

Certification as a strategic mechanism for enhanced access to high-value markets for smallholder avocado farmers in Tanzania

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ABSTRACT

Recent years have witnessed significant growth in high-value avocado markets (HVMs), both domestically and globally. This expansion led to the emergence of large retailers implementing stringent private standards on quality, safety, and environmental sustainability, which have become prerequisites for market access and created numerous opportunities for smallholder farmers. However, smallholder avocado producers often struggle to access HVMs because they fail to meet standard certification requirements. Consequently, this study explored the impact of the certification process on market availability and competitiveness as critical measures of access to HVMs for smallholder avocado farmers in Tanzania. Guided by the Global Value Chain (GVC) framework, the study employed a quantitative design, collecting data through a cross-sectional survey involving a sample of 305 smallholder farmers. The targeted population of the study is producers who were members of cooperatives or producer groups. The analysis utilised Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings indicate that the certification process has a positive and significant correlation with both market availability ($\beta = 0.265$, $p\text{-value} < 0.001$) and competitiveness ($\beta = 0.463$, $p\text{-value} < 0.001$). Furthermore, certification requirements exert a stronger influence on enhancing access to HVMs for smallholder avocado farmers by facilitating keeping up with customers' demands, market entry, and connecting farmers to market opportunities and new buyers. Certification requirements also depend on the adequacy of logistics infrastructure and facilities to facilitate access to HVMs. Therefore, the study recommends that policy interventions aimed at improving market access should focus on regular training, technical support, and reducing transaction costs to enable smallholder farmers to achieve standard certification. Simultaneously, it is essential to enhance logistics infrastructure and facilities to help these farmers gain access to HVMs for their avocados.

Keywords: Certification, High-Value Market, Market Access, Smallholder Avocado Farmers, Tanzania.

I. INTRODUCTION

High-value avocado markets, including exports, are growing rapidly, driven by rising global demand for avocados (Boniphace et al 2023; Malekela, 2022; Research on Poverty Alleviation Programme [REPOA], 2018). This increased demand stems from recognition of the nutrients and vitamins in avocados and their economic value (REPOA, 2018). In line with this trend, avocados have become a strategic crop for poverty reduction, job creation, smallholders' livelihoods, and economic growth (Swai & Ubaldus, 2023). However, accessing high-value markets (HVMs) has been challenging due to the stringent standards and certification requirements imposed by major retailers, such as international supermarkets, to meet their specific needs (Malekela, 2022; Rugiga & Idanga, 2021; Giovannucci, 2008). These requirements are associated with cost, risks, continuous learning and the need for capital (Rugiga & Idanga, 2021; Giovannucci, 2008). Hence, they are difficult for producers to comply with, thus becoming a barrier to market access. On the other hand, they enable smallholder producers to upgrade their value chains by complying with process and product standards (Tray et al., 2021).

Most food quality and safety standards consider the absence of residual or bacterial levels in the products and product characteristics such as size, color, uniformity, and sugar content (Yang et al., 2023). In high-value perishable products such as avocados, compliance with food quality and safety standards is essential. These standard requirements

raise the need for certification, which includes those of the International Standard Organisation (ISO), Hazard Analysis Critical Control Points (HACCP), Fair Trade, organic and Good Agricultural Practices (GAP), where certified organic and HACCP are mostly modified and adopted in government regulations (Rao et al., 2021).

In Tanzania, avocado has become a strategic crop for ensuring food security, poverty reduction and economic growth and improved operations and efficiency (Malekela, 2022). This growing interest has contributed to the transformation of avocado production from subsistence farming to commercial production (Boniphace et al., 2023). According to the Tanzania Investment Centre - TIC (2023), exports also increased by 20% between 2014 and 2019 and by 42% between 2021 and 2022. Despite this trend, smallholder access to HVMs is limited due to poor fruit quality, information asymmetry, and poor compliance with standards and certification requirements (Malekela, 2022; Rugiga & Idanga, 2021). Hence, this raises a need to enhance their compliance to foster the production of quality fruits and improve information sharing, which in turn facilitates market access.

