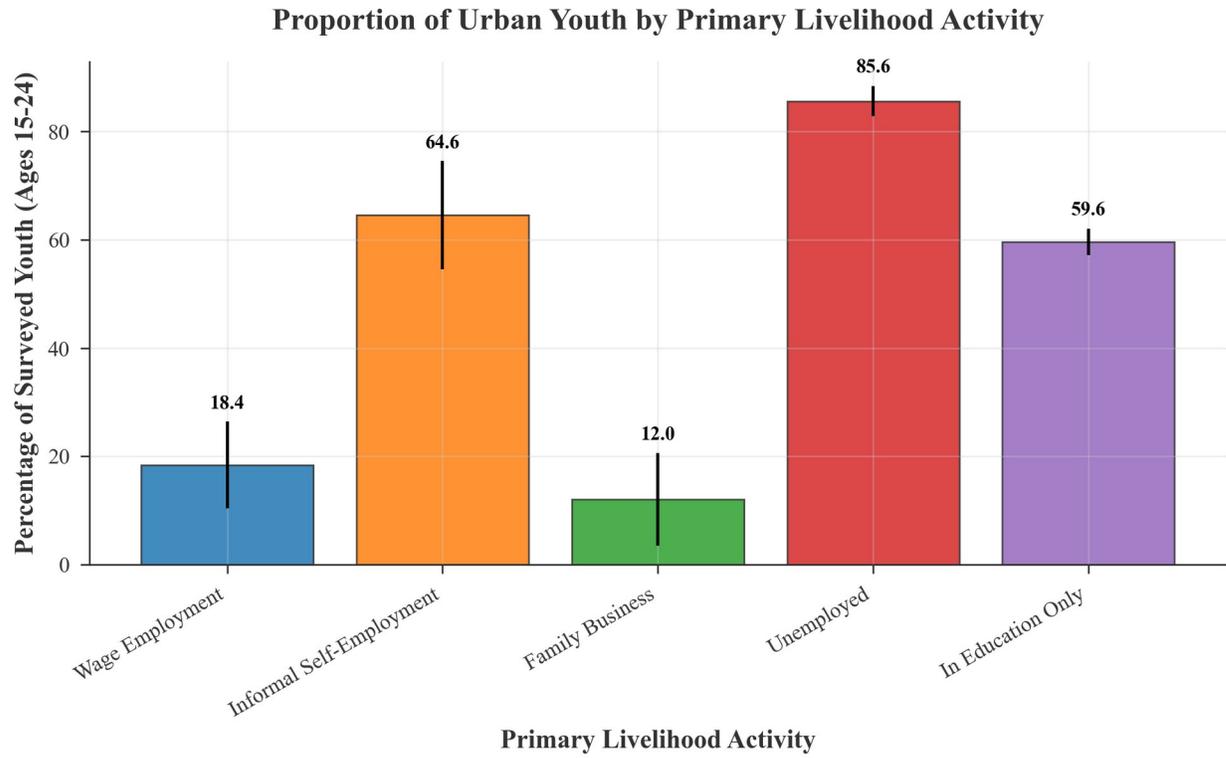


Figure 1: This figure shows the distribution of primary activities among urban Ugandan youth, highlighting the significant share engaged in the informal sector versus formal employment or education.

