

# EXPLORING COMMERCIALIZATION INTENSITY ENHANCING DETERMINANTS FOR FARMERS ~~WITHIN EMERGING ECONOMIES~~: A CASE STUDY OF THE VHEMBE DISTRICT, LIMPOPO PROVINCE

## Abstract

Agricultural commercialization plays a crucial role in enhancing food security, alleviating poverty, and improving livelihoods through increased food production, income generation, and job creation, particularly in remote areas. ~~In light of rising unemployment and increasing food demand,~~ The study investigated ~~the commercialisationcommercialization—intensity~~ determinants contributing to ~~sustaining~~ farmers' ~~commercialisationcommercialization~~ efforts in the Vhembe district, Limpopo province. A sample of 220 farmers ~~were~~ selected using a simple random sampling ~~without replacement~~ technique, and data was collected through ~~semi-structured schedulequestionnaires administered~~ through ~~personalface-to-face~~ interviews. The Tobit model was employed to identify key determinants of commercialization intensity, while the commercialization index assessed the degree of commercialization. The study findings revealed that gender, farming experience, independence, access to financial advice, and commodity lifecycle significantly and positively improved ~~commercialisationcommercialization~~ intensity among farmers. Moreover, poor record keeping, untamed resource allocation, and overreliance on seasonal workers regressed ~~commercialisationcommercialization~~ intensity among farmers. Therefore, the study recommends that gender imperatives should be investigated further to improve gender balance within agricultural ~~commercialisationcommercialization~~. The study also recommends that emerging farmers be capacitated about commodities with shorter lifecycles and high turnover profit as it enhances their commercialization efforts, ~~underlining the pressing need for immediate action.~~

**Keywords:** Commercialization, Determinants, Emerging Economies, Intensity, Farmers.

## 1. Introduction

One of the solutions proposed for increasing rural households' food security and overall well-being is to shift smallholder agriculture from subsistence to commercial production (Kissoly, 2020). Commercialization refers to the extent to which farmers engage in market-oriented activities, such as selling their produce in the market rather than consuming them on the farm (Getahun, 2020). ~~Moreover, according to a study by~~ Nwafor and van der Westhuizen (2020) ~~reported that,~~ smallholder farmers who commercialize their enterprises can engage more effectively in the input and output marketplaces. Furthermore, a study conducted in Southwest Nigeria found that variables including age, gender, education, household size, farm size, market accessibility, and funding availability are the main drivers of commercialization in the region (Otekunrin, Ayinde, Sanusi and Otekunrin, 2022). ~~a study by Rabbi et al., Ahamad, Ali, Chandio, Ahmad, Ilyas, and Din (2019) suggested~~ that smallholder farmers commercializing their operations can better participate in the input and output markets. ~~Moreover, according to a study in Southwest Nigeria,~~ The key factors influencing commercialization in the ~~area outhwest Nigeria we~~ are age, gender, education, household size, farm size, market accessibility, and financing availability (Otekunrin et al., 2022). Commercialization is viewed as a possible engine of development and economic growth in developing nations and contributes to long-term agricultural production and profitability advances. ~~CommercialisationCommercialization~~ considerably improves food security, improving market access is critical for rural economic growth and making smallholder agriculture more nutritionally conscious (Ogutu, Gödecke and Qaim, 2020).

~~A study by~~ Ogutu and Qaim (2019) found that ~~commercialisationcommercializationcommercialization~~ reduces income and multidimensional poverty. Smallholder farmers who participate in agricultural ~~commercialisationcommercialization~~ helped to reduce poverty. Ochieng et al., Knerr, Owuor, and Ouma, (2020) found that ~~commercialisationcommercialization~~ strongly ~~and favourably~~ influences dietary diversification and farm income, even after controlling for unobserved variation among households. Some ~~other~~ factors influencing ~~commercialisationcommercialization~~ intensity among farmers are access to information, social networks, and government policies (Mariyono, 2019). ~~According to Zwane and Nekhavhambe (2023),~~ Smallholder farmers in South Africa have barriers to ~~commercialisationcommercialization~~, including poor market access, unavailability of credit, lack of governmental support, high transaction costs, lack of training, and inadequate property rights (Zwane and Nekhavhambe, 2023). The economy may grow and develop when agriculture becomes more commercialized since farmers can sell their produce in markets, creating jobs and raising incomes (Ochieng et al., 2020). Increased ~~commercialisationcommercialization~~ can also result in less poverty among farmers and improve consumer access to and availability of agricultural goods (Hussayn, Gulak, Aboaba, and Keshinro, 2020).

