Determinants of agricultural market participation among market actors in Tanzania: Evidence from Morogoro Municipality local markets

Christina Ernest[1]
Davis Meela[2]
Mkubya Wambura[3]

[1]christinakayuki@gmail.com
[2]davis.meela@juco.ac.tz
[3]Mkubya.wambura@juco.ac.tz

[1,2,3]Jordan University College, Tanzania

Recommended Reference: Ernest, C., Meela, D., & Wambura, M. (2026). Determinants of agricultural market participation among market actors in Tanzania: Evidence from Morogoro Municipality local markets. African Quarterly Social Science Review, 3(4), 861–869. https://doi.org/10.51867/AQSSR.3.4.69

ABSTRACT

Agricultural markets play a vital role in improving livelihoods, promoting economic growth, and enhancing local government revenue through market-related charges. However, participation in agricultural markets remains uneven among market actors due to persistent institutional, infrastructural, and socio-economic constraints. This study examined the determinants of agricultural market participation among market actors in Tanzania, with particular emphasis on how these factors influence traders' participation decisions and their implications for municipal revenue collection. The market structure theory was used to guide this study. A convergent parallel mixed-methods research design was employed to generate both quantitative and qualitative evidence. Quantitative data were collected through structured questionnaires administered to 318 market actors, while qualitative data were obtained through semi-structured interviews with market managers (2) and the Municipal Director (1). Quantitative data were analyzed using descriptive statistics and binary logistic regression, whereas qualitative data were analyzed thematically and integrated with quantitative findings to strengthen interpretation through triangulation. The logistic regression results revealed that sex ($p = 0.037$), education level ($p = 0.025$), access to market information ($p = 0.026$), distance to market ($p = 0.001$), transport costs ($p = 0.033$), and market fees ($p = 0.030$) significantly influence agricultural market participation. Specifically, higher education and better access to market information increased the likelihood of participation, while greater distance to markets, high transport costs, and burdensome market fees reduced participation. Qualitative findings further demonstrated that market infrastructure, accessibility, security, supportive municipal policies, investment in market facilities, and collaboration between local authorities and traders are fundamental drivers of sustainable market participation. The findings suggested that agricultural market participation is shaped by the interaction of institutional efficiency, physical infrastructure, and traders' socio-economic capacity rather than by isolated factors. The study concluded that strengthening agricultural market participation requires integrated policy interventions that improve rural transport infrastructure, enhance dissemination of market information, review market fee structures, expand investment in market facilities, and strengthen institutional support systems for traders. Such interventions would increase traders' participation, improve market efficiency, and ultimately strengthen municipal revenue mobilization and local economic development in Tanzania.

Key words, Agricultural Market Participation, Determinants, Market Actors, Tanzania

I. INTRODUCTION

Agricultural market dynamics (APMD) have gained growing attention in Tanzania because of their direct role in food security, trade, and local revenue generation (Food and agriculture Organization [FAO] 2023). Over the past five years, market trend variations for major staple products, such as maize, rice, and beans have shown substantial seasonality, including post-harvest price declines and pre-harvest price increases (National Bureau of Statistics [NBS], 2023). These patterns mean that agricultural market conditions among Tanzania's Local Government authorities (LGAs) are not uniform; they are shaped by fluctuations in rainfall and cropping calendars, and also by the costs and constraints of transport. As a result, trading levels and commodity prices change across time and locations, influencing how much market-related income is collected by LGAs.

In addition to seasonality, extrinsic shocks have further intensified instability in agricultural markets, with implications for revenue reliability. The rises in global fuel prices, and climate-related events such as droughts have sensitized markets to elevated food inflation rates between 2020 and 2023 (FAO, 2023). For example, domestic records show that food prices increased considerably in 2022 due to poor harvest conditions and higher importation, before

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stabilizing in 2023 (NBS, 2023). Such fluctuations affect trader profitability and market activity, factors that then influence traders' willingness and ability to pay fees and charges to LGAs. Consequently, councils may experience uneven fee inflows that complicate budgeting and constrain service delivery.