This importance has been recognised in national and international policies such as the Sustainable Development Goals (SDGs), national agricultural and development policies such as the Agricultural Sector Development Plan (ASDO II) and Agenda 10/30, all of which focus on enhancing agricultural commercialisation. In addition to that, the government took several interventions to improve smallholder compliance with certification requirements by facilitating extension services, conducting training for different government agencies such as the Tanzania Plant Health and Pesticides Authority (TPHPA), Cereal and Other Crops Regulatory Authority (COPRA) and Tanzania Research Institute (TARI), as stated by the Ministry of Agriculture (MoA) in 2023.

Despite all these efforts, smallholder avocado farmers' access to HVMs is limited. Rugiga and Idanga, (2021) revealed that the failure to comply with standards and certification requirements is due to high certification costs, poor extension services offered, and a limited number of certification bodies in the country. Boniphace et al. (2023) and Malekela (2022) stated the main causes are a fragmented value chain, poor-quality produce, limited market information, financial constraints and poor infrastructure. Hence, this reduces compliance, which affects their competitiveness and connection to market opportunities and new buyers. This situation creates a reliance on intermediaries for sales, access to market information, and financial support. Consequently, these intermediaries may exploit this dependence for their own gain. As a result, they sell their avocado at low prices. Their exclusion from competitive markets may reduce efficiency and productivity, ultimately impacting their economic growth and poverty alleviation.

Existing studies in Tanzania on avocados focused on different aspects in relation to avocado export, such as Steven et al. (2024), who assessed how transport affects avocado export; Wakiariro (2020), who assessed the effect of logistics on avocado export; and Malekela (2022), who examined the value chain challenges affecting the avocado market (local and international). On the other hand, Rugiga and Idanga (2021) investigated the influence of certification and standards on avocado export. But these studies focused on export performance rather than market access. Hence, little is known about how compliance with certification requirements influences access to lucrative avocado markets. Therefore, this study aimed to fill this gap by examining the influence of the certification process on access to HVMs for avocado smallholder farmers in Tanzania. This study contributed to the body of knowledge by encouraging smallholder farmers to improve their compliance with standards and certification requirements, improve their livelihoods, reduce poverty, and ensure economic growth, and by enabling policymakers to take interventive measures to enhance smallholder farmers' access to HVMs for their avocados.

1.1 Research Objectives

- i. To assess the effect of the certification process on market availability for avocado smallholder farmers' access to high-value markets.
- ii. To assess the effect of the certification process on competitiveness for avocado smallholder farmers' access to high-value markets.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.2.1 The Global Value Chain (GVC) Framework

The Global Commodity Chain (GCC) framework, created by Gereffi in 1994, led to the development of the Global Value Chain (GVC) framework, which examines businesses' upstream and downstream operations as they integrate into the global economy (Warsanga, 2014). The GVC framework was improved to incorporate value creation and forms of governance.

The four main components of the GVC framework are input-output structure, geographic scope, governance structure, and institutional environment (Fernandez-Stark & Gereffi, 2019). The governance structure, which establishes the authority and power dynamics that direct the value chain and decide how to distribute resources, including labour, material, and financial resources, will serve as the foundation for this investigation. It also determines which actors are

part of the chain. There are two types of governance: buyer-driven and producer-driven. buyer-driven value chain is labour-intensive, with large buyers controlling production systems in developing countries. They also determine activities and flow in the value chain, but smallholder producers are free to upgrade their activities, processes and functions based on buyers' preferences (standards). Hence, producers must fulfil buyers' standard requirements in terms of resources, labour force and upgrading their capabilities to meet customers' demand, private regulations and standards, and the certification process for producing quality products. On the other hand, the producer-driven value chain exists when transitional firms control production systems. In this, competitiveness depends on higher capital and advanced technology of the firm (Lee et al., 2012). Governance structures therefore determine the strategic position of smallholder producers within the value chain. Stringent governance requirements and food safety standards influence whether smallholders upgrade their production activities, remain in lower-value market segments, or exit the chain altogether.