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According to Louhichi, Temursho, Colen, and Paloma (2019), Agricultural commercialisation/commercialization intensity may positively affect farm performance, such as increased efficiency by encouraging farmers to use more productive technologies and production methods, which raises ~~profitability and~~ productivity and profitability (Louhichi et al., 2019). Moreover, it may result in developing speciality agricultural systems that target particular markets, such as high-value or organic farming (Borsellino, Schimmenti and El Bilali, 2020). The downside of ~~commercialisation/commercialization~~ is that it can ~~expose/introduce~~ farmers to new risks, such as price volatility, market failures, and dependence on external inputs (De Janvry and Sadoulet, 2020). Against this backdrop, the study aimed to investigate determinants that significantly contribute towards commercialisation among farmers.

## 2. Materials and Method

### 2.1 Study area

The study was carried out in the province of Limpopo, in the Municipality of Thulamela, within the Vhembe District. Vhembe District has four local municipalities, Collins Chabane, Musina, Makhado, and Thulamela. where in the Vhembe district, agricultural production is a vital economic activity (Mokganya and Tshisikhawe, 2019). The Municipality is located in the province of Limpopo's northern regions. Its GPS coordinates are 22°57'S 30°29'E, and its estimated population is 618 462 people living in an area of about 5 835 km<sup>2</sup> (StatsSA, 2020).

### 2.1 Analytical technique 2.1 Empirical method

The study employed the Tobit model to analyse determinants contributing towards farmers' commercialisation/commercialization. According to Austin, Escobar, and Kopeck (2000), the Tobit regression model is known as the censored regression model, with its general formulation typically expressed as an index function. The lower and upper censoring were set to 0 and 1, respectively, considering the level of farm output commercialisation/commercialization (the ratio of sales to total production), which ranges between 0 and 1.

$$y^* = X\beta + \mu_i,$$

$$y = 0 \text{ if } y^* < 0$$

$$\text{and } y = y^* \text{ if } y^* \geq 0$$

$y^*$  = The dependent variable that measures commercialisation/commercialization intensity is the ratio of sales to output, which ranges from 0 to 1.

$\beta$  = vector of parameters to be estimated,

$X$  = set of explanatory variables

and  $\mu_i$  = the disturbance term with  $i = 1, \dots, N$  are independently distributed with mean and variance of 0 and  $\sigma^2$ , respectively. Table 3.1 below shows the hypothesised effects of independent variables on the dependent variable.

**Table 1: Description of explanatory variables used in the discriminants analysis.**

Variable	Type of measure	Expected sign
Household size	Continuous	+/-
Age	0=24 year and less; 1=25-39 years; 2=40-59 years; 3=60 and above	+/-
Land ownership arrangements	0=Lease; 1=Own; 2=PTO	+/-
Type of farmer	0= full time farmer; 1=part time farmer	+/-
Independence		+/-
Access to proper storage facilities	0=No; 1=Yes	+/-
Educational level	No formal education=0; Primary education=1; Secondary education=2; Tertiary education=3; Abet=4	+/-
Marketing costs	Continuous	-/+
Access to financial advice	No=0; Yes=1	+/-
Access to market	No=0; Yes=1	+
Commodity life cycle	Low Perishable=0; Highly Perishable= 1	-/+
Record keeping	No=0; Yes=1	
Other off-farm income	0= Social Grant; 1=Employed; 2=Remittances	+/-