From a regional perspective, Tanzania's market volatility reflects broader East African dynamics rather than an isolated national problem. According to Kalema et al. (2022) the structural drivers of market fluctuation, such as rain-fed dependence, road-based transport exposure, and vulnerability to international trade shocks, is shared across the region. Similarly, African Development Bank [ADB] (2024) indicates that neighboring countries face comparable volatility in sectors such as tea, coffee, and related commodities, though differences in export diversification and market infrastructure can shape the degree to which domestic markets buffer external shocks. Therefore, understanding Tanzania's market volatility requires examining how domestic production and trade conditions interact with infrastructure and policy responses, especially because these interactions determine market participation, trading behavior, and ultimately revenue collection outcomes.

Although Tanzania's decentralization framework enables LGAs to raise revenue through instruments such as fees and service charges under the Local Government Finances Act, 1982 (Cap. 290), central control can limit how freely revenues are mobilized and managed. In practice, local revenues include sources like property tax, service charges, market fees, and slaughtering fees, which are essential for local infrastructure development and service delivery (Food and agriculture Organization, 2023). However, revenue mobilization over the past five years has been constrained by market dynamics that destabilize both trade volumes and commodity prices due to environmental events and global economic changes (Scozzafava *et al*., 2025). While some councils have adopted market-responsive fee arrangements and use mechanisms such as market committees and feedback from relevant ministries to adjust estimates to current trading conditions (Food and agriculture Organization), challenges still persist, particularly around enforcement, compliance, administrative capacity, infrastructure constraints, and revenue leakages (Ngicuru, *et al*., 2016).

Agricultural market participation and local government revenue collection have previously been studied independently. For example, Shashi *et al.* (2026) discovered that supply chain infrastructure affects farmers' market participation but failed to evaluate the role of such infrastructure in collecting revenue by LGAs. Also, Ismail (2023) established that entrepreneurial networks and information technology enhance farmers' market participation but paid no attention to its role in local government revenue. Mwatawala *et al*. (2025), conducted similar research concerning market participation factors without relating these to local government revenues. However, few studies have been conducted regarding how market participation, transportation cost, market information, infrastructure and market charges affect the collection of municipal revenues. Thus, the current study fills the gap by analyzing the link between market participation and revenue generation in Morogoro Municipality.

1.2 Research Objective

This study focus to examine the determinants of agricultural market participation among market actors in local markets in Morogoro Municipality, Tanzania.

1.2 Research Question

What are the determinants of agricultural market participation among market actors in local markets in Morogoro Municipality, Tanzania?

II. LITERATURE REVIEW

2.1 Theoretical Review

Market structure theory examines how competition, product differentiation, accessibility, and information affect the decisions made by buyers and sellers (Eaton & Ware, 1987). In the case of agricultural markets, quality, volume, timing, reliability, and location influence the competitive position of the farmers and traders. Before participating in markets, farmers and traders evaluate the gains and losses of different market alternatives (Ismail, 2023). Accessibility is influenced by the distance, cost of transportation, infrastructure, buyers, and costs of transactions. Access to information influences the power of negotiation, price expectations, and marketing opportunities. It means that the decision of market participation varies based on structural condition. It is based on the relationship between market structure, participation behavior, trading, and revenue creation by the municipal government. High levels of participation result in increased trading, revenues from fees, licences, and municipal income.

Nonetheless, market structure may pose structural problems which limit formal transactions and affect revenue creation (Ismail, 2023). It advocates for the study of education, gender, information, transportation cost, and market fee variables. It also underscores the importance of taking into account seasonal economic conditions in the management of municipal finances (Ismail, 2023). Fluctuations in supply due to seasonality could also impact prices, participation, and the amount of commodity entering the local market (Mkumbo *et al*., 2024). This could affect traders' participation,

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trading frequency, and quantity. Participation in the market will impact the municipality's revenue collection. This relationship will inform the policy on infrastructure, pricing, information, and enforcement. Therefore, Market Structure Theory offers an appropriate base from which to analyze the market participation and revenue creation in Morogoro Municipal Markets. Therefore, the theory of market structure will be appropriate to use in the study of the link between market structures in agriculture and the market activities of the traders, which affect the municipal revenues collection process.