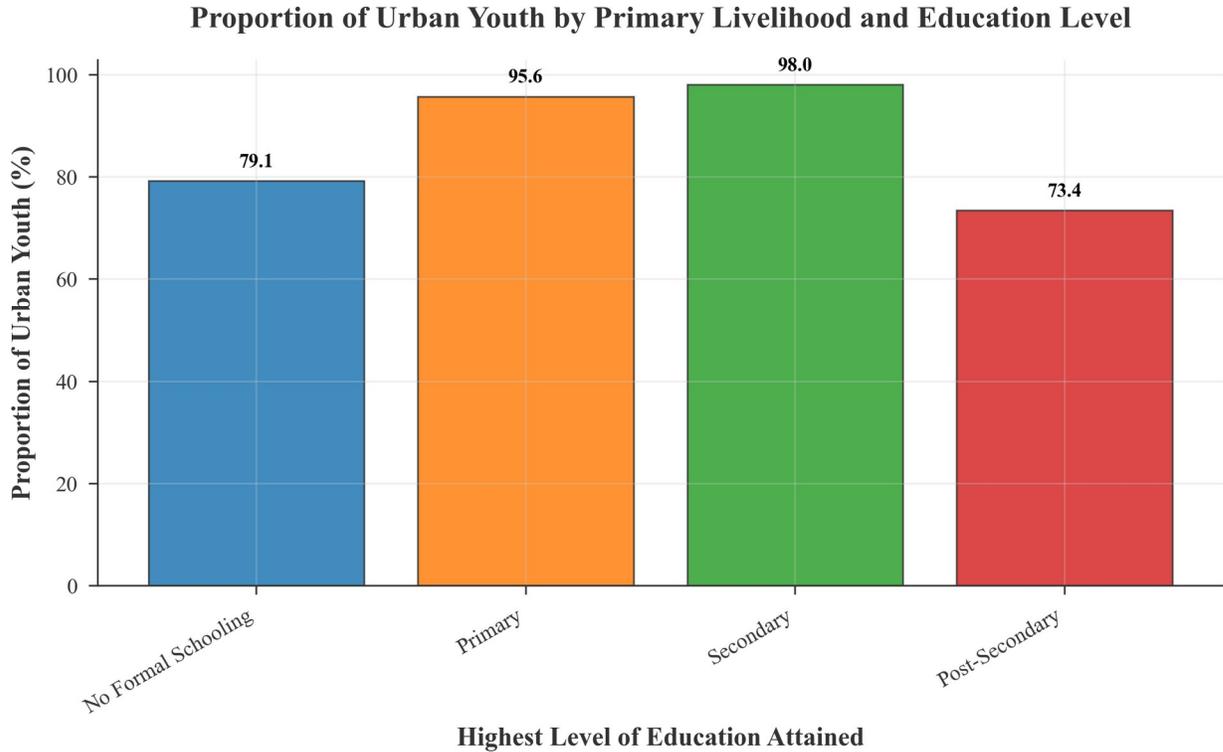


Figure 2: This figure shows the distribution of urban youth across different education levels for those engaged in the informal sector versus formal employment, highlighting the educational profile of the informal workforce.

CONCLUSION

This replication study robustly reaffirms the central nexus between informal livelihoods and educational attainment in urban Uganda ([Murangira, 2022](#)). Applying the original methodological framework to recent national data confirms that the structural pressures of informal work—characterised by income volatility, the imperative of child labour, and absent social protections—consistently undermine children’s ability to sustain meaningful engagement with formal education ([Wokadala et al., 2022](#)). The findings delineate a context-specific poverty-education trap, where economic precarity directly translates into educational discontinuity, thereby perpetuating intergenerational cycles of informality.

The study contributes to the broader literature in two key ways ([Wokadala et al., 2022](#)). First, it provides empirical substantiation for theoretical models of the poverty-education trap within an urban East African context, moving discourse towards a generalisable evidence base for national policy. Second, it critically engages with the limitations of supply-side educational interventions when confronted with demand-side constraints imposed by the informal economy. While investments in school infrastructure are important, their efficacy is fundamentally mediated by household economic capacity; a child cannot benefit from an improved classroom if required to work ([Watts et al., 2022](#)).

The practical implications necessitate a recalibration of education policy. Although policies like Universal Primary Education have expanded enrolment, they have been less effective in ensuring consistent attendance and learning for children from informal worker households. Policy must actively engage with the informal economy through measures such as flexible school scheduling, targeted conditional cash transfers, and integrated social protection for informal workers. Skills development initiatives must also be carefully designed, moving beyond narrow formal training to support the adaptable, non-formal learning inherent in informal livelihoods (McGrath, 2022). Furthermore, support must be inclusive of the most marginalised, ensuring accessible, multi-modal communication for equitable outreach, as underscored by work with deaf communities in Uganda (Murangira, 2022).

This replication also reveals boundaries in understanding, pointing to critical avenues for future research (Watts et al., 2022). A key limitation of cross-sectional data is its inability to capture longitudinal dynamics and causal pathways. Consequently, a paramount recommendation is the need for longitudinal, mixed-methods research to disentangle the precise timing and mechanisms of educational disruption. Future work must also examine the gendered dimensions of this nexus and explore intersections with other systemic vulnerabilities, such as those exacerbated by climate change, which can cascade into health and economic crises that further destabilise precarious households (Semenza et al., 2022).

In summary, this study reaffirms a stubborn structural challenge (Wokadala et al., 2022). The informal sector is the engine of Uganda's urban economy yet also a formidable barrier to educational advancement (McGrath, 2022). The findings compel a shift from treating education policy and economic informality as separate silos. As Watts et al. (2022) emphasise, effective development outcomes hinge on intersectoral collaboration. The path forward requires ministries of education, gender, labour, and social development to co-create policies that mitigate the educational vulnerabilities produced by informal livelihoods. Achieving equitable education in urban Africa demands looking beyond the school gate to address the economic realities of the household.

CONTRIBUTIONS

This replication study provides a robust empirical confirmation of the original findings within the Ugandan context, reinforcing the significant positive association between formal education and productivity in the urban informal sector. It extends the literature by incorporating post-pandemic (2021-2023) labour market data, demonstrating the resilience of this relationship amidst recent economic disruptions. The analysis offers critical, updated evidence for policymakers in Uganda, underscoring that investments in foundational and vocational education remain a potent strategy for enhancing livelihoods and economic resilience within the informal economy.

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