The GVC framework helps analyse the agri-food value chain, especially for fresh produce. For instance Olaitan et al. (2020) in Nigeria, Tarekegn et al. (2020) in Ethiopia and Zambia, Kang'ethe and Gachukia, (2017.) in Kenya and Lee et al. (2012) have used the GVC framework to guide their agrifood chain research in developing nations. The current study applies it to guide both objectives. The first objective is intended to assess the effect of the certification process on market availability for avocado smallholder farmers' access to high-value markets. The second objective is intended to assess the effect of the certification process on competitiveness for avocado smallholder farmers' access to high-value markets.

2.2 Empirical Review

2.2.1 Influence of Certification Process on Market Availability

Certification also promotes harmonisation, facilitates transactions, reduces compliance costs, improves knowledge sharing, and ensures transparency (Giovannucci, 2008). Furthermore, standards and certification increase returns and access to profitable markets (Gichuki et al., 2020). Standards and certificates have a greater impact on developed countries than on developing nations. Interestingly, while quality certification negatively affects the export of processed goods from developed countries, it positively influences the export of agri-food products from developing countries (Yang et al., 2023). However, some view standards and certification as barriers rather than facilitators of exports (Vijayan, 2019).

In developing countries, agrifood regulations and standards are often seen as non-tariff trade barriers due to high processing costs, lack of resources, and insufficient technical and administrative capacities (Nyman & Begazo, n.d; Jaffee & Henson, 2004). According to Nyman and Begazo (n.d), standards enhance competitiveness by reshaping the market structure and increasing market access by creating networks, reducing information asymmetry, reducing trade barriers and enhancing technology diffusion.

Ho₁: Certification process has a significant statistical relationship with market availability, serving as an indicator of access to high-value markets.

2.2.2 Influence of Certification Process on Competitiveness

According to the literature, compliance with agri-food regulations and standards is influenced by the structure of the value chain (Lee et al, 2012). These standards impact the food supply chain structure, market access, and the efficiency of food safety management systems (Rao et al., 2021). Additionally, quality certification encourages innovation among farmers (Yang et al, 2023). It enhances quality management systems, guides customer relationships, and helps monitor internal processes, ultimately reducing waste and lead time. This, in turn, increases customer satisfaction, market share, and inventory turnover (Wilcock & Boys, 2017). Compliance with standards enhances a firm's competitive position by improving control and increasing efficiency (Jaffee & Henson, 2004; Hammoudi et al, 2009). However, the impact of agri-food standards on competitiveness is influenced by smallholders' ability to meet public and private standards (Blind et al., 2025). Smallholder farmers' capacity to fulfil standard and certification requirements depends on their awareness and the quality of their products. Product quality can be affected by factors such as poor input quality, low production technology, and inadequate pre- and post-harvest handling, including orchard management, transportation, and storage conditions. These issues limit their market potential (Akiri *et al.*, 2024; Rugiga & Idanga, 2021; Vijayan, 2019).

To enhance compliance with standards and certification and improve market access, studies recommend forming farmer groups, coordinating among value chain stakeholders, improving access to reliable market information, and reducing transaction costs related to compliance with standard and certification requirements (Akiri *et al.*, 2024; Rugiga & Idanga, 2021; Bill *et al.*, 2014).

Ho₂: Certification process has a significant statistical relationship with competitiveness, serving as an indicator of access to high-value markets.