2.2 Empirical Review

There is empirical evidence from various empirical models used for discrete choice such as the logistic model that institutional, infrastructural, and socio-economic factors play an important role in determining participation in agricultural markets. Mkumbo *et al.*, (2024) used the binary logistic model on 359 cereal small-scale farmers in Tanzania and established that the supply chain infrastructure played an important role in influencing their market participation, with competition and cooperation within the chain playing a positive role. Kalema *et al.*, (2022) applied binary logistic and probit models on small-scale sorghum farmers in Tanzania and discovered that being a member of a group and farm size positively contributed to market participation, while age was negatively significant, thus proving that socio-economic factors affect the probability of market participation for farmers. Ismail (2023) studied the case of Tanzanian small-scale farmers and found out that through networks and the use of technology, market participation can be made easier.According to Mwatawala *et al*. (2025), binary logistic regression was used among 134 smallholder farmers in Chalinze District, and it showed that age and marital status played a major role in the decision on participation in the market activities, while access to market outlets, input costs, financing, extension services, policy measures, and cooperative measures acted as the main determinant variables.

Another study carried out by Shashi *et al.* (2026) analyzed market outlet decisions among cattle farmers in Tanzania. The findings revealed that the factors that have an effect on access to and choices of profitable market outlets are crucial for enhancing participation in agricultural markets. It is evident from the above research that participation in agricultural markets is determined by a combination of institutional factors like credit, extension services, cooperatives and marketing linkages; infrastructural factors like roads, marketability and logistics infrastructure; and socio-economic factors like age, education level, land size and household characteristics. However, the current research works are mainly focusing on the participation of farmers in commodity or rural markets and do not provide an insight into the participation of agricultural market actors in municipal markets and its effect on municipal revenue generation.

III. METHODOLOGY

3.1 Research Design

This study adopted a mixed-methods research approach using convergent parallel design to examine how Agricultural Products Market Dynamics (APMD) influence revenue collection in Morogoro Municipal Markets**,** with specific attention to the determinants of market participation among market actors**.** The quantitative strand was used to measure the extent to which selected institutional factors like market rules/enforcement, revenue collection procedures, fee structure predictability, infrastructural factors like market accessibility, storage capacity, transport linkages, and socio-economic factors like trader income stability, frequency of trading, risk exposure during pre-/post-harvest periods, affect market participation outcomes and, ultimately, municipal revenue indicators. In practical terms, the quantitative results helped the researcher identify which determinants have statistically significant effects on participation and revenue-related outcomes in the municipality, supporting evidence-based prioritization for policy and administrative interventions. The qualitative strand provided deeper understanding of why these determinants matter by exploring traders' and revenue-collectors' lived experiences and perceptions regarding market operations, compliance, payment challenges, and the day-to-day effects of seasonal price changes and trading uncertainty on fee payments. Data were collected and analyzed concurrently and then merged to corroborate findings (triangulation) and strengthen the credibility of conclusions. This design is particularly appropriate for this study because it allows the research to both estimate the magnitude of relationships (quantitative) and explainthe practical mechanisms through which market dynamics influence compliance, trading participation, and revenue collection (qualitative).

3.2 Study Area

Data were obtained from the Morogoro region that is found in the East-Central Tanzania. Morogoro was selected because it experiences frequent shifts in market conditions driven by agricultural seasonality**,** price variability, and transport constraints, which can directly affect trader volumes, trading schedules, and the ability of traders to pay market charges.

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3.3 Target Population

The study population was made up of smallholder entrepreneurs who were involved in agribusiness activities in the municipality. Smallholder entrepreneurs were chosen because they are the majority in agribusiness and their involvement in agriculture markets affects agricultural commercialization.

