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Resource Availability, Marketing Capabilities, and Export Readiness for Rural Baobab Processors in Zimbabwe

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Abstract

This study investigates the factors influencing the export readiness of rural baobab processors in Zimbabwe, focusing on financial accessibility, availability of plant and machinery, human capital, product development capabilities, and branding capabilities. Utilising a pragmatism research philosophy, a mixed-methods research approach was adopted which resulted in data being collected through questionnaires and structured interviews from baobab product harvesters, processors and traders in Beitbridge and Mudzi. A purposive sampling method was employed, and a two-stage least squares estimation technique was used to address the correlation between exogenous variables and the error term in the regression model. Thematic content analysis was applied

to qualitative data from interviews. The findings reveal that human capital, product development, and branding capabilities significantly influence export readiness ($p<0.000$), while plant and machinery ($p<0.4$) and financial capability ($p<0.09$) do not. Human capital has the largest impact (0.57), followed by product development (0.25) and branding capabilities (0.21). The study recommends enhancing human capital development with a focus on product and branding capabilities. Future research should consider a larger sample size and different contexts to improve the generalisability of the results.

Keywords: *Baobab rural processors, Branding, farmers, Export readiness, Human capital, Product development, Zimbabwe*

Introduction

The baobab tree, with its iconic silhouette and ancient wisdom, has long been a cornerstone of Zimbabwean life (Baobab Exports Report, 2021). Notwithstanding its anthropological value, the baobab represents an important bioresource whose fruits, leaves, and seeds are highly valued for their bioactive compounds and corresponding nutritional and therapeutic utility (Matose, Nyika, and Siziba, 2021). Rural Zimbabwe boasts a succeeding baobab processing industry, with countless small-scale enterprises transforming these raw materials into value-added products like oil, powder, and flour (Gwatimin, Aliyu, and Adegubulugbe, 2020). However, despite this rich potential, numerous challenges impede the growth and prosperity of these rural processors, hindering their ability to tap into wider export markets and realise high value (Moyo, Ndlovu and Mapedza, 2019).

Recent discussions in the academic and development spheres have increasingly recognised the baobab's potential as a driver of rural development and economic diversification in Africa (Moyo et al., 2019; Mujaju et al., 2022). Extant evidence highlights the nutritional value of baobab products, particularly their high vitamin C content and potential for combating malnutrition (Gurib-Fakim, 2018). On the economic front, research has explored the baobab's role in generating income for rural communities and empowering women (Mapedza et al., 2020; Okello et al., 2021). Despite growing interest, significant gaps remain in the understanding of specific challenges faced by rural baobab processors in Zimbabwe. Existing literature primarily focuses on the nutritional properties and consumer acceptance of baobab products (Mariga et al., 2018; Ndlovu et al., 2020). Addressing these knowledge gaps is crucial for several reasons. Firstly, it can empower rural processors to overcome

limitations and access wider markets, thereby improving their livelihoods and fostering sustainable economic development in Zimbabwe's rural communities (Mapedza, Chikondo and Muzila, 2020). There is limited access to modern processing equipment and machinery as well as a lack of technical knowledge and skills (Mapedza et al., 2020). Secondly, understanding challenges faced by rural baobab processors can inform the development of targeted support programmes and policy interventions, creating a more enabling environment for success. Ultimately, closing this gap holds the potential to unleash the baobab's economic power and contribute to poverty reduction and food security in Zimbabwe (Okello, Orach and Acikel, 2021). The study focused on (1) assessing the availability and utilisation of raw materials, processing equipment and financial resources within rural baobab processing enterprises, (2) evaluating current marketing practices, key challenges and opportunities for improved market access and brand development and (3) analysing the export readiness of rural baobab processors.

Literature Review

Theoretical framework

This study draws upon two complementary theoretical frameworks to guide the investigation of resource availability, marketing capabilities and export readiness for rural baobab processors in Zimbabwe.

a) Sustainable Livelihoods Framework

This framework posits that livelihoods are comprised of diverse capital (human, social, physical, natural, and financial) that individuals and households mobilise to achieve their goals (Chambers and Conway, 1992). The framework contends that optimising the availability and deployment of various forms of capital drives sustainable development and economic empowerment (Chambers and Conway, 1992). The study analyses capital availability and utilisation within rural baobab processors, which contributes to understanding of the underlying constraints and opportunities.

b) Value Chain Development Framework

This framework emphasises the importance of understanding the interconnected stages of production, processing, distribution, and consumption within a specific value chain (Kaplinsky and Morris, 2000). By applying this framework to the baobab sector, the study can identify

bottlenecks and inefficiencies that hinder rural processors' ability to capture greater value and access wider markets. The framework posits that, analysing the baobab value chain can reveal where and how within the value chain processors can overcome limitations and optimise their participation in the market (Kaplinsky and Morris, 2000).

