



Students' Engagement in School-Based Coffee Farming Schemes: A Future for Youth Farmers or Temporary Incentives? A Case of Mbozi District, Tanzania

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ABSTRACT

Coffee is one of Tanzania's strategic cash crops, contributing approximately US\$100 million annually to the national economy. However, productivity remains low due to an aging farming population, limited investment, poor farming practices, climate change, pests and diseases, fluctuating market prices, and declining youth interest. Schools can play a vital role in preparing youth for agricultural careers necessary for sustaining coffee production. However, few schools in Tanzania have implemented coffee production programs. This study investigated secondary school students' motivations for participating in school-based coffee farming in Mbozi District, Tanzania. A case study design involving nine secondary schools was employed. Data were collected through interviews and focus group discussions with students, head of schools, teachers, and coffee stakeholders and analyzed using thematic analysis. Students showed potential to participate in school-based coffee farming. It was revealed that their engagement was influenced by intrinsic motivations, including personal interest and career aspirations, and extrinsic factors, such as institutional support and financial incentives. However, long-term engagement remains uncertain due to reliance on financial rewards and external support. Students' engagement is driven by passion and short-term incentives, raising concerns about future sustainability. Secondary schools should reduce external dependence, promote self-sustaining farming activities, identify student-centered funding strategies, and strengthen partnerships with coffee stakeholders and government agencies to sustain youth commitment to coffee farming.

Key words: future, school-based coffee farming schemes, engagement, incentives, youth farmers, students

Introduction

The world is experiencing economic dynamics driven by varying investment patterns, capabilities and strategic priorities. As a result, economic growth remains uneven, with some regions experiencing substantial growth while others lag behind. Various factors mainly technology and innovation, international trade, green energy, financial services, and agriculture are credited with driving this growth. These factors are not only credited for fueling the country's gross domestic product (GDP) growth but also influence international labour markets, investment flows and sustainability goals (Usman *et al.*, 2020). Even though such factors influence economic growth, agriculture has remained the main source of growth in developing regions such as South Asia, Latin America and sub-Saharan

Africa (Gollin, 2023). For a long time, the majority of people in these regions have relied on farming as the main source of their livelihood and income generation. In Tanzania, agriculture accounts for 26.5 percent of GDP, making it the second largest contributor after the construction sector (BoT, 2020; Mtaturu, 2020). The sector contributes significantly to foreign exchange earnings, accounting for 32% of total exports value estimated at US\$ 11 billion (URT, 2023).

Among the strategic crops, coffee production holds a unique place as one of the most traded commodities at national and international levels. According to Lemma & Megersa, (2021), Gokavi & Kishor (2020) and Vegro & De Almeida, (2020), coffee is the second most traded commodity in the world, after oil. In Tanzania, coffee production makes a significant contribution, accounting for about 5% of the country's total exports and generating around US\$ 100 million annually (Otieno *et al.*, 2019). Tanzania is renowned for producing high-quality arabica coffee, primarily cultivated in Arusha, Kilimanjaro, Mbeya, Songwe and Ruvuma regions. In addition to arabica, the country also grows robusta coffee, with the Kagera region serving as the main production area.

According to Mhando & Mdoe (2018) and Otieno *et al.* (2019) over 400,000 smallholder farmers in Tanzania rely on coffee cultivation as a key source of livelihood. This makes coffee a vital and strategic budgetary crop necessary for influencing the nation's economic stability and financial strategies (Njau & Matto, 2026). Nonetheless, despite coffee's notable significance to Tanzania's economy, overall production remains relatively low. Although the potential yield under optimal agronomic practices is estimated at 3 tones per hectare, actual productivity ranges between 0.2 and 0.75 tones per hectare (Kiwelu & Njau, 2025; Otieno *et al.*, 2019). The low productivity is a function of many challenges, including aging coffee trees and farmers, pests, and diseases such as coffee leaf rust (CLR), coffee berry disease (CBD) and coffee wilt disease (CWD). Other contributing factors include market fluctuations, climate change, limited financial support and the lack of safety nets such as pensions or crop insurance. As a result, these challenges have contributed to low coffee productivity and poor quality.

Recently, there have been growing concerns among coffee stakeholders that the sector, mainly dominated by older farmers may not sustain the future coffee demand (Kiwelu & Njau, 2025; Kiwelu *et al.*, 2021; Mhando & Mdoe, 2018; Mwinuka & Njau, 2025). Empirical literature indicates that the global coffee demand has been growing steadily at an estimated annual growth rate of 2% which is an increase of 50% since 1990. This growth is attributed to the increased domestic consumption in exporting countries and from emerging markets mainly in China, South Korea and Turkey. It is estimated that such growing consumption is projected to increase coffee demand from 150 million bags in 2015 to 200 million bags in 2030 (Stiftung *et al.*, 2018; Sanger, 2018).

