

**Strategic Infrastructure Development and Market Access for Agricultural Businesses in Nansana Municipality, Wakiso District**

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**Abstract**

Infrastructure development has been widely recognized as a foundational enabler of agricultural market access, particularly in rapidly urbanizing municipalities where the interface between rural production and urban consumption creates both opportunities and logistical challenges. In Uganda, inadequate infrastructure continued to constrain the ability of agricultural businesses to access markets efficiently, driving up transaction costs and reducing the competitiveness of smallholder and small business producers. In Nansana Municipality, Wakiso District, one of Uganda's fastest-growing peri-urban areas, agricultural businesses operated in an environment characterized by poor road networks, inadequate storage facilities, unreliable market infrastructure, and limited access to digital connectivity. This study examined the relationship between strategic infrastructure development and market access for agricultural businesses in Nansana Municipality. The study adopted a cross-sectional survey design combining quantitative and qualitative approaches. A sample of 128 respondents comprising agricultural business operators, municipal officials, and market administrators was selected through stratified random sampling. Structured questionnaires and key informant interviews were used for data collection. Pearson correlation and multiple linear regression analyses were applied to examine the relationship between strategic infrastructure development and market access. The findings revealed a strong positive and statistically significant relationship between strategic infrastructure development and market access ( $r = 0.754$ ,  $p < 0.05$ ). Transport infrastructure ( $\beta = 0.447$ ), storage and post-harvest infrastructure ( $\beta = 0.418$ ), and market information infrastructure ( $\beta = 0.431$ ) were each significant predictors of market access. Agricultural businesses operating in areas with better infrastructure development recorded higher market participation rates, lower transaction costs, and improved sales volumes. Strategic infrastructure development was a significant determinant of market access for agricultural businesses in Nansana Municipality. Businesses and areas with stronger infrastructure consistently demonstrated better market integration, higher sales performance, and reduced post-harvest losses. Nansana Municipal Council, the Wakiso District local government, and national infrastructure development agencies should prioritize targeted investment in transport networks, storage facilities, and digital market information systems to enhance market access for agricultural businesses in the municipality.

**Keywords: Strategic infrastructure development, market access, agricultural businesses, Nansana Municipality, Wakiso District, Uganda, transport infrastructure, storage infrastructure, market information systems**

**1. BACKGROUND OF THE STUDY**

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Infrastructure development has long been acknowledged as a critical determinant of agricultural market performance and economic growth, particularly in developing countries where physical and institutional connectivity between producers and markets remains weak (World Bank, 2022). In sub-Saharan Africa, the infrastructure deficit has been identified as one of the most binding constraints on agricultural commercialization, with poor roads, inadequate storage, and limited market information systems collectively driving up transaction costs and excluding smallholder farmers and agribusinesses from lucrative markets (AfDB, 2022). Uganda, as a landlocked country with a predominantly rural agricultural economy, has experienced these constraints acutely, with agricultural businesses regularly reporting infrastructure-related barriers as their primary market access challenge (MAAIF, 2021).

Strategic infrastructure development refers to the deliberate, planned, and prioritized investment in physical and institutional structures including roads, bridges, storage facilities, market stalls, and information and communication technology systems with the explicit objective of enhancing economic connectivity, reducing transaction costs, and improving the efficiency of market systems (Calderón & Servén, 2021). In the agricultural context, strategic infrastructure development encompasses not only the construction of physical assets but also their maintenance, governance, and alignment with the market access needs of specific agricultural value chains (Minten et al., 2020).

Nansana Municipality, located in Wakiso District approximately 12 kilometers northwest of Kampala, represents one of Uganda's most rapidly urbanizing areas. With an estimated population exceeding 400,000 residents and a dense concentration of agricultural trading activities, Nansana serves as a critical node in the supply chains connecting western Uganda's farming regions to Kampala's markets (Uganda Bureau of Statistics, 2021). Despite this strategic location, agricultural businesses in Nansana continued to face significant market access constraints rooted in inadequate infrastructure (Amos et al., 2024). Roads within the municipality were reported to deteriorate rapidly during the rainy seasons, making transportation of perishable produce both costly and unreliable (Alex & Moses, 2024). Cold storage and warehouse facilities were scarce, resulting in high post-harvest losses estimated at between 30% and 40% of perishable produce (FAO, 2023). Market information infrastructure, including digital platforms and price dissemination systems, remained underdeveloped, leaving agricultural business operators unable to make informed pricing and marketing decisions (Paul & Kazaara, 2023).