Resource Availability

The resource-based theory (RBT), a prominent theoretical framework in strategic management, served as the foundation for this study. It has been extensively utilised as a framework for management to identify essential resources needed by a company to maintain a competitive edge. Chihowa (2022) discovered that a firm's capacity to export is greatly influenced by the availability of resources. The number of resources required to finish a project and the amount of time each resource must be devoted to the project are referred to as resource availability (Ndoro et al., 2016). Lack of resources can make it more difficult for a company to export. Regarding the accessibility of resources and their focus on exports, rural processors frequently have difficulties. Munda (2022) revealed that the true resource requirements of rural processors are still unknown, yet knowledge of resource availability is crucial for export-oriented development. This implies that creating methods to improve rural processors' export orientation requires a thorough awareness of their unique resource requirements. Advanced processing equipment greatly enhances export preparedness (Moyo et al., 2020).

Marketing Capabilities

A company's marketing capabilities are the knowledge and skills it acquires throughout time, which enable it to maximise the value of its resource utilisation (Leemann & Kanbach, 2022). Wu et al. (2023) contend that an organisation's capabilities are essential to its success and that resources are transformed into values because of internal processes, giving the company a competitive edge. As defined by Apasrawirote et al. (2022), marketing capability represents the integrated process of strategically applying organizational resources with the intent to determine market needs, secure distinct competitive positioning, and generate optimal brand value. Once these capabilities are established, it becomes difficult for rivals to imitate them (Day, 1994; Mainardes et al., 2022). Marketing researchers are increasingly interested in the role that

marketing capabilities play as a catalyst for better company success (Cataltepe et al., 2022). Numerous scholars believe that better performance (Fatonah & Haryanto, 2022) and competitive advantage (Susanto et al., 2023) are determined by marketing capabilities. Marketing capabilities have a significant impact on the performance of the company when compared to other competencies (Donnellan & Rutledge, 2019).

Financial Accessibility

The capacity of a person or business to obtain necessary financial resources is referred to as financial accessibility, and it has a big impact on how prepared rural baobab processors are for export (Chinakidzwa and Phiri, 2021). This is due to the fact that exporting necessitates a specific amount of financial resources in order to pay for the expenses related to marketing, shipping, and meeting global standards (Arain et al., 2020). Due to things like high interest rates, strict loan criteria imposed by banking institutions, and a lack of collateral, rural baobab processors sometimes encounter difficulties obtaining financial resources. These difficulties may make it more difficult for them to fund the infrastructure and training they need, which would reduce their preparedness for exports (Ndoro et al., 2016). Enhancing rural baobab processors' financial accessibility can be greatly aided by microfinance organisations.

Export Readiness

Export promotion programmes (EPPs) operate as export performance catalysts for SMEs. EPPs provide informational, educational, training and trade mobility components that are essential in building rural baobab processors' export readiness. The African Baobab Alliance is a non-profit business that works to develop a sustainable baobab industry (Angelser, 2018). The collection of baobab fruit from wild populations by rural communities facilitates plant biodiversity management across Africa and bolsters the rural economy by providing livelihoods. ZimTrade has established more than 20 small- to medium-sized export companies in Zimbabwe's rural areas with the commercial venture to start exporting baobab powder and oil to Germany (Gurib-Fakim, 2018). The nation's manufactured product exports increased by 20%, exceeding the 10% growth target outlined in the National Export Strategy (Arain et al., 2020). Prior to 2008, the absence of requisite regulatory authorisation resulted in the prohibition of baobab powder exports intended for sale

within the European Union (EU) market. But times have changed, and Baobab products are now sold all over the world (Ndoro et al., 2016).
Based on the literature review and theoretical frameworks, the study develops specific hypotheses addressing the relationships between the identified variables. There are:

H_1 Availability of human capital significantly influence export readiness of rural baobab processors.
H_2 Financial accessibility significantly influence export readiness of rural baobab processors.
H_3 Availability of plant and machinery significantly influence export readiness of rural baobab processors.
H_4 Product development capabilities significantly influence export readiness of rural baobab processors.
H_5 Branding capabilities significantly influence export readiness of rural baobab processors.