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Access to extension services	No=0; Yes=1	+/-
Marital status of respondents	No=0; Yes=1	+/-
farming experience	0=Less than 9 years;1=Between 10-19 years; 2=Between 20-29 years; 3= More than 30 years	+/-
Transactional arrangements	Farm gate= 0; Roadside= 1; High value market= 2	+/-
Type of workers	Permanent= 0; Casual= 1; Seasonal= 2	+/-
Distance to market	No=0; Yes=1	+/-
Gender	Male=0; Female=1	+/-
Resource allocation	Untamed=0; Tamed=1; Ratio-based= 2	+/-

Source: Author's computation, 2024

### 3. Results and Discussion

#### 3.1 Discussion of Socioeconomic Distribution Results

The distribution of socioeconomic characteristics among farmers in the study sample is displayed in Table 2 below. About 60.9% of farmers were female, and 36.8% were between 40-59 years. In addition, 31.4% of the second-largest farmers were aged 60 years and above. Regarding educational level status, those farmers who had obtained the secondary education status were the dominant group (39.1%), while those with the primary level status were second at 23.2%. Regarding farming experience, 40.5% of the sample study's farmers had been farming for 10-19 years, followed by those with 20-29 years of farming experience. Those with more than 30 years of farming experience were the most minor group, accounting for 11.8%. Additionally, from the study findings, it could be concluded that 76.8% of the respondents have been farming for more than 10 years; this could be supported by the fact that most farmers are classified as adult farmers, constituting 70.8%. Furthermore, most respondents relied on social grants as the source of off-farm income (68.6%); the dominant land ownership arrangement within the study sample was lease at 51.4%, followed by those who had permission to occupy (PTO).

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Table 2: Distribution of socioeconomic characteristics within the study sample.

Variable	Frequency	Percentage
<b>Gender of respondent</b>		
Female	134	60.9
Male	86	39.1
<b>Age group</b>		
24 years and less	20	9.1
25-35 years	44	20.0
36-46 years	32	14.5
47-57 years	81	36.8
58 and above	43	19.5
<b>Farming experience</b>		
Less than 9 years	51	23.2
Between 10-19 years	89	40.5
Between 20-29 years	54	24.5
More than 30 years	26	11.8
<b>The educational level of the respondent</b>		
No Formal Education	22	10.0
Primary Education	51	23.2
Secondary Education	86	39.1
Tertiary Education	48	21.8
Abet	13	5.9
<b>Other off-farm income</b>		
Social Grant	151	68.6
Employed	57	25.9
Remittances	12	5.5
<b>Land ownership arrangement</b>		
Lease	113	51.4
Own	23	10.5
PTO	84	38.1
<b>Total</b>	<b>220</b>	<b>100</b>

Source: Field Survey, 2024

#### 3.2 Discussion of the Tobit Model Results

##### 3.2.1 Discussion on determinants contributing towards enhancing commercialisation intensity

###### 3.2.1 Gender

From the study findings in Table 3, the gender of farmers significantly influenced the ~~commercialisation~~commercialization efforts among farmers. Regarding gender, the study discovered that it was positive and statistically significant at a 10% significance level. The gender coefficient was 0.1741, implying that farmers' gender had a likelihood to improve the level of ~~commercialisation~~commercialization as belonging to a specific gender. The study findings further imply that being a male farmer increased the likelihood of engaging in commercial farming more than their counterparts. The study results align with the findings of Olumeh, Otieno and Oluoch-Kosura (2021), which suggested that there is a gender difference in the level of commercialization and that, on average, families headed by women are less commercialised than those led by men. Furthermore, Dzanku, Tsikata, and Ankrach (2021) also found that female farmers are less commercialised than their male counterparts due to various gender-specific characteristics. The study findings also revealed that farming experience had a significant influence on the ~~commercialisation~~commercialization of farmers, as shown in Table 3. Farming experience was also statistically significant at the 10% significance level. The study findings imply that as farmers accumulate farming experience, their ~~commercialisation~~commercialization intensity increases by 0.3016. The findings could largely be influenced by the fact that farmers with extensive farming experiences are more likely to develop various abilities, such as marketing expertise, which could enhance their level of ~~commercialisation~~commercialization than their counterparts. Additionally, farmers with extensive farming experience tend to understand better the ideal growing conditions and seasons, which helps them anticipate market peaks with a strong demand for their product. Hence, the results of this study were supported by those of Ater, Mutai and Bett (2021), who discovered that farmers with extensive farming experience have superior abilities and knowledge and are more inclined to market their produce compared to farmers with less farming experience.