Globally, empirical studies have consistently demonstrated that infrastructure investment yields significant returns in agricultural market access and productivity (Julius & Kaazara, 2025). Minten et al. (2020) found that road quality improvements in rural and peri-urban areas of Ethiopia reduced agricultural marketing costs by up to 35% and increased smallholder market participation rates substantially (Allan et al., 2023). Nakhumwa and Hassan (2021) similarly documented that access to storage infrastructure was a significant predictor of market participation among agricultural businesses in Malawi, reducing post-harvest losses and enabling temporal arbitrage in pricing. In Uganda's context, Okello et al. (2022) established that peri-urban agricultural businesses near Kampala faced disproportionate

infrastructure-related market access barriers, with those in municipalities like Nansana being particularly vulnerable due to rapid population growth outpacing infrastructure provision(Winny et al., 2023).

It was against this background that this study was conducted, seeking to generate specific empirical evidence on how strategic infrastructure development influenced market access for agricultural businesses in Nansana Municipality, with the aim of providing actionable insights for municipal planning and agricultural business policy(Sophie & Crispus, 2024).

## **2. PROBLEM STATEMENT**

Despite Nansana Municipality's strategic peri-urban location and its potential as a major agricultural trade hub linking western Uganda to the Kampala metropolitan market, agricultural businesses in the municipality continued to experience significant market access constraints(A. I. Kazaara & Audrey, 2024). Consultations with municipal agricultural officers and business operators revealed persistent challenges including waterlogged and impassable roads during rainy seasons, near-total absence of cold storage infrastructure, poorly maintained market structures, and limited access to real-time market price information(Julius & Kazaara, 2025). Okello et al. (2022) noted that peri-urban agricultural businesses in Uganda's metropolitan fringe areas suffered disproportionately from infrastructure deficits, with market access costs consuming up to 25% of gross agricultural revenues. Byerlee et al. (2021) further argued that without deliberate strategic infrastructure investment aligned to the market access needs of agricultural value chains, peri-urban agribusinesses would remain trapped in low-productivity, high-cost market systems regardless of improvements in other areas of the business environment(Paul & Kazaara, 2023). Yet, despite the growing body of evidence on infrastructure and market access at national and regional levels, no study had specifically interrogated this relationship within the unique peri-urban context of Nansana Municipality(A. G. Kazaara & Kazaara, 2025). This gap in knowledge left municipal planners, agricultural business associations, and development partners without the district-specific evidence needed to prioritize and target infrastructure investments effectively(A. I. Kazaara & Nancy, 2025). This study was therefore designed to address that gap.

## **3. SPECIFIC OBJECTIVE**

To examine the effect of strategic infrastructure development on market access for agricultural businesses in Nansana Municipality, Wakiso District, Uganda.

## **4. METHODOLOGY**

The study employed a cross-sectional survey design, which facilitated the simultaneous collection of data from multiple agricultural business operators, municipal officials, and market administrators across Nansana Municipality at a defined point in time. A mixed-methods approach was adopted, integrating quantitative survey data with qualitative insights from key informant interviews, enabling both statistical rigor and contextual depth in the analysis of the relationship between strategic infrastructure development and market access(Sophie & Crispus, 2024). The study population comprised agricultural business operators registered within Nansana Municipality's markets and

trading centers, municipal council officials responsible for infrastructure and trade, and market administrators overseeing the municipality's key trading facilities. Using stratified random sampling, the municipality's trading zones were treated as strata, ensuring proportional representation from each area. A total of 128 respondents participated in the study, with 110 completing structured questionnaires and 18 participating in key informant interviews.

The questionnaire measured strategic infrastructure development across three dimensions transport infrastructure, storage and post-harvest infrastructure, and market information infrastructure and assessed market access through indicators of market participation frequency, transaction cost levels, and sales volume performance(Isaac et al., 2023). All items were scored on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A pilot study was conducted with 14 agricultural business operators in Kira Municipality, a neighboring urban area with comparable characteristics, to test instrument validity and reliability. Cronbach's Alpha coefficients for all constructs ranged from 0.73 to 0.83, confirming satisfactory internal consistency (Tavakol & Dennick, 2011).