III. METHODOLOGY

3.1 Research Design

The study is positivist with a deductive approach as it was intended to test hypotheses developed from existing theories and literature. The study is quantitative and employed a cross-sectional design, allowing for data collection at a single point in time (Voleti, 2024). This design is suitable for characterising population features and analysing relationships between variables at a specific point in time (Wang & Cheng, 2020; Setia, 2016).

3.2 Study Area

The Njombe and Mbeya regions of Tanzania were selected as the study area. The regions were specifically chosen because they are the top avocado-producing and export-focused regions in the country, especially for the Hass and Fuerte avocado varieties that are highly demanded in the HVMs (United Republic of Tanzania [URT], 2023). The Mbeya region covers 37,700 km² and has a population of 2,343,754 farmers, while the Njombe region spans 21,347 km² with 889,946 farmers (National Bureau of Statistics [NBS], 2022). Both regions are characterised by high altitude, fertile soils, temperate temperatures, and consistent rainfall, favourable for the production of high-quality avocados fit for both domestic and international markets (Juma *et al.*, 2019).

3.4 Targeted Population

The targeted population of the study is producers who were members of cooperatives or producer groups. In Mbeya region, the study was conducted in Rungwe district; in Njombe, it was conducted in Njombe district. Two cooperatives special for avocado fruit were found in Rungwe district: Uwamaru (650 members) and Bakasokele (350 members) Kyuma) and in Njombe district, there was no cooperative for avocados, but four farmer groups were selected: Viwave (166 members), Isoliwaya (210 members) and Lukai (174 members). Together, they give a total of 550 smallholder farmers as the target population of this study.

3.5 Sampling and Sample Size

3.5.1 Sampling Technique

A multi-stage sampling procedure was used to guarantee a representative sample. Initially, Rungwe and Njombe, two districts or divisions, were chosen from the Mbeya and Njombe regions, respectively, due to their higher avocado production and export-oriented enterprises. Second, two wards were selected from each division or district. Third, two villages from each ward were chosen randomly. Finally, farmer groups and cooperatives were randomly selected from lists of cooperatives and groups obtained from the district municipal councils. Respondents for the study were then chosen randomly from the membership lists of avocado growers from the chosen cooperatives and farmer organisations.

3.5.2 Sample Size

The Yamane formula, applied at a 95% confidence level with a 5% margin of error and a targeted population of 1550 smallholder farmers, was used to get the sample size of 305 respondents. This was because the population was known and finite. The sample size is sufficient for the use of Partial Least Squares Structural Equation Modelling (PLS-SEM), of which the minimum sample size of 100 respondents is recommended (Hair *et al.*, 2019; Hair *et al.*, 2017).

3.6 Data Collection Instruments and Procedures

The questionnaire was created to record respondents' opinions and experiences about the three main study constructs: competitiveness, market accessibility, and the certification procedure. A five-point Likert scale was used to measure each dimension, ranging from 1 = Strongly disagree to 5 = Strongly agree. The items were modified from previous research and contextualised to the Tanzanian avocado value chain.

To evaluate the questionnaire's clarity, comprehensibility, and cultural appropriateness, a pilot study comprising thirty smallholder farmers from a non-selected community was conducted. The pilot study's feedback was utilised to improve the instrument's general flow, clarify unclear elements, and modify language. To ensure face and content validity, the questionnaire was further examined by academic specialists in supply chain management and research methodology.

3.7 Data Analysis

Using SmartPLS software, partial least squares structural equation modelling (PLS-SEM) was used to analyse the data. PLS-SEM was chosen as the main analytical method as it, given the non-normal distribution of the data as verified by the Shapiro-Wilk test, is a variance-based structural equation modelling approach that is resilient to breaches of multivariate normality assumptions (Hair *et al.*, 2017; Hair *et al.*, 2019). As advised by (Hair *et al.*, 2019), the

analysis was conducted in two stages. To determine the validity and reliability of the constructs, the measurement (outer) model was evaluated in the first stage. To examine the proposed links between constructs, the structural (inner) model was evaluated in the second step.