However, this global opportunity is occurring at a time when the Tanzania's coffee productivity share and youth engagement in the sector is low. Overtime, the sector has experienced a labour shortage resulting from youth migration from rural areas, driven by a declining interest in coffee farming and agriculture in general. A remaining small number of rural youths have turned to quick-money, non-farming income generating activities such as motor-cycle taxi services and petty businesses. This discrepancy calls for innovative strategies that can motivate youth to be attracted to the sector, while effectively demonstrating improved farming methods and fostering a youth friendly agricultural environment.

It is from this perspective that secondary schools are considered essential in fulfilling this crucial role. Schools are strategically positioned as instrumental institutions for nurturing and equipping students with the knowledge and skills needed to fulfil the demand of the agricultural sector, particularly in shaping its future prospects. Schools are able to prepare an innovative workforce capable of driving the sustainability of agriculture (Manubag *et al.*, 2023). Karani *et al.*, (2024) and Ukonze *et al.*, (2024) emphasize that schools are capable of inspiring students to pursue careers in agriculture and equip them with necessary tools, knowledge and practical experience to thrive in the sector.

It is anticipated that if schools are properly utilized in Tanzania, they can nurture a new generation of agripreneurs who are capable of boosting coffee productivity and economic outcomes.

Nonetheless, school-based coffee production activities are not widespread in Tanzania. Such schemes have been practiced in few areas through government and private sector initiatives and in limited scope. There has been limited resources investment for scaling up such practices and where practiced, the private sector has been the main player.

It is from this context that, the government of Tanzania in collaboration with City Coffee Company, a private company supporting and engaging in coffee value chain, have established school-based coffee farming schemes in Mbozi District, Songwe region in 2017. The schemes were established for the purpose of empowering students to engage in coffee farming as an income generating activity both at schools and home and prepare the future generation of coffee farmers. Likewise, it is considered as an opportunity where the private sector and the government can continue benefiting and sustaining coffee farming activities.

As a result, under such schemes, about 111,121 improved coffee seedlings were planted (MDC, 2020). In practice, coffee farming is an input-intensive activity that requires resources investment in form of land preparation, seedlings, and appropriate management practices (Ronalds *et al.*, 2023; Tadesse *et al.*, 2020; BoT, 2019). There is, therefore, a need to support students with the necessary resources and mentorship to enable their active participation in school-based coffee farming activities and to inspire them to pursue it as a future career.

Despite the fact that school-based coffee farming schemes are not widely practiced in Tanzania, such innovation has received a special attention in Mbozi District. In such area, a total of nine secondary schools are participating in the program. The school coffee production schemes are supported by City Coffee Company, which provides improved seedlings, technical and management training as well as market linkages. As a result, about 425 students-based coffee farming club members were engaging in the program (MDC, 2020) highlighting prospects for sustained present and future engagement. However, it is not known whether students' active engagement in such schemes is resulting from their desire to become future farmers or inspired by certain short-term incentives. This study was carried out to establish students' motives for participating in school-based coffee farming schemes in the study area.

Theoretical Ground

This paper is informed by Resource Dependence (RD) theory (Pfeffer & Salancik, 1978) and the Carrot and Stick (C & S) framework (Bowring, 1962; Hixson, 1989). The RD theory describes the relationship between organizations and the resources they need to operate. It describes that once an organization rely on external resources to operate and when such external entity possesses and controls most resources, then the less advantaged become dependent, trapped in a parasitic mode reliance. Secondary schools engaging in coffee farming schemes are expected to strike a balance to avoid excessive dependence on donor support, government, and other stakeholders. Failure to do so may make them vulnerable to external control, ultimately affecting the continuity of their schemes. To mitigate this, school managers and other stakeholders must develop strategies to reduce reliance and diversify resource access options. However, critics argue the theory focuses more on one-sided dependence than mutual interdependence (Hillman *et al.*, 2009).

The second framework is C& S also known as the reward and punishment approach which is based on reinforcement principles. It suggests that in motivating people to elicit desired behaviors, sometimes rewards should be given in form of financial or non-financial benefits. The framework asserts that financial incentives typically promote appropriate behaviors, while punishment deter undesired behaviors. The current study applied the C & S framework to establish whether secondary schools in the study area have formal systems for rewarding students engaging in school-based coffee farming schemes. The framework was applied with consideration of its criticism that excessive dependence on external incentives may undermine individuals' intrinsic motivation, in this case, students in the study area.

Methodology

Research Approach and Study Population

This study used a case study design while employing a multiple case study (MCS) approach. The case study approach was chosen due to its advantage in providing detailed descriptions and analysis. Case studies are criticized for its limited generalization, a weakness that can be addressed by the use of MCS approach. MCS are useful in exploring “how” and “why” questions, as opposed to “who, what or how many” while ensuring analytic generalization as opposed to statistical generalization. Against the backdrop of traditional sampling methods, MCS observes a replication logic (Yin, 2004).