Conceptual Framework

The study proposed the framework below, for determining the export readiness of baobab processors.

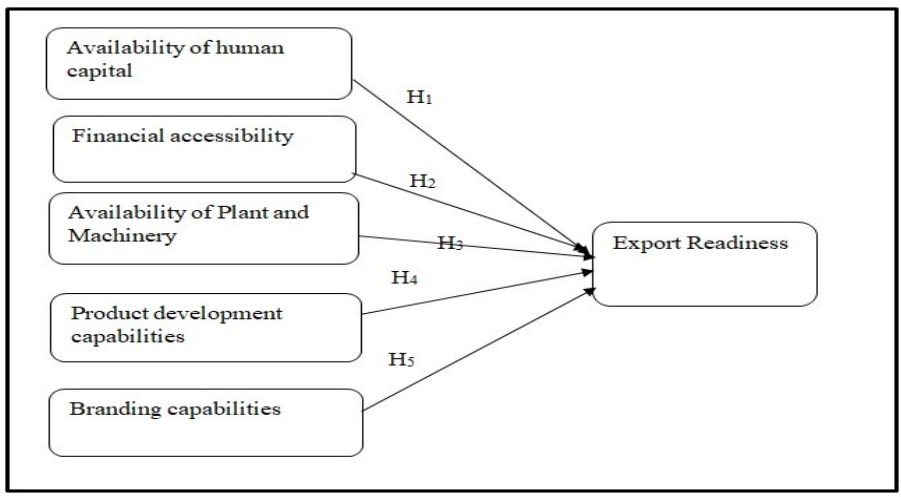

Figure 1: Conceptual Framework Source: Researchers' own drawing

Methodology

The study employed a pragmatism research philosophy, and thus a mixed research methodology approach was adopted. Both interviews and self-administered questionnaires were used to collect data. Baobab product harvesters and traders were given structured questions; the manufacturers were interviewed as key informants. The target population for the study was the baobab farmers in Beitbridge and Mudzi districts. For this study, 465 individuals from communities in the Beitbridge and

Mudzi regions made up the sample size. Purposive sampling was utilised, and the respondents were chosen based on a Cochran's sampling model for an unknown population. A mixed approach, which involved 450 structured questionnaires and 15 unstructured interviews, was used to gather data on availability of resources and export readiness. The preliminary investigation utilised a sample of fifteen participants from the Chiadzwa community, a site selected for its operational significance in baobab resource extraction. The pilot study enabled the researcher to identify flaws prior to conducting the main research, which helped in refining the research approach and instruments. Participants, who were drawn out for the pilot study, were not used as part of the sample of the main research to minimise bias which results from prior knowledge of research tools (Leed and Ormrod, 2010). Quantitative methods were used to come up with descriptive statistics and estimation results, and qualitative methods were used to gather the opinions of the participants.

Results

The study's results are presented in two sections: qualitative and quantitative data. The qualitative data encompasses data from the interviews, while the quantitative data includes survey results. A total of 450 questionnaires were distributed, with 418 returned. After data capturing and cleaning, 23 incomplete questionnaires were rejected, resulting in a response rate of 87.78%, which is considered robust for minimising bias in the study. Additionally, 15 respondents participated in the interviews. The qualitative data results were grouped into themes and converted into quantitative counts.

Survey data was captured using Microsoft Access and analysed with the Statistical Package for Social Sciences (SPSS) version 26. The data analysis began with data coding, where codes serve as tags or labels to assign meaning to the descriptive or inferential information collected.

The study conducted Cronbach's alpha, and Spearman correlation before regression analysis to prune items and variables that distort study results. The results are presented in three sections as follows: biodemographic, qualitative and quantitative analysis.