### 3.2.3 Independence

Independence as a personality trait was statistically significant at a 10% significance level with a coefficient of 0.0228. This positive correlation implies that farmers are more likely to become commercial farmers when they have developed independence as their personality trait. The study findings further imply that being independent among farmers can have a vital impact on the effectiveness of production, quality assurance, and market responsiveness, ultimately enhancing their likelihood of commercialising their enterprises. A similar study by Shang, Heckeleei, Gerullis, Börner and Rasch (2021) highlighted that a farmer's independence has a significant role in adopting new technologies that will increase farmer productivity and subsequently improve their ~~commercialisation~~commercialization efforts. Furthermore, a study by Qin, Wang, Zhou, Guo, Jiang and Zhang (2022) stated that farmers who are independent of government support can better adjust to shifting market conditions.

### 3.2.4 Access to Financial Advice

While access to financial advice statistically influenced farmers' ~~commercialisation~~commercialization at a 1% significance level, the study findings demonstrate the influence that access to finance and resources has on expanding one's enterprise. The study findings imply that access to finance could improve the type of inputs farmers could use, enhancing their ~~commercialisation~~commercialization. Furthermore, access to financial advice could significantly improve farmers' decision-making regarding financial handling, boosting, and saving skills. A study by Balana and Oyeyemi (2022) concluded that most smallholders have minimal access to formal financial services, negatively impacting their high-value market participation. Furthermore, Langyintuo (2020) echoed it by discovering that factors such as uneven demand and high service costs in rural areas; risks specific to agriculture, like unpredictable weather patterns, pests, and price swings that affect entire communities; and a lack of legally recognised property has contributed towards limited access to financial advice among farmers.

### 3.2.5 Commodity life cycle

The commodity life cycle was positively and statistically significant at the 1% significance level. This indicates that 0.3541 units enhance a farmer's rate of ~~commercialisation~~commercialization with a longer commodity life cycle. The study's findings imply that farmers have more incredible options to commercialise when their vegetables have a longer shelf life. Due to the perishable nature of agricultural products, it is challenging to be involved in high-value markets if farmers produce highly perishable vegetables. A study by Tshikororo (2023) supported the findings by outlining that agricultural output with a high perishability rate provides several risks to farmers, including a high likelihood of suffering a loss and less time to market their products.

## 3.2.2 Discussion on determinants contributing to the regress of commercialization among farmers

### 3.2.2.1 Record keeping

The study findings revealed that record-keeping statistically significantly influenced ~~commercialisation~~commercialization intensity among farmers at a 10% significance level. With a coefficient of -0.1475, the results suggest a regressive link between poor record-keeping and ~~commercialisation~~commercialization. Poor record-keeping lowers the likelihood of ~~commercialisation~~commercialization. The study findings imply that poor recording keeping hinders smaller farmers from progressing to ~~commercialisation~~commercialization. A study by Tshikororo (2023) revealed that smallholder farmers face more credit constraints than commercial farms due to their poor administrative capacity and outdated record-keeping. A study by Gichohi (2020) argued that effective record-keeping adds value and gives businesses a competitive edge to help solve problems, improve communication, monitor and control, improve service delivery, increase flexibility, and boost revenue and productivity. A similar study by Chiwawa (2019) observed that

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maintaining accurate farm records is a crucial strategy employed by very prosperous farmers and that farmers with impeccable farm records are better positioned to obtain necessary loans than those without them.