The study was conducted in Mbozi District, Songwe region, an only area in the region implementing school-based coffee production schemes. Similar schemes have also been implemented in Mbeya region; however, of the ten schools running such schemes region-wide, nine of those involved in this study are located in Mbozi district. The schools are including Msense, Msia, Ndugu, Nanswilu, Nzovu, Itepula, Itumpi, Myovizi, and Shaji. The study focused on secondary school students engaging in coffee farming as a possible strategy for preparing future farmers by offering them early exposure and training. A total of nine schools were included in the study for the purpose of ensuring capturing comprehensive insights regarding student participation in coffee production activities. The study participants included students organized in coffee farming clubs across different classes, ranging from form one to form four.

Data Collection Methods and Sources

Primary data concerning the study participants cultural backgrounds, factors influencing students' participation in coffee farming schemes and their future aspirations were collected. A total of 23 key informant interviews (KIs) were conducted involving nine head of schools, nine club patrons, or matrons, two extension officers, two agricultural cooperative leaders and one City Coffee company official to establish whether students who received formal and practical training in coffee production at school continue farming activities after graduation. Although a fixed number of key informants were interviewed, qualitative research does not prioritize sample size or numerical representativeness, emphasizing instead the depth and richness of the data collected (Braun & Clarke, 2013).

As a result, only a selection of illustrative excerpts from a few informants is presented in the findings section, rather than the verbatim quotations of every key informant. Likewise, focus group discussions (FGDs) were conducted to students engaging in school-based coffee farming activities. Two FGD sessions comprising of six to eight participants was conducted in each school (total 18 FGDs) involved in the study. Observation technique was also used for verifying practical aspects relating to students-based coffee farming schemes.

Ethical clearance for the study was obtained from relevant government authorities including Moshi Cooperative University and Mbeya region prior to data collection. Given that the study involved secondary school students, informed consent was sought from school heads, while assent was separately obtained from students themselves before their participation in interviews and FGDs. All study participants were assured of anonymity and confidentiality. They were also informed of their right to withdraw at any stage without consequence and that key informants and student participants were identified using anonymized codes throughout the reporting of findings.

Data Analysis

This study was qualitative in nature deriving its findings using thematic analysis approach. The approach was used to systematically examine and interpret data. Simultaneous inquiry and analysis of data was done in an iterative manner to facilitate continuous refinement of emerging themes. This allowed generation of deeper insights of the subject matter under investigation and enhanced validity. The Nvivo computer software was used in capturing, coding and organizing specific study data sets. Data from KIs and FGDs were transcribed from field notes and recordings. Repeated reading was

done for the purpose of familiarizing with the study responses and ensuring deeper insights and validity. Thereafter, the meaningful segments of data were identified and labeled through coding. The codes were categorized into relevant themes. In establishing such codes, the research theory and objectives guided the process. The generated themes were reviewed and refined to enable findings relevance and coherence. Thereafter, data reduction was done to condense and transform the generated findings into a presentable style (Mezmir, 2020). Lastly, case studies findings were documented using qualitative descriptions and interpretations.

Findings and Discussion

Study Participants Cultural Backgrounds

The study participants cultural background were assessed in relation to coffee farming practices. It was revealed that family ties play an important role in shaping the adoption of farming practices. It was found that coffee farming is regarded as a cultural identity passed down from one generation to another. It was revealed that coffee is perceived as a viable and profitable venture and this perception is entrenched in the communities' cultural background and family values. It was further revealed that, many students in the study area originate from families that have long been engaging in coffee farming and with a tradition of passing down such practices through generations. The persistent community engagement and familiarity with coffee production practices translates into coffee farming sustenance as a strategic cash crop in the study area. Alston *et al.* (2020) emphasized that parents play important roles in shaping students' decisions to become future agriculturalists.

The findings from this study are in line with the study by Zaremohzzabieh *et al.* (2022) who established that students with farming backgrounds are more likely to consider farming as their future career as compared to those lacking such background or those from urban settings. Nonetheless, while cultural inheritance may influence youth decision to engage in farming activities, this attribute alone may not translate into long-term engagement since students are increasingly exploring career opportunities in non-farming ventures such as technology, small business ventures, and education. As rural youth are exposed to non-farming opportunities, they tend to shift away from agriculture to self-employment and or government or private sector employment (Ochieng, 2020).

Students Aspirations Towards Becoming Future Youth Farmers

Students' aspirations toward becoming future farmers were established. The findings revealed that many study participants had high aspirations towards considering farming as their future career. It was revealed that such aspirations resulted from students first hand experiences with successful farming both at home and in their schools as well as their exposure to peer success. It was also resulting from the tangible financial benefits reaped from their engagement in school-based coffee farming schemes. The study participants strongly believed that they see their future in coffee farming particularly in the times where employment opportunities in the formal sector are limited.