3.8 Ethical Consideration

Throughout the data collection process, strict ethical guidelines were followed. Respondents were given a thorough explanation of the study's objectives, the fact that participation was entirely voluntary, and their freedom to discontinue participation at any time without incurring any penalties. Before distributing the questionnaire, each participant gave their informed consent. Confidentiality and anonymity were guaranteed, and no personally identifiable information was gathered or disclosed. The appropriate institutional research ethics committee's ethical criteria for human subjects' research were followed in this work.

IV. FINDINGS & DISCUSSION

4.1 Descriptive Statistics

Table 1 above indicates that the majority of smallholders have access to training services, moderate access to technical assistance, very limited input support and lack of financial support. This indicates that they have awareness but lack the financial resources. This may hinder their adoption of certification requirements.

Table 1

Descriptive Statistics

Service Provision	Frequency	Percent
Training services	235	77.00%
Financial support	0	0.00%
Input provision	2	0.70%
Technical assistance	117	38.40%

4.3 Evaluation of PLS-SEM Results

PLS-SEM results are evaluated in two phases. To test the model's quality criteria, the measurement (outer) model results are first assessed. The relationship between the variables will next be tested by evaluating the structural (inner) model. Market Availability (MA) and Competitiveness (COMP) are the two variables used to quantify High-value Market Access (HVMA), an endogenous construct, whereas Certification Process (CP) is an external construct.

4.4 Evaluation of Measurement Model

The measurement model was evaluated by assessing the reliability and validity (Hair et al., 2017; Hair et al., 2019) and by checking the factor loadings and testing multicollinearity. Two constructs were used to evaluate the measurement model: the Certification Process and the HVMA variables (market availability and competitiveness) as presented in Figure 1.

4.4.1 Reliability

Using either Composite Reliability (CR) or Cronbach's Alpha (α). The Composite Reliability (CR) and Cronbach's Alpha (α) values should be between 0 and 1, with values closer to 0 indicating low internal consistency and values closer to 1 indicating good consistency. The reliability threshold should be below 0.95 and above 0.70. Table 2 demonstrates a high degree of internal consistency since all latent variable and indicator values fall within the suggested cut thresholds. Additionally, the multicollinearity was assessed, and all values were < 3 , indicating no serious multicollinearity as recommended by Hair *et al.*, (2017). Also, indicators' outer loadings should be between 0.70 and 0.9; those below 0.70 should be eliminated. According to Hair et al. (2017), indicators with loadings between 0.40 and 0.70 may be kept in the model if they are not affecting the composite reliability or average variance extracted (AVE) and when theoretical justification supports their inclusion, even though some indicators below the recommended threshold have been kept (such as 0.650, 0.689, 0.664, 0.694, and 0.663). See Table 2.