Biodemographic analysis

Table 1: Gender, age, occupation and experience level

		Frequency	Percentage
Gender	Male	162	41
	Female	233	59
Age distribution	21 >30 years	47	11.9
	31 > 40 years	100	25.3
	41 > 50 years	101	25.6
	51 years old and more	147	37.2
Occupation	Peasant Farmer	80	20.3
	Self Employed	102	25.8
	Cooperative	206	52.2
	Other	7	1.8
Experience	2 years and below	41	10.4
	2 > 5 years	93	23.5
	5 > 10 years	142	35.9
	10 years and above	119	30.1

Source: Study results

Table 1 delineates the demographic distribution of the participants, specifically by sex and age cohorts. The study had 395 responses, with 162 male respondents and 233 female respondents, representing 41.00% and 59.00%, respectively. This translates to a sex ratio of 69.49 males per every 100 females who are involved in the baobab value chain, which is against the national sex ratio of 91.36 males for 100 females (ZIMSTAT, 2022). This indicates the female domination of the baobab value chain industry, which is also in sync with the government's call for women's involvement in business and production in the form of empowerment. It is notable that 11.90% of the respondents were aged between 21 and 30

years, 25.30% fell within the 31–40 years age range, 25.60% were between 41 and 50 years, and 37.20% were 51 years and older.

These findings show that young people lack involvement in the baobab value chain and that their involvement increases as they grow older. The economy of Zimbabwe has been on a downslide, and many industries have been affected by poor performance, leading to unemployment; hence, many people are resorting to self-employment and farming. In addition, the elderly have tried it all in the days of their youth and have settled in the baobab business, whereas youngsters who still have energy will try to seek employment that is demanding**.**

The occupation status and professional experience of the study's respondents are presented in Table 1. The results show that 20.30% of the participants were peasant farmers, 25.80% were self-employed, 52.20% belonged to a cooperative, and the remaining 1.80% fell into the category of other occupations. This shows that many people are forming cooperatives that can help them manage the minimum order quantities, making logistics cheaper for export markets. The years of experience of respondents in farming and processing baobabs and the overall baobab value chain are also shown. It is shown that 10.40% of respondents have less than two years of experience, while 23.50% have experience spanning two to five years. The 5–10 years of experience category represented 35.90% of the respondents, whereas the remaining 30.10% had more than 10 years of experience in the baobab value chain. Experience has a normal distribution and negative skewness, which means it is skewed to the left. More players have been in business for a long time.

Qualitative analysis

The study conducted a series of interviews and presents the results in this section. The results align with the questions asked. During the interviews, the study posed six essential questions.

Q1. Why do you think baobab trees are important to people of this area?

Table 2: Importance of baobab trees to the people

Importance	Percentage
Food	27%
Source of income	20%
Medicines	13%
Skincare	13%
Feed stock	13%

Source: Study results

The key informants' responses show that they consider baobabs' to be primarily a source of food (27%) and income (20%) whilst also providing medicines, skincare products and feed stock.

Q2. Can baobab products such as leaves, fruit pulp, seeds, fibre, bark, or whole fruit be commercialised for the export market?

Table 3: Parts of the baobab tree with commercial value

Part with commercial value	Percentage
Fruit pulp	33%
Seed oils	27%
Bark medicines	20%
Fibre for mats	13%
Baobab relish	7%

Source: Study results

The key informants went on to list the parts of the baobab that had potential commercial value. Fruit pulp, seed oils, bark medicine, baobab relish, and fibre for mats are listed in the above proportions. Owing to their numerous health benefits and unique flavour profiles, there is a growing demand for these products in international markets. Furthermore, baobab trees are known for their resilience and ability to thrive in harsh environments, making them a sustainable source of raw materials for various industries. This makes it an attractive option for farmers seeking to diversify their product offerings and tap into new markets. In addition, the versatility of baobab products allows for a wide range of applications in the food, beauty, and wellness industries. The use of baobab powder in smoothies to baobab oil in skincare products provides endless opportunities for innovation and creativity in utilising these natural resources.

Q3. To what extent are you getting assistance from the government and other development agencies?

Assistance from Government and Development Agencies	No Assistance	Lesser Extent	Greater Extent
	40%	47%	13%

Source: Study results

The responses showed that there is little to no assistance from the government and development agencies. There are a few who are getting some assistance from contract farming agreements with other upstream players in the value chain.

Q4. What sustainable initiatives are in place to ensure the conservation of baobab trees?