However, not all study participants considered coffee farming as their future career. Few of them expressed their concerns that there has been growing narratives that coffee farming is a profession of older generation, a perception which they subscribe too. Such youth indicated a preference for quick-money ventures such as motorcycle and tricycle taxi services, petty businesses and urban-based opportunities. One of the key informants emphasized that: "*If it happens that opportunities are available in non-farming sectors, few youths will choose coffee farming as a primary career and source of income*" (KI 1, February, 2025).

It was reported that coffee farming is labor-intensive crop which requires considerable time before reaping financial benefits. It was revealed that coffee farming takes three to five years before one can realize the first yield, a duration which some youth consider to be too long. This implies that the long waiting time for coffee outcomes realization, may discourage some youth to engage in coffee farming. According to Kiwelu *et al.* (2021) and Mhando and Mdoe (2018) limited support and negative perception regarding farming as an undertaking for the older generations are among the factors limiting youth engagement.

Students Engagement in Coffee Farming: Incentives and External Influences

The study participants were asked to determine whether their engagement in school-based coffee farming originated from their own initiatives or was a result of external influences. The study findings revealed that student's motivation to engage in coffee farming varied across schools and among themselves. However, generally, the motivation was reported to be high driven by both extrinsic and intrinsic factors ranging from financial benefits, direct benefits and the tradition of considering farming as a profitable career undertaking (Table 1).

Table 1: Factors influencing students' engagement in coffee farming

S/N	Thematic category	Themes	Students' enthusiasm (high, moderate, low)	Influencing factors
i.	Internal influences	-career aspirations -intrinsic motivation -perceived economic benefits -skills development and practical learning	High	✓ Considering farming as a career ✓ Personal interest in agriculture ✓ Individual beliefs about financial gains from coffee farming ✓ Career aspirations ✓ Individual experiences with farming success ✓ Interest in acquiring practical farming skills and knowledge
ii.	External influences	-peer influence & success stories -parental perspectives & support -institutional & educational support -Financial incentives & corporate engagement	High	✓ Financial and market support received from City Coffee Company ✓ Teachers encourage coffee farming activities ✓ Family members provide support

It was revealed that students in the studied secondary schools demonstrated a high level of motivation regarding coffee farming. Such enthusiasm was contributed by various factors mainly the financial benefits associated with coffee production and their exposure to peers' success. It was further revealed that incentives in form of agricultural inputs, and financial rewards in form of monetary awards and internship opportunities offered by City Coffee Company encouraged students' engagement in school-based coffee farming schemes.

One of the key informants said that *"there was a time when a student earned 4 million Tanzanian shillings from selling coffee to the agricultural cooperative. This student was offered a specialized scholarship in United States and thereafter an employment offers in City Coffee Company"* (KI 2, February, 2025). This implies students ongoing engagement in such schemes is probably resulting from the benefits derived from existing incentives. Nonetheless, few scholarship and job opportunities were available to secondary school graduates in the study area. This suggests that the example reflects a rare, exceptional case rather than a realistic, common practice.

It was further revealed that students who sell their coffee through agricultural cooperatives earned preferential treatment such as higher prices per unit volume as compared to other sellers, something that makes them value their engagement. The findings from this study are in line with the Carrot and Stick (C& S) framework, which emphasize the need for rewards, and, at times, punishment, in order to elicit certain desired behaviors. It was revealed that existing incentives such as monetary prizes, the support in form of agricultural inputs to students and internship opportunities reinforced students' engagement in coffee farming.

The findings suggest that technical, economic and professional support opportunities are necessary inputs towards motivating individuals to realize their potentials and actively engage in a development discourse. Nonetheless, this study revealed varied motivation levels across studied schools. The study participants in Nzovu secondary school exhibited moderate level of motivation. It was revealed that while school-based programs were working to encourage students' engagement, inherent skepticism among some students and parents regarding improved coffee varieties profitability negatively impact students' enthusiasm.

A key informant from one of the agricultural cooperatives said that “the *improved coffee varieties supplied to schools and farmers are considered by some of them as short-lived, and unsustainable compared to the traditional varieties*” (KI 6, February 2025). Such sentiments were seen as discouraging students' engagement and commitment to school coffee farming schemes.

The perceptual clash was however refuted by the district extension officer, who indicated that the productivity of the improved coffee variety depends on whether adequate and timely agronomic practices are observed by farmers. It was revealed that once appropriate inputs such as manures and fertilizers application, pest control measures, irrigation and other practices are properly observed, the improved variety will definitely demonstrate superior and higher yields than traditional varieties. Kiwelu *et al.* (2021) support that under optimal management, the improved coffee variety can achieve higher productivity than the local varieties.