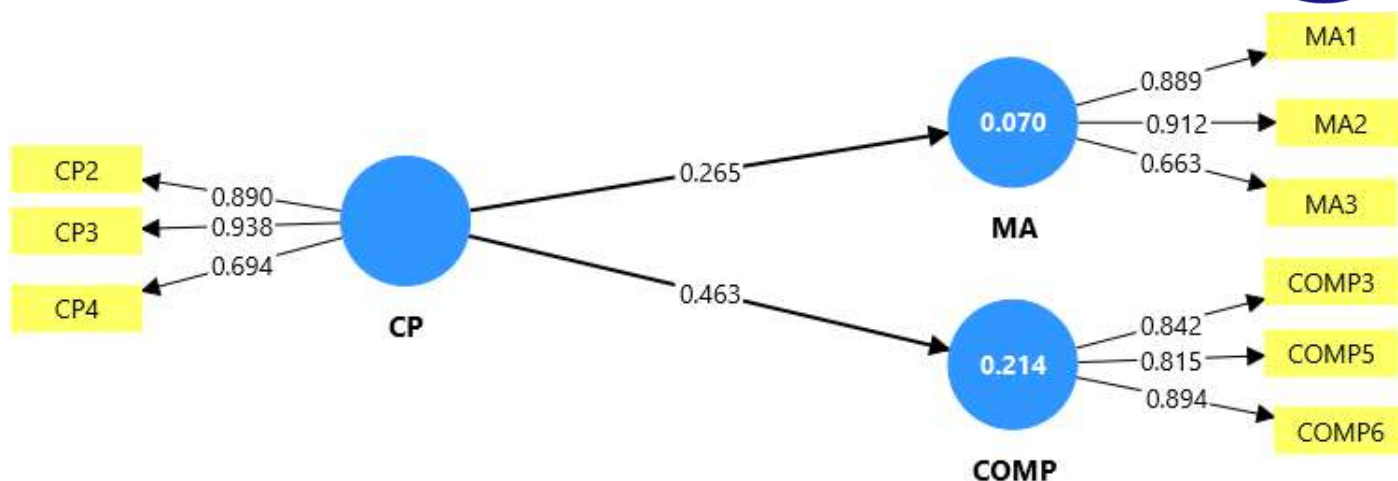


Figure 1
Evaluation of Measurement Model

Table 2
Reliability, Convergent Validity and Multicollinearity test for Measurement Model

Variables	Items	Outer Loadings	Cronbach's alpha	Composite reliability	VIF
COMP	COMP3	0.842	0.811	0.887	1.656
	COMP5	0.815			1.783
	COMP6	0.894			2.003
CP	CP2	0.890	0.799	0.883	2.646
	CP3	0.938			2.951
	CP4	0.694			1.348
MA	MA1	0.889	0.791	0.866	1.917
	MA2	0.912			1.839
	MA3	0.663			1.466

4.4.2 Validity

Construct validity was assessed through convergent and discriminant validity to ensure that the measurement model accurately captures the theoretical concepts represented by the latent variables (Sarstedt *et al.*, 2019). Convergent Validity: Convergent validity, as a degree of correlation between the measure and the construct it supports, was assessed with the average variance extracted (AVE). AVE measures the extent to which the variances of indicators are explained by their construct (Hair *et al.*, 2022). (Hair *et al.*, 2017) State that an AVE threshold of ≥ 0.50 implies that more than 50% of the indicators' variance is explained by their construct. As presented in Table 3, all AVE values meet the recommended threshold, indicating strong convergent validity.

Table 3
Convergent Validity

Variables	Items	AVE
COMP	COMP3	0.724
	COMP5	
	COMP6	
CP	CP2	0.718
	CP3	
	CP4	
MA	MA1	0.687
	MA2	
	MA3	

Discriminant Validity: Discriminant validity determines whether the construct measures what it was supposed to measure and is distinct from other constructs (Sarstedt *et al.*, 2019). Discriminant validity was assessed with the Heterotrait-Monotrait ratio (HTMT). The HTMT value of < 0.85 indicates conceptually distinct constructs (Hair *et al.*, 2019). Table 4 shows that all HTMT values are within the recommended threshold, confirming that all variables possess discriminant validity. Therefore, the evaluation indicates the proposed model is suitable for further analysis.