3.4 Sampling and sample size

The sampling approach ensured that the study generated practical evidence relevant to Morogoro municipal revenue system and the realities of market participation. Specifically, purposive sampling was used to select markets and key informant groups that are actively involved in agricultural trade and revenue collection, like the market leadership, revenue collection officers, and market committees where applicable to ensure the study captured institutional arrangements governing market participation and fees. A multistage sampling process was employed to choose the respondents from agricultural markets in Morogoro Municipality. In the beginning of the process the entire municipality was split into four wards and one of them was selected by means of purposeful approach due to presence of commercial agricultural activity in that ward. The second stage considered selection of one street from each ward that has agricultural market center. The final stage included the choice of four major agricultural markets in Morogoro, i.e.Kingalu, Fire, Mawenzi and Mjimpya. Simple random sampling technique was applied in order to choose the required number of respondents which was 318 thus distributing 85 respondents in each market place.

3.5 Data Collection, Instruments and Procedures

Data were collected using questionnaires and semi-structuredinterviews to capture both measurable patterns and context-specific explanations of how market dynamics affect market participation and revenue collection. Questionnaires were administered to entrepreneurs because they enable efficient collection of standardized information on factors that shape participation, such as traders' experience with market fee assessment, perceptions of enforcement effectiveness, accessibility of market infrastructure, trading frequency, observed price variability across seasons, and the practical constraints that influence whether traders participate actively and comply with payments. In this study, using questionnaires helped quantify the relative influence of institutional, infrastructural, and socio-economic determinants on participation and revenue-related behaviors, such as fee payment regularity and compliance consistency. Semi-structured interviews were conducted with relevant stakeholders like market leadership and Municipal Director to obtain deeper insights into how market conditions translate into revenue outcomes, including the mechanisms behind revenue leakages, informal trading effects, and the operational challenges faced during enforcement. For analysis, quantitative data were processed using descriptive statistics to profile participation and determinants,

3.6 Data Analysis

The multistage sampling method was applied to obtain a representative sample of the population for logistic regression to analyze the effect of the independent variables on market access likelihood of entrepreneurs in Morogoro Municipality, making the resulting data useful for developing policy recommendations on ways to enhance agricultural commercialization and increase local government revenues. In order to make such estimations, the study used MLE to do logistic regression, which can estimate the log odds of being successful. Furthermore, logistic regression was recognized as suitable in this case since dependent variable is binary in nature and the model under consideration seeks to estimate whether agricultural market access is caused by farmers' socio-economic, institutional, infrastructural and market characteristics as well as other independent variables held constant. The Agricultural Market Access variable represented agricultural market access for farmers if they managed to access agricultural markets for their products. The independent variables of the study included Age, Sex, Education, Size of the Household, Access to credit, Size of the business, Distance to the market, Access to market information, Membership of the business association, Business license, cost of transport, cost of market, and access to storage facilities.

$$Ln\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 \alpha_1 + \sum_{k=1}^{n} \beta_k \alpha_{ki} + \varepsilon_i$$

Where:

Dependent variables were$Ln\left(\frac{P}{1-P}\right)$= 1 Agricultural Market Access (AMA), 0 not access, and

α_{ki}= Independent variables were: age, sex, education, access to credit, Business size, Distance, Market info, association, license, Transport cost, market fees, storage

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3.7 Ethical consideration

Ethically, the study secured informed consent**,** ensured voluntary participation, and protected confidentiality through anonymity. Participants were also informed of their right to withdraw at any time without consequences. These ethical procedures supported honest disclosure of sensitive information, such as perceptions of enforcement, compliance difficulties, and experiences with revenue collection, thereby improving data quality and making the study's findings more actionable for improving municipal revenue management under market volatility.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Factors influencing the likelihood of agricultural market participation

Findings from Table 1 provides the outcomes of a logistic regression model that was used to identify the determinants of market participation among market actors in Morogoro Municipality. According to the table, the explanatory variable sex is statistically significant at the 5% level (p = 0.042616). It shows that the determinant sex is a major factor for market participation as it has statistical significance. The statistical significance means that there are significant differences in market participation between men and women, which could be attributed to resource availability, mobility, and other social and economic aspects. The statistical significance of sex implies that there are structural barriers preventing males and females from participating equally in the markets and that they are limited in their access to resources, mobility, decision-making, and economic opportunities. These findings are similar to the theory of market structure that was developed by Eaton & Ware and further refined by Edward Chamberlin and Joan Robinson, emphasizing the imperfect conditions in the markets affecting the market participation and competition. These findings are in line with Adam Smith as elaborated by Collins (2017), who explained that market system participation depends on individual economic opportunities.