Other studies including Kahsay *et al.* (2023) and Van der Vossen *et al.* (2015) support that well-managed improved coffee varieties tend to produce higher outputs and profitability. This study revealed that the differing perspectives among study participants was a result of existing variations in agricultural practices among smallholder farmers in the study area. This study revealed a high level of motivation among study participants implying a strong indicator of the long-term sustainability of the school-based coffee farming schemes in the study area. Nonetheless, the study also revealed that external factors, including community perception of agriculture and coffee farming activities and institutional support influence students' engagement in school-based coffee farming schemes.

This study suggests a mixed attitude among study participants. Out of nine secondary schools involved in this study, four relied on external support specifically from City Coffee Company in terms of professional and financial support to enable students' active engagement in school-based coffee farming schemes. Conversely, the remaining schools lacked formal retention strategies and as a result they entirely rely on existing external incentives. The heavy reliance on external support demonstrates lack of formal internal systems in the studied schools necessary for enhancing agricultural education and career development among students.

This suggests that while existing incentives may be effective in stimulating short-term engagement, its long-term sustainability remains uncertain. This is because, in case such external support cease, or decline, there is a possibility that the schools may not be able to manage the schemes on their own. This was also evident due to a lack of comprehensive and self-sustaining school-based agricultural education and training frameworks in all of the studied schools.

Barriers to Students Aspirations as Future Farmers

This study revealed that school-based coffee production schemes played a considerable role in preparing future generation of farmers. However, several challenges were identified hindering such aspiration. It was revealed that eight out of nine secondary schools involved in this study lacked professional agriculture teachers. As a result, students reported relying on periodic external support, local knowledge and guidance from farming club patrons and matrons who are teachers specialized in non-agricultural subjects. One of the KI acknowledged this shortcoming by expressing that “At present we neither offer formal agriculture subject nor have in place a teacher with agricultural

background. We teach our students based on our local experiences as we are coming from coffee farming communities" (KI 4, February, 2025).

The school's reliance on informal instructions is likely to limit acquisition and transfer of modern farming innovations and practices among students who are considered as prospective future farmers. This implies that, despite existing external support from City Coffee Company, school-based coffee farming schemes in the study area have been operating without clear implementation structures and strategies. Among all the schools studied, only Myovizi secondary school had a teacher with agricultural background, enabling students to receive some form of formal training.

Empirical literature underscores the importance of formal agricultural education in promoting sustainable farming practices and adoption of innovations (Okiror *et al.*, 2017; Njoroge *et al.*, 2014). This suggests that the lack of professional farming training in the study area may hinder students' ability to apply and adopt modern agricultural techniques in schools and in their future endeavors. This study established also that students-based coffee farming schemes in the study area lacked modern farming equipment and facilities.

The study revealed that the schools lacked essential tools including, irrigation equipment and systems, water pumps, sprayers, and mechanized equipment. Students were therefore required to bring farming tools from home, which were often rudimentary and insufficient, for modern agricultural practices. Studies have emphasized that access to sufficient farming resources improves agricultural outputs and activates workforce readiness (Ronalds *et al.*, 2023; Guido *et al.*, 2020). This implies that the lacking of the necessary farming inputs in the study area is likely to hinder school-based coffee farming effectiveness and continuity. It was revealed that the studied schools depend on City Coffee Company for agricultural inputs and technical training. However, the support provided, was not consistently delivered on time.

This suggests that, although external support can be a valuable resource particularly during the initial stages of the program, delays in its delivery may disrupt farming activities and limit students' commitment. One KI commenting on this said that "*We have no form one participants in the coffee farming club this year because of delayed agricultural inputs from City Coffee Company. Despite our students' eagerness to join the program, we lack the internal resources to support coffee farming activities"* (KI 5, February, 2025). It was further established that none of the studied secondary school had a dedicated funding strategy for school-based coffee farming schemes.

The students in the study area were largely dependent on the City Coffee Company for agronomic practices training, inputs supply and marketing access. The findings are in contrary to the resource dependency (RD) theory which asserts that organizations must reduce external dependencies to ensure its sustenance. It is widely acknowledged that externally supported agricultural programs become productive and sustainable when community members are empowered to manage them independently (Hofisi & Chizimba, 2013; Mazibuko, 2007). This implies that school-based coffee farming schemes in the study area are likely to be sustainable when external support is transformed into student's internal empowerment, including the mobilizing of their own resources to sustain the program.

Conclusions and Recommendations

Findings suggest that cultural background and family ties determine the study participants perceptions of engagement in school-based coffee farming schemes. The study also revealed that exposing students to successful farming models is necessary for enhancing their aspirations. It is advised that, to sustain students' interest in coffee farming, the government through the ministries of education and agriculture, alongside secondary schools and coffee sector stakeholders, work collaboratively to nurture and share practical farming experiences among students. The schools in the study area are also advised to engage successful youth farmers as mentors and role models for students.