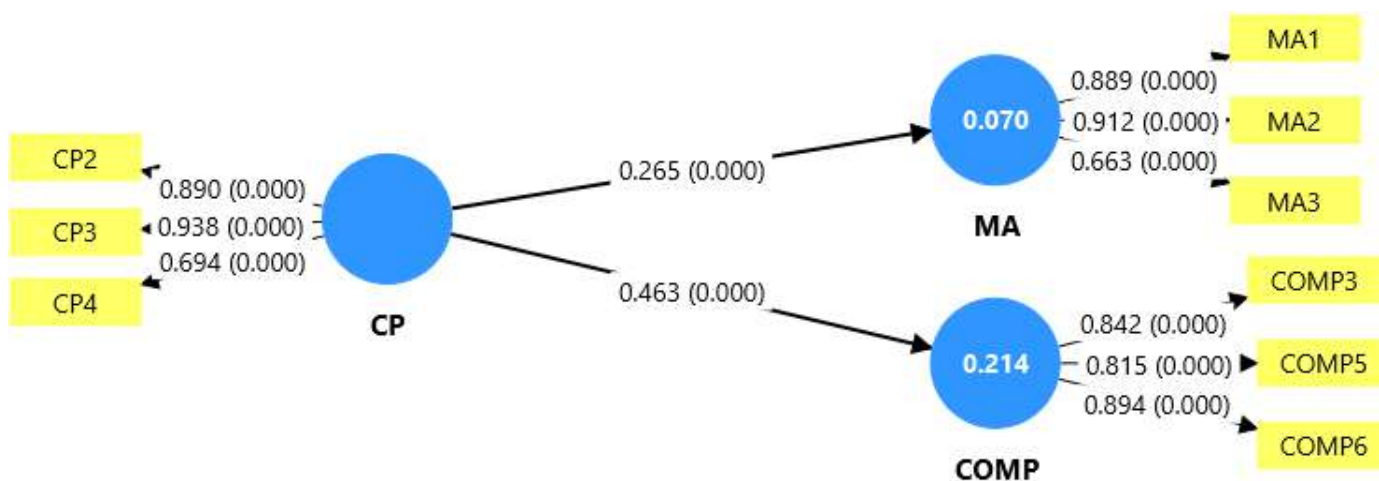
Table 4*Discriminant Validity*

	COMP	CP	MA
COMP			
CP	0.554		
MA	0.714	0.298	

4.5 Evaluation of Structural Model

Multicollinearity testing was performed to control bias in the path coefficient estimation before the structural model evaluation (Sarstedt *et al.*, 2019). Since every VIF value was below the suggested threshold, multicollinearity was not present. Based on its dimensions of Market Availability (MA) and Competitiveness (COMP), the structural model was assessed using the bootstrapping approach to determine the relevance of the proposed association between Certification Process (CP) and High-Value Market Access (HVMA). Both of the proposed associations were statistically significant, as shown in Figure 2 and Table 5. Specifically, market availability MA ($\beta = 0.265$, $t = 4.146$, $p\text{-value} < 0.001$) and competitiveness COMP ($\beta = 0.463$, $t = 7.599$, $p\text{-value} < 0.001$) were significantly positively correlated with the certification process (CP). Hence, both proposed hypotheses were supported as indicated in Table 6. Additionally, the explanatory and predictive power of the model was evaluated using the coefficient of determination (R^2), path coefficient (β) with corresponding t-statistics, p-values, and the predictive relevance statistics (Q^2).

As presented in Table 7, the certification process explained 6.7% of the variance in MA ($R^2 = 0.067$) and an adjusted R^2 of 0.070 (7.0%) of the variance in MA. Additionally, the certification process explained $R^2 = 0.214$, or 21.4% of the variance in COMP, with an adjusted R^2 of 0.211, or 21.1%. According to the approved parameters, this result indicates that CP has a moderate explanatory power on COMP and a minor level of explanatory power on MA (Hair *et al.*, 2017). The model's predictive relevance was proved by the MA variable Q^2 value of 0.058 and COMP variable Q^2 value of 0.199, both of which were above zero. The predictors' effect sizes (f^2) showed a small to medium contribution to the model's explanatory power: 0.075 for CP with MA, and 0.272 for CP with COMP. Indicating a small contribution of CP in explaining MA and a medium contribution of CP in explaining COMP (Hair *et al.*, 2017).