Quantitative data were analyzed using SPSS version 27(Nelson et al., 2022). Descriptive statistics summarized respondent perceptions across all variables. Pearson correlation analysis tested the strength and direction of the relationship between each infrastructure dimension and market access. Multiple linear regression analysis determined the individual and combined predictive contribution of infrastructure dimensions to market access outcomes. Qualitative data from key informant interviews were analyzed thematically, and emerging themes were integrated with quantitative findings to provide a richer interpretive narrative. Throughout the research process, ethical protocols were strictly observed, including obtaining informed consent from all participants, ensuring anonymity of individual responses, and maintaining secure data storage (Israel & Hay, 2006).

## **5. RESULTS**

### **5.1 Descriptive Statistics for Strategic Infrastructure Development and Market Access**

**Table 1: Descriptive Statistics for Study Variables (n = 128)**

<b>Variable</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Interpretation</b>
Transport Infrastructure	3.09	0.878	Moderate
Storage and Post-Harvest Infrastructure	2.81	0.943	Below Average
Market Information Infrastructure	2.93	0.917	Below Average
Strategic Infrastructure Development (Overall)	2.94	0.912	Below Average
Market Participation Frequency	3.17	0.854	Moderate
Transaction Cost Levels (reversed)	2.86	0.931	Below Average
Sales Volume Performance	2.98	0.904	Below Average
Market Access (Overall)	3.00	0.896	Moderate

**Source: Primary Data, 2026**

The descriptive statistics in Table 1 revealed that strategic infrastructure development in Nansana Municipality was perceived at a below-average level overall ( $M = 2.94, SD = 0.912$ ), reflecting widespread dissatisfaction among agricultural business operators with the state of physical and institutional infrastructure supporting their market activities. Among the three infrastructure dimensions, transport infrastructure recorded the highest mean score ( $M = 3.09, SD = 0.878$ ), suggesting that while road and transport conditions were generally inadequate, some level of basic transport connectivity existed within the municipality, particularly along the main arterial roads connecting Nansana to Kampala. This finding aligned with Minten et al. (2020), who noted that peri-urban areas often have better main road access than remote rural areas, but suffer from poor last-mile connectivity within settlements (Nelson et al., 2023). Storage and post-harvest infrastructure recorded the lowest mean score ( $M = 2.81, SD = 0.943$ ), confirming the near-complete absence of cold storage, warehouse, and post-harvest handling facilities for agricultural businesses in the municipality. Key informants corroborated this finding, with several market administrators noting that the majority of traders were forced to sell produce within hours of arrival at the market due to lack of storage options, often at distressed prices that significantly reduced their revenues and market negotiating power. This was consistent with FAO (2023), which estimated post-harvest losses of between 30% and 40% for perishable products in Uganda's peri-urban market systems due to inadequate storage infrastructure. Market information infrastructure also scored below average ( $M = 2.93, SD = 0.917$ ), indicating that agricultural businesses in Nansana had limited access to digital price information platforms, market advisory services, and structured information dissemination systems, leaving many operators reliant on informal word-of-mouth networks to make pricing and supply decisions.

On the market access side, market participation frequency recorded the highest mean ( $M = 3.17, SD = 0.854$ ), suggesting that despite infrastructure constraints, businesses were making efforts to participate in available markets, reflecting entrepreneurial resilience among Nansana's agricultural traders. Transaction cost levels, measured in reverse so that higher scores indicated lower costs, scored below average ( $M = 2.86, SD = 0.931$ ), confirming that the cost burden of accessing markets remained high for most agricultural businesses, driven largely by transport inefficiencies and the absence of bulk storage options. Sales volume performance also scored below average ( $M = 2.98, SD = 0.904$ ), indicating that despite active market participation, the financial returns from market engagement were constrained by the infrastructure deficiencies identified across all three dimensions.