Table 5: Sustainability Initiatives for Conservation of Baobab Trees

Initiative	Percentage
Education	27%
Local leadership	20%
No idea	20%
Awareness campaigns	13%
Penalties	13%
Afforestation/Reforestation	7%

Source: Study results

Sustainability issues are of priority in projects and development of areas. The interviews revealed that there are some initiatives to maintain and preserve the trees for the future generations and for the continuity of the export initiatives. The prudent conservation strategy necessitates public sensitisation (or awareness), ecological restoration measures (reforestation/afforestation), legal deterrents against unauthorised harvesting, and the engagement of community leaders in resource management.

Q5. Are there any of the baobab products which you think are more suitable for the export market than others?

Table 6: Part suitable for export

Part suitable for export	Percentage of interviewees
Fruit pulp	33%
Medicinal products	20%
All products	20%
Baobab seed oils	13%
Baobab seed coffee	13%

Source: Study results

The interviewees believed fruit pulp, medicinal products, baobab seed oils, baobab seed coffee as well as a combination of all products are all suitable for export market. Fruit pulp is the most exported along with the baobab medicinal products.

Q6. What types of machinery are required to produce baobab products and is it adequate?

Table 7: Equipment for baobab product processing

Required equipment	Percentage of interviewees
Crushers	20%
Grinding mills	13%
Dehauler	13%
Oil processing machines	13%
Juice making machines	13%
Sealers	7%
Packers	7%
Roasting machines	7%
Shellers	7%

Source: Study results

It emerged from the interviews that the equipment listed above was suggested to be adequate to aid in the production of baobab products by the key informants. Achieving the desired level of quality and efficiency in baobab product manufacturing necessitates the prerequisite investment in suitable technological apparatus (or machinery). Baobab products such as oils, powders, and supplements require specific equipment for processing and packaging. Without adequate machinery, the production process can be slow and inefficient, leading to delays in meeting customer demand.

Quantitative analysis

The study conducts normality, reliability, and correlation tests before running the regression equation. The results appear in this section.

Table 8: Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Branding Capabilities	.291	395	.000	.791	395	.000
Financial Accessibility	.330	395	.000	.761	395	.000
Export Readiness	.462	395	.000	.581	395	.000
Product Development Capabilities	.387	395	.000	.576	395	.000
Availability of Plant & Machinery	.385	395	.000	.657	395	.000
Availability of Human Capital	.418	395	.000	.639	395	.000

Source: Study results

The table above shows the results of the normality tests for the research study. The Shapiro-Wilk values were the ones that were considered for this research study since the study had a total of 395 samples, which is below 1000. It is worth noting that the Shapiro-Wilk values are applicable to test samples that are less than 1000, while the Kolmogorov-Smirnov test is applicable to samples more than 1000. The Kolmogorov-Smirnov (K-S) test can also be used for small sample sizes, but the Shapiro-Wilk test is more sensitive in detecting departures from normality in smaller samples. Both the dependent and independent variables had significant values of 0.000, which categorise all of them into the null hypothesis where $P < 0.05$, as shown above. Therefore, this reveals that the data is not normally distributed for all variables; hence, the justification for conducting non-parametric tests, thus the use of the Spearman ratio.

Table 9: Reliability test

Variable	Number of Items	Cronbach's Alpha
Branding capabilities	6	0.752
Export readiness	10	0.770
Availability of Human Capital	13	0.823
Financial accessibility	9	0.698
Availability of plant and machinery	2	0.756
Product development capabilities	5	0.790

Source: Study results

The table above assesses the reliability of each variable, with all Cronbach's Alpha values indicating strong reliability: branding capabilities (0.75), export readiness (0.77), availability of human capital (0.82), financial accessibility (0.70), availability of plant and machinery (0.76), and product development capabilities (0.79). These values fall within acceptable ranges, thereby minimising potential bias in the research.

Table 10: Spearman correlation analysis

	BC	*PDC*	*AHC*	*FA*	*APM*	*ER*
BC	1					
PDC	0.252	1				
AHC	-0.157	-0.191	1			
FA	-0.205	-0.280	0.372	1		
APM	-0.077	-0.049	0.102	0.341	1	
ER	0.336	0.571	-0.044	-0.161	0.045	1

Source: Study results

*FA=financial accessibility, APM=availability of plant and machinery, AHC=availability of human capital, ER=export readiness, PDC=product development capabilities, BC=branding capabilities.