**Figure 2***Structural Model Results***Table 5***Testing the Relationship of Logistics Efficiency and HVMA*

Relationships	Coefficients	Standard deviation	T statistics	P values	Significance
CP -> COMP	0.463	0.061	7.599	0.000	Yes
CP -> MA	0.265	0.064	4.146	0.000	Yes

Table 6*Hypotheses of the Effects of Certification Process on HVMA*

S/N0	Hypotheses	P value	Relationship
1	H1a: Certification processes are statistically significantly related to market availability as an indicator of high-value market access among avocado smallholder farmers.	0.000	Supported

2	H2: Certification processes are statistically significantly related to competitiveness as an indicator of high-value market access among avocado smallholder farmers.	0.000	Supported
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Table 7*Predictive Relevance and Effect Size of Certification Process of HVMA*

	R²	R² adjusted	Q² predict	f²
COMP	0.214	0.211	0.199	0.272
MA	0.07	0.067	0.058	0.075

4.6 Discussion

The role of certification in enhancing market competitiveness and facilitating access to high-value markets (HVMs) for smallholder avocado farmers is underscored by the observed positive correlation between the certification process and competitiveness. This observation corroborates prior research conducted by Jaffee and Henson (2004) and Hammoudi et al (2009) which indicated that adherence to standards significantly boosts a smallholder farmer's competitive position by increasing control and enhancing operational efficiency. Also Blind et al., (2025) revealed that standard certification is essential in achieving bargaining power. In contrast, the findings of Yang et al., (2023) suggest that the influence of standards and certification is more pronounced in developed countries compared to their developing counterparts. The current study reveals that compliance not only improves the overall performance and efficiency of the value chain but also enhances product quality and bargaining power, thereby enabling smallholder producers to meet the evolving consumers' demands.

Furthermore, the findings revealed that certification processes serve to facilitate transactions and reduce compliance costs, thereby broadening market opportunities for these producers. The study is contrary to the earlier research by Vijayan (2019), which posits that standards and certification can act as barriers to export rather than mere facilitators. It demonstrates that these elements play a crucial role in shaping customer relationships with producers, mitigating information asymmetries through enhanced information exchange, and fostering transparency and trust in the market.

However, a notable aspect of this research is the identification of a fragmented value chain, as reflected in the low coefficients associated with certification's impact on market availability, despite the overall positive correlation. Although smallholder farmers may comply with certification standards, the lack of direct engagement with customers in high-value markets, such as exporters, often necessitates reliance on intermediaries for product sales.

Hence, these findings extend the existing literature, particularly highlighting that mere compliance with certification standards does not guarantee access to market opportunities. While Akiri *et al.*, (2024) and Rugiga and Idanga, (2021) emphasise that compliance is contingent upon awareness and product quality, the current study also identifies logistics facilities, transport conditions, and appropriate packaging as critical elements. Moreover, this study contributes to the Global Value Chain (GVC) framework by asserting that access to high-value markets is not solely predicated on compliance with certification standards but also significantly influenced by the quality of transport infrastructure. Therefore, it is imperative that public interventions aimed at enhancing compliance concurrently address the enhancement of transport infrastructure to facilitate market access for smallholder farmers.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study concluded that compliance with the certification process enhances the competitive position of smallholder farmers in the market by increasing their efficiency. It also addresses the entry barriers to the market; however, successful market access is contingent upon the quality of transport infrastructure and storage facilities. Therefore, the study expands on the Global Value Chain (GVC) framework by highlighting that mere compliance with certification requirements does not guarantee access to High-Value Markets (HVMs) for smallholder farmers unless it is supported by adequate transport infrastructure and facilities.

5.2 Recommendations

Policymakers should prioritise integrated interventions aimed at enhancing awareness of certification standards through regular training sessions. They should also work to reduce the costs associated with certification processing, input, and logistics, while improving transport infrastructure and storage facilities. These improvements will facilitate smallholder farmers' access to market opportunities and enhance their competitiveness. Additionally, providing technical assistance and bolstering compliance capabilities will enable these farmers to access high-value markets.

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.

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