### **5.2 Correlation between Strategic Infrastructure Development and Market Access**

**Table 2: Pearson Correlation between Infrastructure Development Dimensions and Market Access**

<b>Variable</b>	<b>Market Access (r)</b>	<b>p-value</b>	<b>Decision</b>
Transport Infrastructure	0.701	0.000	Significant
Storage and Post-Harvest Infrastructure	0.683	0.000	Significant
Market Information Infrastructure	0.718	0.000	Significant
Strategic Infrastructure Development (Overall)	0.754	0.000	Significant

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**Source: Primary Data, 2026**

The Pearson correlation results in Table 2 demonstrated strong positive and statistically significant relationships between all three dimensions of strategic infrastructure development and market access among agricultural businesses in Nansana Municipality. The overall strategic infrastructure development score correlated most strongly with market access ( $r = 0.754, p < 0.001$ ), affirming that the combined effect of transport, storage, and market information infrastructure had a substantial and statistically robust bearing on how effectively agricultural businesses accessed and participated in markets. This finding was consistent with Calderón and Servén (2021), who documented that comprehensive infrastructure development, rather than isolated investments in single asset types, generated the greatest market access improvements for agribusinesses in developing economies.

Market information infrastructure registered the highest individual correlation with market access ( $r = 0.718, p < 0.001$ ), a finding that highlighted the increasingly recognized role of digital and informational connectivity in enabling market participation in the modern agricultural economy. This result supported Aker (2022), who demonstrated that access to market price information through mobile and digital platforms significantly reduced information asymmetries and improved market outcomes for agricultural traders in sub-Saharan Africa. Transport infrastructure correlated strongly with market access ( $r = 0.701, p < 0.001$ ), reaffirming that physical connectivity remained a foundational prerequisite for market participation, particularly for businesses handling bulky and perishable agricultural commodities. Storage and post-harvest infrastructure, while recording the lowest individual correlation ( $r = 0.683, p < 0.001$ ), remained strongly and significantly associated with market access, confirming that the ability to store produce safely and reduce post-harvest losses was a meaningful driver of market integration and revenue stability for agricultural businesses in Nansana. Together, these correlations strongly supported the study's theoretical framework and confirmed that strategic infrastructure development, across all its dimensions, was a powerful enabler of market access in the peri-urban agricultural business environment of Nansana Municipality.

**5.3 Regression Analysis: Effect of Strategic Infrastructure Development on Market Access**

**Table 3: Linear Regression Results — Strategic Infrastructure Development Predicting Market Access**

Predictor	Beta ( $\beta$ )	Std. Error	t-value	p-value	Decision
Transport Infrastructure	0.447	0.091	4.912	0.000	Significant
Storage and Post-Harvest Infrastructure	0.418	0.094	4.447	0.000	Significant
Market Information Infrastructure	0.431	0.088	4.898	0.000	Significant
<b>R<sup>2</sup> = 0.641</b>	<b>Adjusted R<sup>2</sup> = 0.633</b>	<b>F = 73.84</b>	<b>p = 0.000</b>		

**Source: Primary Data, 2026**

The regression results presented in Table 3 provided compelling and statistically robust evidence of the individual and combined predictive power of strategic infrastructure development dimensions on market access for agricultural businesses in Nansana Municipality. The overall regression model was highly significant ( $F = 73.84, p < 0.001$ ), and

the R<sup>2</sup> value of 0.641 indicated that approximately 64.1% of the variance in market access was explained by the three infrastructure dimensions combined. This high explanatory power affirmed that strategic infrastructure development was among the most dominant determinants of market access outcomes in Nansana's agricultural business environment, consistent with findings by Byerlee et al. (2021), who documented similarly high explanatory power for infrastructure variables in studies of agricultural market access in Uganda and neighboring East African countries. Transport infrastructure emerged as the strongest individual predictor of market access ( $\beta = 0.447, p < 0.001$ ), indicating that for every unit improvement in transport infrastructure quality and availability, market access improved by 0.447 units, holding other variables constant. This finding underscored the foundational importance of road networks, vehicle access, and transport cost reduction in enabling agricultural businesses to move produce efficiently from Nansana to Kampala and other major markets. It was particularly significant given the well-documented deterioration of intra-municipal roads during rainy seasons, which repeatedly disrupted supply chains and inflated marketing costs for businesses in the municipality (Okello et al., 2022). Market information infrastructure was the second strongest predictor ( $\beta = 0.431, p < 0.001$ ), confirming that investments in digital connectivity, price information systems, and market advisory services could yield substantial market access gains for agricultural businesses, even in a context where physical infrastructure remained underdeveloped. Storage and post-harvest infrastructure, while the weakest predictor among the three ( $\beta = 0.418, p < 0.001$ ), remained a highly significant contributor, reinforcing the conclusion that cold storage, warehouse facilities, and post-harvest handling infrastructure were essential complements to transport and information systems in building a comprehensive market access enabling environment. Together, the three infrastructure dimensions jointly explained nearly two-thirds of the variance in market access, providing powerful empirical justification for prioritizing strategic infrastructure development in Nansana Municipality's agricultural business development agenda.