The table above presents the pairwise correlations. There is no evidence of serial multicollinearity, as the pairwise correlations of the independent variables are all below 0.8. The Spearman correlation coefficient for branding capabilities (0.3) and the availability of plant and machinery (0.05) indicate a positive but weak relationship between these two variables and export readiness. Product development capabilities have a Spearman correlation coefficient of 0.6, indicating a positive and moderate relationship with export readiness. Availability of human capital and financial accessibility have negative correlation coefficients of -0.04 and -0.16, respectively, indicating a weak negative association with export readiness. This suggests that as human capital and financial accessibility increase, export readiness decreases. In recognition of the limitations of correlation analysis, the study conducted a multiple linear regression analysis.

Regression analysis

The study ran a multiple linear regression analysis to determine the effect of the independent variables on the dependent variable (export readiness). The regression equation and results are shown in this section.

Regression Equation

$$Y = \beta X_1 + \beta X_2 + \beta X_3 + \beta X_4 + \beta X_5 + \varepsilon$$

Where Y = Export Readiness
X1 = Financial Accessibility
X2 = Availability of Human Capital
X3 = Availability of Plant and Machinery
X4 = Product Development Capabilities
X5 = Branding Capabilities
Ɛ = Error term

Estimation Results

Table 11: Regression results for a 2SLS with Log (Export Readiness) as the dependent variable

Variable	Coefficient	Prob.
Log (Financial Accessibility)	-0.1987	0.0910***
Log (Availability of Plant and Machinery)	0.0910	0.4028
Log (Availability of Human Capital)	0.5737	0.0000*
Log (Product Development Capabilities)	0.2542	0.0000*
Log (Branding Capabilities)	0.2184	0.0003*

Source: Study results
**** and * mean that coefficients are significant at the 10% and 1% levels of significance, respectively.*

The study results reveal a statistically significant influence of human capital, product development, and branding capabilities on export readiness ($p<0.000$) while plant and machinery ($p<0.4$) and financial capability ($p<0.09$) have no statistically significant influence on export readiness. The availability of human capital has the largest influence (0.57) on export readiness, followed by product development (0.25) and branding capabilities (0.21). The results suggest that 57% in export readiness can be explained by availability of human capital, whilst 25% and 21% are explained by product development and branding capabilities, respectively.

Discussion of results

Financial accessibility

The study indicates that financial accessibility ($p<0.09$) does not have a statistically significant influence on export readiness for rural baobab

farmers. This contrasts with Meinhold et al. (2022) and Moyo et al. (2020), who found that commercialisation of baobab products is hindered by inadequate financial support tailored to the unique needs of rural producers. Although the study does not provide evidence that contradicts ZimTrade (2023) Arain et al. (2020) found that rural farmers often face significant barriers when accessing finance; it found no evidence on the negative effect of limited financial access on export readiness as claimed by ZimTrade (2023). The empirical findings suggest that the provision of increased capital is insufficient to guarantee enhanced export capability for rural baobab farmers without simultaneous remediation of infrastructural issues. This perspective is validated by the observation that financial resources alone do not ensure success unless accompanied by requisite training and infrastructure support (Thompson, 2021). Financial resources may not yield the desired outcomes in terms of productivity or market engagement without adequate support systems—such as training in business management and market access (CBI, 2023). This suggests that financial accessibility alone may not be sufficient; it must be combined with product development and branding capabilities to achieve export readiness.

Availability of human capital

The study found that the availability of human capital is positively related to the export readiness of rural Baobab farmers ($p<0.00$). According to Meinhold et al. (2022), the commercialisation of baobab products is significantly influenced by the availability of skilled individuals who can navigate complex supply chains and meet market demands. This suggests that enhancing human capital among baobab farmers can lead to better quality products and improved market access, thereby increasing export readiness. ZimTrade's initiatives in Zimbabwe demonstrate how targeted training can empower smallholder farmers to engage effectively in international markets. By equipping farmers with knowledge about quality standards, branding, and marketing strategies, these programmes enhance farmers' competitiveness in export markets (ZimTrade, 2023). With sufficient staff, farmers can efficiently manage their crops, ensuring that they meet the quality standards required for export. Additionally, according to Fihlani et al. (2023), having more hands-on decks allows for better monitoring of the farming process and a quicker response to any issues that may arise. Furthermore, adequate staffing can lead to increased productivity as tasks can be divided among team members,

leading to more streamlined and effective operation. This not only benefits farmers in terms of output but also enhances their overall competitiveness in the global market. Investing in adequate staffing is crucial for baobab farmers to enhance their agricultural practices, increase productivity, and improve their prospects in the international market (Arain et al., 2020). These findings corroborate prior research that underscores the pivotal role of skilled labour in enhancing product quality and market competitiveness. For instance, Smith et al. (2020) emphasised the pivotal role of human resources in agricultural exports, suggesting that investment in workforce training can result in substantial enhancements in export performance.