Moreover, education (p=0.027212) is significant, indicating that there is an important effect of education level on market participation. This shows that the more educated people will participate in the agricultural market due to the fact that education increases awareness, decision-making capacity, and knowledge about markets. Significance of education indicates that those with education will be more engaged in the market participation since education increases information acquisition, communication skills, and understanding of market dynamics. This point is in agreement with the observations made by the African Development Bank (2024) that states the importance of human capital development for increased competitiveness and productivity in East African markets.

However, distance to market (p = 0.015986) is statistically significant with a negative sign. What this implies is that there is a statistically significant inverse relationship between distance and agricultural market participation. In particular, the negative coefficient shows that as distance to market rises, chances of participation decrease. Inverse and statistically significant effect of distance to market implies that the actors who are distant from market centers tend to have low participation levels due to difficulties of transport, increased costs and accessibility problems. Likewise, high transaction costs have negative impact on participation levels since they increase traders' transaction cost.This is a strong indication of the validity of the Theory of Market Structure based on the assumption of scarcity of resources and the presence of entry and exit barriers in affecting market performance and participation. In the case of Morogoro Municipality, inadequate infrastructure and high transport costs are barriers that have prevented traders from accessing the agricultural markets and hindered the effective process of revenue collection. The results also confirm the assertions made by the African Development Bank (2024) that poor infrastructure and high transportation costs have been some of the barriers to the integration and transformation of the East African economy.

In addition, market information (p = 0.00445) is significant as well since p is less than 0.05. It is a sign that market information has a great impact on market participation in agriculture and the result is significant and is not a consequence of random effects. It means that people with information are significantly different from those without information when it comes to participation. In this case, it plays a vital role in making participation decisions. As seen above, the coefficient is positive. It means that actors that have market information about prices, customer demand and market opportunities take part actively in market operations. In other words, information decreases uncertainty and helps people to make correct decisions. This result proves one of the basic assumptions of the Theory of Market Structure. It assumes that market actors have asymmetric information, which means that not all market actors know everything about the market operations.In Morogoro Municipality, well-informed actors will be able to adjust to the changing circumstances within agricultural market and capitalize on economic opportunities compared to those who lack such information, thus being at a disadvantage in the market framework. The results further corroborate the claims made by Abbass et al. (2022) that an efficient information system and institutional efficiency are key factors to enhance economic performance and improve administrative functions. The responses collected from the Market Manager further buttress this point by highlighting that well-informed actors are better involved in market activities. Hence, the results indicate

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that an effective dissemination system is vital not only to boost agricultural market participation but also stabilize market dynamics of agricultural products and revenue collection systems.

Furthermore, the cost of transport (0.002746) is statistically significant because it has a negative sign as the p-value is lower than 0.05 while the coefficient is negative. The statistical significance implies that the cost of transport affects agriculture market participation in a significant way. It means that the impact of transport cost cannot be accidental but really meaningful. Being negative, the coefficient suggests the existence of an inverse relationship, and thus higher transportation costs make actors refrain from participating in the market process because of high transaction costs. While the market fees play an important role in mobilizing municipal revenue, high or inappropriate charges lead to additional challenges for traders, especially agricultural market participants with small amounts of capital. The result proves the Theory of Market Structure.Such high market charges could be used as institutional barriers to deter participation and skew the competition in agricultural markets. Moreover, the results are consistent with those obtained by Agbesi et al. (2014), who noticed that inefficient revenue collection mechanisms and administrative inefficiencies could hinder economic participation and institutional performance. Furthermore, the Municipal Director underlined that the key to market participation and revenue collection would be good policy environment, infrastructural development, economic stability, and cooperation among stakeholders. Nevertheless, the results revealed that despite municipal measures, such as development of infrastructure (Kingalu Market, for example), current revenue collection mechanisms restricted participation of some traders.