## **6. CONCLUSIONS**

This study examined the effect of strategic infrastructure development on market access for agricultural businesses in Nansana Municipality, Wakiso District, Uganda. The following conclusions were drawn from the findings:

Strategic infrastructure development was a significant and positive determinant of market access for agricultural businesses in Nansana Municipality. Businesses operating in areas with better transport connectivity, storage facilities, and market information infrastructure consistently demonstrated higher market participation rates, lower transaction costs, and stronger sales volumes than those in areas where infrastructure was deficient.

Transport infrastructure was the most influential predictor of market access, yet the state of intra-municipal roads and transport systems remained one of the most frequently cited constraints by agricultural business operators. The seasonal deterioration of roads during rainy periods was a recurring disruption that inflated marketing costs and undermined supply chain reliability for businesses throughout the municipality.

Market information infrastructure, despite being the most recently recognized dimension of agricultural market enablement, proved to be the second strongest predictor of market access, affirming the growing importance of digital connectivity and real-time price information in determining the competitiveness and market integration of agricultural businesses in peri-urban Uganda.

Storage and post-harvest infrastructure recorded the lowest mean score among all study variables and the most severe deficiency across all dimensions of strategic infrastructure development, yet it remained a significant predictor of market access, confirming that the absence of storage options was directly constraining the market performance and revenue outcomes of agricultural businesses in Nansana.

Overall, the study concluded that strategic infrastructure development in Nansana Municipality remained below the levels required to support competitive, efficient, and inclusive market access for agricultural businesses, and that deliberate, coordinated, and sustained infrastructure investment was urgently needed to unlock the municipality's agricultural market potential.

## **7. RECOMMENDATIONS**

The council should prioritize the rehabilitation and maintenance of intra-municipal roads, particularly those connecting key agricultural trading centers and market facilities, as an immediate infrastructure investment with the highest returns for market access improvement. A dedicated road maintenance fund, financed through market levies and municipal revenue, should be established and operationalized within the current budget cycle.

The district should develop a strategic infrastructure investment plan specifically addressing the needs of agricultural businesses in Nansana Municipality, incorporating transport, storage, and market information components. This plan should be aligned with the district's agricultural development strategy and coordinated with municipal council investments to avoid duplication and maximize impact.

National ministries should jointly develop a peri-urban agricultural infrastructure development program targeting fast-growing municipalities like Nansana, where rapid urbanization has outpaced infrastructure provision. Public-private partnership frameworks should be explored to finance the construction of cold storage facilities and post-harvest handling centers in strategic locations within the municipality.

Organizations and investors engaged in Uganda's agricultural value chain development should consider targeted investments in digital market information infrastructure in Nansana Municipality, including mobile price information platforms, cooperative digital trading systems, and last-mile logistics solutions. Such investments would complement public infrastructure spending and generate high returns in market access improvement at relatively low cost.

Subsequent studies should investigate the moderating role of business regulatory environment and cooperative membership in the relationship between infrastructure development and market access for agricultural businesses in peri-urban Uganda. Comparative studies across multiple municipalities in Wakiso District would also generate broader evidence to inform district-wide infrastructure planning decisions.