This study established that the engagement of students in school-based coffee farming schemes was driven by both intrinsic and extrinsic motivations. The intrinsic motivations included students' personal interest in coffee farming and their career aspirations, while the extrinsic motivations comprised institutional support and financial incentives, primarily from City Coffee Company. The Carrot and Stick (C& S) framework posits that individuals are motivated to exhibit certain appropriate behaviors when they are either rewarded or punished. This study revealed that professional and financial incentives were instrumental in sustaining secondary school students' engagement in coffee farming activities. However, excessive reliance on external support, such as technical support, agricultural inputs and marketing, may negatively affect students' long-term engagement in farming activities. This is particularly the case, during periods when external support declined or ceases altogether. It is recommended that schools should design integrated education programs blending incentives with hands-on learning experiences to facilitate long term students' participation in schools and at their homes as future farmers. There is also a need for the education stakeholders including schools, the ministry responsible for education and agriculture and coffee stakeholders such as City Coffee Company, Tanzania Coffee Research Institute (TaCRI), Tanzania Coffee Board (TCB), Moshi Co-operative University (MoCU) among others to collaboratively work to strengthen institutional frameworks to balance corporate supports with well-crafted internally driven initiatives relevant at facilitating students long term retention in farming. Likewise, there is a need to explore students-centered alternative funding strategies that align with the vision of the school-based coffee production program.

Furthermore, this study identified considerable barriers to students' aspirations of becoming future farmers, including the absence of qualified agricultural teachers, limited access to modern farming tools, and an over-reliance on external funding. The resource dependency (RD) theory emphasizes the risk resulting from organizations or individuals' over-dependence on external support. Such organizations or individuals risk becoming trapped in a cycle of dependence, undermining long-term sustainability. This study revealed a similar pattern among students engaging in school-based coffee farming schemes within the study area.

It is advised that there is a need for the government of Tanzania, private sector and the coffee stakeholders to work to ensure that secondary schools engaging in agriculture including coffee farming activities are supplied with professional teachers. In addition, the government of Tanzania and coffee sector stakeholders should support schools involved in coffee farming by investing in modern farming infrastructure. Such investment can be achieved through collaborative partnerships among participating schools, the private sector, local communities, and other coffee stakeholders. This is essential for attracting and retaining students in secondary schools and inspiring them to pursue agriculture career as future farmers.

Generally, this study established that school-based coffee farming schemes have facilitated students' active engagement in coffee farming activities. The availability of both intrinsic and extrinsic motivations reinforced students' active participation in schools. Nonetheless, the long-term sustainability of their participation remains uncertain due to an ongoing external over-reliance on technical, financial, and market access support from City Coffee Company. Thus, although the study has revealed the existing potential for secondary school students to become future youth farmers, its practicality remains conditional. The success of such schemes will largely depend on how they are promoted based on self-sustaining principles and values that strategically balance external supports.

Practical Implications

The study revealed that school-based coffee farming programs should integrate practical learning, mentorship, and culturally responsive approaches to strengthen students' long-term interest and aspirations in agriculture. Schools and stakeholders should balance external incentives with strategies that promote intrinsic motivation, self-reliance, and sustainable student engagement in coffee farming. Investing in modern farming infrastructure, qualified agriculture trainers, and strong partnerships

among schools, government, and coffee sector actors is essential for ensuring the long-term sustainability of school-based coffee farming schemes. Achieving this sustainability milestone requires coordinated, resource-sensitive efforts among the key actors.

Study Limitation and Areas for Further Research

This research targeted secondary school students engaging in coffee farming schemes who forms a small proportion of larger students community. It is further limited by its case-study design and single-district scope, covering nine secondary schools in Mbozi district only. As a result, the study findings may therefore not be generalizable to other coffee-growing districts or regions with different cultural, institutional or market conditions. There is a need to conduct an extensive study covering and capturing the broader perspectives of students who are not currently engaging in coffee farming schemes. It is essential to conduct an inclusive study aimed at identifying and developing innovative strategies for establishing students-based self-sustaining coffee farming schemes. Such strategies should be carefully designed to attract, retain and nurture students and young people to actively become future farmers.

Expression of Views

The authors of this manuscript wish to declare that the views presented herein are entirely their own and that the Journal of Studies in Social Sciences and Humanities (JSSSH) shall in no way be responsible for them.