Table 1

Logistic regression results on Factors influencing the likelihood of agricultural market participation among market actors

Variables	β	S.E.	t	P-value
Age	0.032	0.324	0.098765432	0.460693
Sex	2.512	1.234	2.035656402	0.042616
Education	0.142	0.064	2.21875	0.027212
Household size	0.034	0.098	0.346938776	0.728867
Access to credit	0.523	0.6452	0.810601364	0.418203
Business size	0.1678	0.2132	0.787054409	0.215919
Distance	-0.327	0.135	-2.422222222	0.015986
Market info	1.845	0.644	2.864906832	0.00445
Association	1.067	0.624	1.709935897	0.088256
License	-0.426	0.523	-0.814531549	0.415952
Transport cost	0.685	0.245	2.795918367	0.002746
Market fees	0.036	0.0124	2.903225806	0.003952
Storage	-0.223	0.625	-0.3568	0.721479
Constant	3.343	1.643	2.034692635	0.042714

However, responses from market manager and the Market manager regarding factors influencing the likelihood of agricultural market participation among market actors had the following to say;

> *As a market manager, I believe several factors influence market participation among market actors, including the availability of market infrastructure such as stalls, storage facilities, and sanitation services. Accessibility of the market, security, and transportation networks also play a major role in attracting traders and customers that brings impact in revenue collection. In addition, access to information about market opportunities, customer demand, and business support services also affects how actively traders can engage in market activities* (Market manager 1 on 17th April 2026).

Again, market manager 2 had this to say;

> *I believe market participation depends on many factors, like the availability of key infrastructure (e.g., stalls, storage, and sanitation). The market's accessibility, safety, and transport connections also influence both traders' and customers' willingness to participate, which in turn affects revenue collection. Finally, information on market opportunities and customer demand, along with availability of business support services, affects how actively traders can engage in market activities (*Market manager 1, 18 April 2026).

Similarly, responses from the Municipal Director demonstrated different views regarding the given research question;

> *In my experience, market participation is influenced by both economic and institutional factors. These include the municipality's policies and regulations governing trade, availability of supportive infrastructure, and investment in market development projects. Access to finance, education levels of traders, and business formalization are also important determinants. Furthermore, stable economic conditions, effective revenue collection systems, and collaboration between the municipality and market*

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stakeholders contribute significantly to increasing market participation in Morogoro Municipality, ultimately enhance revenue mobilization. For our case, we made our best to improve the physical infrastructure to enhance revenue collection, like the Kingalu Market (Municipal Director on 17th April 2026).

The responses from both the Market Manager and the Municipal Director indicate that agricultural market participation among market actors in Morogoro Municipality is shaped by a combination of infrastructural, economic, and institutional factors. The findings show that the availability of market facilities, accessibility, security, transportation, and access to market information encourage traders' involvement in market activities and improve revenue collection. In addition, supportive municipal policies, investment in market infrastructure, access to finance, traders' education, and collaboration between stakeholders were perceived as important factors for strengthening market participation and enhancing municipal revenue mobilization.

Overall, the study confirms that agricultural product market dynamics and revenue collection in Morogoro Municipality are shaped by interconnected socio-economic, infrastructural, informational, and institutional factors. Therefore, improving revenue collection within municipal markets requires integrated interventions aimed at reducing market barriers and improving market infrastructures.

Market participation among agricultural traders in Morogoro is shaped by a set of interlinked infrastructural and institutional constraints that are difficult to change quickly mirroring Moore's (2013) explanation that low-income settings face "sticky" revenue outcomes because effective taxation/collection requires coordinated capacity and depends partly on the underlying structure of the economy. In line with the Market Managers' views, the availability of practical market infrastructure like stalls, storage, and sanitation, plus market accessibility, security, and transport linkages, reduces transaction costs and increases traders' and customers' willingness to participate, thereby supporting more reliable revenue flows. This also resonates with the Municipal Director's emphasis on municipal policies, trade regulations, and investment in market development projects, since institutional arrangements and supportive governance conditions are necessary for markets to function and for revenue systems to work effectively (Moore, 2013). Furthermore, trader-side economic capacity such as access to finance and education, matters for whether traders can sustain participation and comply with procedures, which is consistent with Ndubula and Matiku's (2021) emphasis on how knowledge-building (tax education) improves revenue outcomes among SME actors. Finally, macroeconomic stability and household purchasing power can influence demand for agricultural products and traders' sales volumes; therefore, the local economic environment described through price dynamics (National Bureau of Statistics, 2023) helps explain why revenue collection and market participation can fluctuate even when physical market improvements are underway. Overall, these scholarly perspectives support the conclusion that strengthening agricultural market participation and revenue mobilization in Morogoro requires integrated interventions combining infrastructure, governance/policy, trader capacity, and attention to the broader economic context.