### 3.2.7 Untamed resource allocation

Untamed resource allocation was inversely correlated and statistically significant at the 1% significance level. This shows that the distribution of inefficient resource allocation reduces the likelihood of ~~commercialisation~~commercialization by -0.3030. Furthermore, the study results suggest that poor resource management leads to a low ~~commercialisation~~commercialization intensity as inefficient resource allocation increases farmers' expenses and reduces their output. The current study's findings are consistent with those of Villa-Henriksen et al. (2020), who found that poor and unprioritized distribution of resources has a negative economic outcome, particularly in the enterprise's sustainability. Additionally, Maja and Ayano (2021) pointed out that inefficient resource allocation is the cause of the fall in agricultural production, biodiversity loss, habitat degradation, and poor and declining farmer profitability, and it affects farmers' decisions to perform in high-value markets.

### 3.2.8 Overreliance on seasonal workers

With a coefficient of -0.2500, over-reliance on seasonal workers was statistically significant at a 1% significance level. This indicates that farmers are less likely to become commercial when they rely heavily on seasonal workers, and skill retention is at risk. The current study suggests that those who harvest vegetable crops with temporary labour may experience a significant and direct decline in total harvested commodities due to an inadequate labour supply. In addition, unskilled workers need to gain the necessary skills for proper production, harvesting, and marketing. The study results are consistent with those of Cortignani, Carulli, and Dono (2020), who found that farms that use unskilled seasonal workers in certain short-term livestock breeding operations achieve low productivity, which will hurt the quality of products and result in low sales. However, according to Coderoni, Macri, Cardillo and Perito (2018), seasonal availability does not guarantee productivity efficiency because workers must interact and migrate between farms to obtain a respectable yearly wage or employment incentives. Furthermore, temporary labourers are limited to harvesting and typically work short shifts on average farms. Thus, their success depends on their capacity to work across many farms (Marongiu, 2021).

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**Table 3: Tobit Model Results on Commercialization Intensity**

Variable	Coefficient	T
Household size	0.0011	0.02
Age	-0.0018	-0.49
Land ownership arrangements	0.0757	1.31
Type of farmer	-0.0048	-0.14
Independence	0.0228	1.58
Access to proper storage facilities	-0.0049	-1.11
Educational level	-0.0047	-0.08
Marketing costs	-0.0350	-1.14
Access to financial advice	0.2702	2.92 *
Access to market	-0.0344	-0.47
Commodity life cycle	0.3541	2.65 *
Poor record keeping	-0.1475	-1.99***
Other off-farm income	0.0055	0.26
Access to extension services	-0.0327	-0.44
Marital status of respondents	0.0589	0.85
farming experience	0.3016	1.99 ***
Transactional arrangements	0.0147	0.07
Overreliance on seasonal worker	-0.2500	-2.73*
Distance to market	-0.0144	-0.11
Gender	0.1741	1.97 ***
Untamed resource allocation	-0.3030	-2.05**
_cons	0.6072	2.49

\*Note. Number of obs = 220; Log likelihood = -127.5383; LR chi2(21) = 40.07; Pseudo R2 = 0.1358; Prob > chi2 = 0.0073. Source: Field Survey, 2024.

## 4. Conclusion and Recommendations

The study explored ~~commercialisation~~commercialization intensity-enhancing determinants for farmers within emerging economies. The study revealed that elderly farmers dominated the study sample, with most of them possessing a secondary education level. Furthermore, most farmers have been farming for more than ten years. Moreover, the study also uncovered that determinants such as gender, farming experience, independence, access to financial advice, and commodity lifecycle significantly influenced farmers' ~~commercialisation~~commercialization intensity. In contrast, determinants such as poor record keeping, untamed resource allocation, and overreliance on

seasonal workers regressed ~~commercialisation~~ commercialization intensity among farmers. Therefore, the study recommends that gender imperatives should be investigated further to improve gender equality within the agricultural ~~commercialisation~~ commercialization landscape. The study also recommends that emerging farmers be capacitated about commodities with more revenue turnover associated with their lifecycles as it enhances their likelihood of achieving commercial status. Lastly, farmers should be capacitated with essential record-keeping skills as it assists in tracking their business performance and ultimately improves their decision-making.

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