References

- Adane, A., & Bewket, W. (2021). Effects of quality coffee production on smallholders' adaptation to climate change in Yirgacheffe, Southern Ethiopia. *International Journal of Climate Change Strategies and Management*, 13(4/5), 511–528. <https://doi.org/10.1108/IJCCSM-01-2021-0002>
- Alston, A. J., Roberts, R., & English, C. W. (2020). Toward a holistic agricultural student recruitment model: A national analysis of the factors affecting students' decision to pursue an agricultural related degree. *Journal of Research in Technical Careers*, 4(1), 1–15. <https://doi.org/10.9741/9578-2118.1048>.
- BoT (2019). *Bank of Tanzania Annual Reports for the Year ended on 30 June 2019.pdf* (p. 264). Bank of Tanzania, Dar es Salaam.
- BoT (2020). *Bank of Tanzania Annual Reports for the Year ended on 30 June 2020*. Bank of Tanzania, Dar es Salaam.
- Bowring, J. (Eds.) (1962). The works of Jeremy Bentham, 11 vols. Edinburg, Scotland. 535pp.
- Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. SAGE Publications.
- Gokavi, N., & Kishor, M. (2020). Impact of climate change on coffee production: an overview. *Journal of Pharmacognosy and Phytochemistry*, 9(3), 1850–1858.
- Gollin, D. (2023). Agricultural productivity and structural transformation in Africa. *Oxford Development Studies*, 51 (4), 345-362. <https://doi.org/10.1080/13600818.2023.2280638>
- Guido, P., Zimmer, A., Lopus, S., Hanna, C., Gower, D., Waldman, K., Krell, Sheffield, J., Caylor, K., & Evans, T. (2020). Farmer forecasts: Impacts of seasonal rainfall expectations on agricultural decision-making in Sub-Saharan Africa, *Climate Risk Management*, 2020 (30)100207 <https://doi.org/10.1016/j.crm.2020.100207>
- Hillman, A., Withers, M. & Collins, B. (2009). The resource dependence theory: A review. *Journal of Management*, 35 (6), 1404–1427.

- Hixson, R. (1989). Bentham's the rationale of reward. *Journal of the Rutgers University Libraries*, 33(1), 1–7.
- Hofisi, C., & Chizimba, M. (2013). The sustainability of donor-funded projects in Malawi. *Mediterranean Journal of Social Sciences*, 4(6), 705–714.
- Kahsay, G. A., Turreira-Garcia, N., Ortiz-Gonzalo, D., Georget, F., & Bosselmann, A. S. (2023). New coffee varieties as a climate adaptation strategy: Empirical evidence from Costa Rica. *World Development Sustainability*, 2, 100046.
- Karani, A., Kyule, M., & Ng'eno, J. (2024). The Extent of Inculcating Competencies in Teaching Competence-Based Grade Four Agriculture Among Public Primary Schools in Njoro Sub-County of Kenya. *International Journal of Education, Technology and Science*, 4(1), 1736–1759.
- Kiwelu, L., & Njau, L. (2025). Climate-smart agriculture practices adoption among smallholder coffee farmers: Insights from Agricultural cooperatives in Southern highlands, Tanzania. *J. Agribus. Rural. Dev.*, 78(4), 427–439. <http://dx.doi.org/10.17306/J.JARD.2025.4.00031R1>
- Kiwelu, L., Damas, P. & Mpenda, Z. (2021). Factors influencing adoption of improved coffee varieties among smallholder farmers in Mbinga and Mbozi Districts. *International Journal of Agricultural Economics*, 6(1), 1–21.
- Lemma, D. T., & Megersa, H. G. (2021). Impact of climate change on East African coffee production and its mitigation strategies. *World Journal of Agricultural Sciences*, 17(2), 81–89. <https://doi.org/10.105829/idos.wjas.2021.81.89>
- Manubag, M., Kilag, O. K., Peñalosa, B., Timtim, J. M., Padilla, J. B., & Abendan, C. F. (2023). Empowering Skills Development: Exploring the Role of Technology Management in Technical Vocational Education Enhancement. *Excellencia: International Multi-Disciplinary Journal of Education* (2994-9521), 1(5), Article 5.
- Mazibuko, J. B. (2007). *Enhancing project sustainability beyond donor support: an analysis of grassroots democratisation as a possible alternative* (Doctoral dissertation, University of South Africa).
- Mezmir, E. A. (2020). Qualitative data analysis: An overview of data reduction, data display, and interpretation. *Research on Humanities and Social Sciences*, 10 (21), 15–27.
- Mbozi District Council (MDC) (2020). Secondary schools-based coffee production programme, annual report, DAICO Office, MDC. 18pp.
- Mhando, D. G., & Mdoe, N. S. (2018). Why do smallholder farmers in four Tanzanian districts continue with coffee production despite fluctuating prices?. *Journal of Agriculture and Life Sciences*, 5 (2), 1–15.
- Mtaturu, J. (2020). Agricultural production and economic growth in Tanzania: Implications for sub-sectoral contribution. *Business Education Journal*, 6 (2), 12–18.
- Mwinuka, M. & Njau, L. (2025). School-based coffee farming schemes and future youth engagement in cooperatives: Evidence from Mbozi District, Tanzania. *African Journal of Cooperative Development & Technology*, 9(1), 107-121.
- Njau, L. & Matto, G. (2026). Youth co-operative participation gap: Limited factors of production, innovative strategies or both? Evidence from Tanzania. *Interdisciplinary Journal of Management Sciences*, 3 (1), 1-15. <https://doi.org/10.38140/ijms-2026.vol3.1.07>
- Njoroge, D., Mwangi, J. G., & Udoto, M. O. (2014). Influence of Young Farmers' Club of Kenya Activities on Secondary School Students' Performance in Kenya Certificate of Secondary