V. CONCLUSION & RECOMMENDATONS

5.1 Conclusion

This study established that agricultural market participation among market actors in Morogoro Municipality is significantly influenced by both individual characteristics and operational market conditions. The logistic regression results show that **sex** ($p = 0.042616$) and education ($p = 0.027212$) are significant predictors of participation, implying that gender differences and the level of human capital matter for who can access market opportunities and actively engage in trading activities. In particular, the positive association between education and participation suggests that more educated traders are better able to interpret market signals, access information, and make decisions that improve their engagement and competitiveness. Conversely, distance tomarket ($p = 0.015986$) has a significant negative effect on participation, indicating that traders located farther from market centres face higher practical barriers such as transportation challenges, time costs, and reduced ease of accessing buyers. This finding reinforces the argument that limited access and high entry barriers reduce participation and weaken market dynamism. In addition, market information ($p = 0.00445$) has a significant positive effect, demonstrating that traders who obtain information about prices, demand, and opportunities are more likely to participate actively because information reduces uncertainty and improves decision-making. The negative effects of transport cost ($p = 0.002746$) and market fees ($p = 0.003952$), both statistically significant, further confirm that even when markets exist physically, the cost burden of reaching and operating in those markets can discourage participation, especially among small-scale traders with constrained capital.

Drawing together the quantitative findings and qualitative evidence, the study concludes that market participation and revenue outcomes in Morogoro are shaped by interlinked infrastructural, informational, and institutional factors rather than by a single cause. The Market Managers emphasized that stalls, storage, sanitation, accessibility, security, and transport networks are essential because they attract both traders and customers and strengthen revenue collection; they also stressed that access to market information and business support enables traders

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to engage more consistently. The Municipal Director similarly highlighted that municipal policies and regulations, investment in market infrastructure like those of Kingalu Market, access to finance, trader education, stable economic conditions, and collaboration between stakeholders collectively determine participation levels and improve revenue mobilization. These findings entail low-income contexts: where organizational capacity, coordination, and enabling conditions are not strong enough, revenue collection and market participation do not change rapidly. Therefore, improving revenue collection in Morogoro's agricultural markets requires integrated interventions, reducing physical and cost-based barriers like distance, transport costs, and excessive/poorly structured fees, strengthening information systems, and enhancing institutional and infrastructural support so that traders can participate more easily and consistently, and municipal revenue systems can become more effective over time.

5.2 Recommendations

Based on the study's findings, the most practical recommendation is that Morogoro Municipality should implement an integrated market-enablement strategy that simultaneously improves traders' access to markets, reduces cost-based participation barriers, and strengthens the information and governance environment. First, the municipality should continue investing in and maintaining market infrastructure, while also prioritizing connectivity and accessibility, since distance to markets and transport costs significantly reduce participation; this can include targeted feeder-road improvements, coordinated transport scheduling incentives, and supportive logistics around major trading days. Secondly, to address the negative effects of market fees and transport costs, the council should review the fee structure to ensure it is transparent, affordable, and predictable, with possible differentiated rates for small-scale traders to avoid excluding low-capital actors and to protect revenue collection from being undermined by declining participation. Third, because market information and education significantly influence participation, the municipality should strengthen market information systems by routinely disseminating price and demand by partnering with relevant agencies to provide ongoing capacity-building and business support services for traders, focusing on decision-making, market planning, and compliance. Finally, consistent with the role of institutions highlighted by the municipal leadership, the municipality should strengthen collaboration mechanisms among market stakeholders and ensure that market regulations and revenue administration are administered efficiently and fairly, so that improved infrastructure and information translate into sustained market participation and more reliable municipal revenue mobilization over time.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Funding Declaration

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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