Availability of plant and machinery

The study determined that the availability of plant and machinery was statistically insignificant in influencing the export readiness of rural baobab farmers ($p<0.09$). This finding can be attributed to the nature of baobab farming, which is often characterised by traditional practices that do not heavily depend on advanced machinery or technology (Ker, 2013). Many rural farmers operate within subsistence frameworks, where local knowledge and manual labour are prioritised over mechanisation. This reliance diminishes the potential impact of available machinery on export readiness. Empirical research emphasises that human capital, including skills and knowledge, plays a more critical role in export readiness than physical assets like machinery. For example, Darr et al. (2016), demonstrate a contrasting effect: while capital investment in machinery may improve productivity, the return on investment is limited by the lack of both technical expertise and understanding of market requirements.

Branding capabilities

The study demonstrates that branding capabilities significantly influence the export readiness of rural baobab farmers ($p<0.000$). Effective branding capabilities enable rural baobab farmers to access broader markets both locally and internationally. ZimTrade (2024) emphasises that initiatives aimed at improving marketing skills among smallholder farmers have led to successful participation in international trade fairs, where producers can engage directly with potential buyers. This exposure is essential for building relationships and understanding market demands,

which are essential for export readiness. The ability to market products effectively significantly increases farmers' visibility and competitiveness in global markets (Wu et al., 2023).

Product Development Capabilities

The study found that product development capabilities significantly influence the export readiness of rural baobab farmers ($p<0.000$). These results align with ZimTrade (2024), which highlights that the introduction of innovative baobab products, such as essential oils and animal feed, has notably enhanced the export capabilities of rural communities. By diversifying their product offerings, farmers can access new markets and increase their competitiveness in the global market, leading to higher income and economic growth for rural communities. Additionally, Meinhold et al. (2022) emphasise that value addition through product innovation is crucial for improving the competitiveness of baobab products in global markets. For instance, transforming baobab fruit into powder or oil enhances its marketability and allows farmers to command higher prices, thus improving their economic viability and capacity to engage in exports. Additionally, introducing new products can help farmers adapt to changing consumer preferences and market trends.

Conclusions

The study examined factors that influence rural baobab farmers' export readiness in Zimbabwe from the perspective of resource and marketing capability needs. Resource availability was measured as financial accessibility, availability of human capital, plant and machinery, whilst marketing capabilities were measured as product development and branding capabilities. The study concludes that from a resource perspective, only the availability of human capital significantly influences rural baobab farmers' export readiness. From a marketing capabilities perspective, both product development and branding capabilities significantly influence rural baobab farmers' export readiness. The study found no evidence to support the influence of financial accessibility and plant and machinery on rural baobab farmers' export readiness.

Recommendations

Human capital constitutes an essential resource that must be cultivated to enhance the export readiness of rural baobab farmers. Developing human capital empowers the rural farmers with essential product development and branding capabilities. These marketing capabilities are essential contributors to rural baobab farmers' export readiness. The government and other support institutions must enact policies that focus on human capital development for these rural farmers if the country is to realise baobab export revenues. Essential skills are product development, packaging, labelling and branding capabilities. The agriculture sector must foster collaboration among stakeholders to create a robust ecosystem for baobab product development. This includes partnerships between farmers, researchers, and businesses to share knowledge and resources effectively. Moreover, promoting sustainable harvesting practices is essential to ensure the long-term viability of baobab resources. Sustainable supply chains can create lasting social impacts while preserving biodiversity.

Future research

Continued investigations into market trends, innovative processing technologies, and effective capacity-building strategies will be crucial for ensuring the long-term success and sustainability of this promising sector. It is imperative to assess the effects of climate variability on baobab yields and market viability; this analysis would inform the implementation of strategies promoting long-term environmental and economic sustainability. The study's scope should also be extended beyond certain parts of Zimbabwe to enhance the generalisability of the results through a wider sample size.

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