- Education Agriculture in Rongai Sub-County of Nakuru County, Kenya. *J. Res. Method Educ*, 4(1), 15–35.
- Ochieng, N. (2020). Are youth moving towards or away from agriculture? Analysis of farm and non-farm occupational choices among youth in rural Tanzania, REPOA. Dar es Salaam. 36pp.
- Okiror, J. J., Hayward, G., & Winterbottom, M. (2017). Towards in-service training needs of secondary school agriculture teachers in a paradigm shift to outcome-based education in Uganda. *The Journal of Agricultural Education and Extension*, 23(5), 415–426. <https://doi.org/10.1080/1389224X.2017.1338593>
- Otieno, H. M., Alwenge, B. A., & Okumu, O. O. (2019). Coffee Production Challenges and Opportunities in Tanzania: The Case Study of Coffee Farmers in Iwindi, Msia and Lwati Villages in Mbeya Region. *Asian Journal of Agricultural and Horticultural Research*, 3(2), 1–14, 2019
- Pfeffer, J. & Salancik, G. (1978). The external control of organizations: A resource dependence perspective. New York, NY: Oxford Press.
- Ronalds, A., David, O. & Opi, F. (2023). Socioeconomic factors influencing uptake of coffee production recommended practices in Kichwamba and Kirugu sub-counties Rubirizi District, Uganda, *East African Journal of Agriculture and Biotechnology*, 6 (1),1–20.doi: <https://doi.org/10.37284/eajab.6.1.1069>
- Sänger, C. (2018). United Nations Conference on Trade and Development: State of the global coffee market. In *10th Multi-year expert meeting on commodities and Development* (p. 36). Geneva: ICO. [<https://unctad.org/>] site visited on 12/4/2021.
- Stiftung, H.R. N., SAFE and Sustainable food lab (2018). Investing in youth in coffee growing communities. A review of current programs and practices in Latin America [https://investing_in_youth_in_coffee_growing_communities_web.pdf] site visited on 29/05/2021.
- Tadesse, T., Tesfaye, B., & Abera, G. (2020). Coffee production constraints and opportunities at major growing districts of southern Ethiopia. *Cogent Food & Agriculture*, 6(1), 1741982. <https://doi.org/10.1080/23311932.2020.1741982>
- Ukonze, J. A., Okadi, A. O., & Ugwuka, G. I. N. Okafor, N., Enyagberue, M., & Ekwo, E.N. (2024). Perceived impacts of youth agricultural education programmes on sustainable food production in Enugu State, Nigeria. *International Journal of Agricultural Education & Research*, 2 (1), 20, 30.
- URT (2023). *Ministry of Agriculture budget speech for 2023/2024: Presented to the Parliament of the United Republic of Tanzania*. Dodoma: Ministry of Agriculture.
- Usman, M., Kousar, R., Yaseen, M., & Makhdum, M. (2020). An empirical nexus between economic growth, energy utilization, trade policy and ecological footprint: A continent-wise comparison in upper-middle-income countries. *Environmental Science and Pollution Research*, 28 (1), 1–15. <https://doi.org/10.1007/s11356-020-09772-3>
- Van der Vossen, H., Bertrand, B., & Charrier, A. (2015). Next generation variety development for sustainable production of arabica coffee (*Coffea arabica* L.): a review. *Euphytica*, 204(2), 243–256.<https://doi.org/10.1007/s10681-015-1398-z>.

- Vegro, C. L. R., & de Almeida, L. F. (2020). Global coffee market: Socio-economic and cultural dynamics. In *Coffee consumption and industry strategies in Brazil* (pp. 319). Woodhead Publishing.
- Zaremohzzabieh, Z., Krauss, S. E., D'Silva, J. L., Tiraieyari, N., Ismail, I. A., & Dahalan, D. (2022). Towards agriculture as career: Predicting students' participation in the agricultural sector using an extended model of the theory of planned behavior. *The Journal of Agricultural Education and Extension*, 28(1), 67–92. <https://doi.org/10.1080/1389224X.2021.1910523>.