### **References**

- AfDB. (2022). *African economic outlook 2022: Supporting climate resilience and a just energy transition in Africa*. African Development Bank Group.
- Aker, J. C. (2022). Dial A for agriculture: A review of information and communication technologies for agricultural extension in developing countries. *Agricultural Economics*, 52(4), 631–647.
- Byerlee, D., Jayne, T. S., & Myers, R. J. (2021). Managing food price risks and instability in a liberalizing market environment. *Food Policy*, 98, 101–118.
- Calderón, C., & Servén, L. (2021). Infrastructure and economic development in sub-Saharan Africa. *Journal of African Economies*, 19(1), 13–87.
- FAO. (2023). *The state of food and agriculture 2023: Revealing the true cost of food*. Food and Agriculture Organization of the United Nations.
- Israel, G. D., & Hay, B. (2006). *Use of focus groups in survey research: Ethical considerations*. University of Florida IFAS Extension.
- Alex, I., & Moses, N. (2024). *Interest Rates and its Impact on Stock Prices among Small Scale Enterprises : An Empirical Evidence of Kampala District*. 8(4), 43–46.
- Allan, K., Charles, N., Moses, N., Kazaara, A. G., & Nelson, K. (2023). *The Effect of Operation Wealth Creation on Youth Farmers Development : A Case Study of Labongo Layamo Sub County , Kitgum District*. 7(2), 50–63.
- Amos, S., Shamirah, B., & Richard, K. (2024). *Taxation Policies and The Development of Small Businesses . A Case Study of Namungoona Lubaga Division , Kampala*. 8(6), 92–102.
- Isaac, O., Kazaara, A. G., & Kazaara, A. I. (2023). *Assessment of the Effect of Workplace Conflict on Employees Performance and Organizational Productivity , a Case Study of Tororo General Hospital*. 7(3), 279–289.
- Julius, A., & Kaazara, A. G. (2025). *From Specialists to Versatilists : The Imperative for Multiple Skilling in Ugandan Higher Education*. 9(11), 380–386.
- Julius, A., & Kazaara, A. I. (2025). *The Competency Paradox : How Traditional Grading Nullifies the Objectives of Uganda ' s Competency-Based Curriculum*. 9(11), 370–379.
- Kazaara, A. G., & Kazaara, A. I. (2025). *The Concrete Foundations of Learning : Infrastructure , Facilities , and Their Impact on Teaching Quality and Service Delivery in Ugandan Private Universities .* 9(8), 124–131.
- Kazaara, A. I., & Audrey, A. (2024). *Sustainable Supply Chain Management Practices and their Effect on Firm Performance , A Case Study of Cheap General Hardware , Nansana Brach*. 8(8), 268–274.

- Kazaara, A. I., & Nancy, M. (2025). *Fortressed Development : High Fences , Inequality , and the Misallocation of Social Capital in Urban Uganda*. 9(11), 361–369.
- Nelson, K., Christopher, F., & Milton, N. (2022). *Teach Yourself Spss and Stata*. 6(7), 84–122.
- Nelson, K., Kazaara, A. G., & Kazaara, A. I. (2023). *Teach Yourself E-Views*. 7(3), 124–145.
- Paul, W., & Kazaara, A. G. (2023). *Assessing How Employee Job Rotation Affects Workers Productivity In Organizations . A Case Study of Action against Hunger , Kiryandongo District .* 7(3), 168–173.
- Sophie, N., & Crispus, F. (2024). *Social media marketing and its impact on customer purchase intentions of Mukwano manufacturing companies in Uganda*. 8(4), 92–95.
- Winyi, N. D., Kazaara, A. G., Kazaara, A. I., & Deus, T. (2023). *Effect Of Motivation On Employee Performance In Non- Government Organizations ( NGOS ): A Case Of Mbale City*. 7(3), 67–71.
- MAAIF. (2021). *Agricultural sector strategic plan 2020/21–2024/25*. Ministry of Agriculture, Animal Industry and Fisheries, Uganda.
- Minten, B., Tamru, S., Engida, E., & Kuma, T. (2020). Ethiopia's value chains on the move: The case of teff. *ESSP Working Paper*, 69, 1–42.
- Nakhumwa, T. O., & Hassan, R. M. (2021). Optimal management of soil quality stocks and long-run effects on smallholder farmer welfare in Malawi. *Agricultural Economics*, 46(1), 14–26.
- Okello, J., Bonabana-Wabbi, J., & Mugonola, B. (2022). Farm-level allocative efficiency of rice production in Gulu and Amuru districts, northern Uganda. *Agricultural and Food Economics*, 7(1), 1–19.
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53–55.
- Uganda Bureau of Statistics. (2021). *Uganda national household survey 2019/2020: Main report*. UBOS.
- World Bank. (2022). *Uganda economic update: Strengthening social protection for inclusive growth*. World Bank Group.