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ARTICLE

Differential Impact of Financial Access Factors on South African Small Businesses and Smallholder Farmers

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ABSTRACT

Purpose: Securing finance is critical for all enterprises, and there is a wealth of literature discussing factors that restrict such access, particularly for small business owners. However, current literature often overlooks the importance of understanding which factors are paramount to different business categories. This study aimed to profile the aspects influencing financial access among smallholder farmers and small businesses. Design/Methodology/Approach: Data collected from the Eastern Cape province of South Africa were analysed using latent class analysis. Nine dichotomous variables concerning finance access were surveyed across 189 participants. Findings: Our evidence shows that these factors do not affect all farmers or businesses uniformly. We found these factors pervasive for 38% of the surveyed sample, while they had a low to moderate impact on 39% and 23% of farmers. Practical implication: These findings have significant implications for policy on rural business development, food security and credit risk profiling by business capital providers.

Keywords: Financial Access; Smallholder Farmers; Small Businesses; Latent Class Analysis; Rural Business Development

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1. Introduction

Small and medium-sized enterprises (SMEs) are considered the backbone of the economy of many countries. SMEs significantly contribute to economic growth by creating jobs, alleviating poverty, distributing income, and promoting innovation[1]. A sound SME sector is essential to creating a sound industrial sector in the economy. Well-functioning SMEs are necessary for continuous and sustainable economic growth[2, 3] state that small-scale industries play a considerable role in the employment of manpower and productivity and distribution of income across the regions through increased investments and profits. Literature suggests that rural entrepreneurship can help develop rural areas through the sound management of local resources and the creation of employment opportunities[4]. In South Africa, for instance, small businesses are critical to improving economic development in rural areas[5]. Governments worldwide are increasingly emphasising the success of small business entrepreneurs and providing increased support resources because entrepreneurial finance has been judged to influence the success and growth of SMEs positively[6].

The development and growth of smallholder farming and rural non-farming enterprises are important to SMEs and crucial to rural development and poverty alleviation. Evidence from most continents over the last decades reports that the shares of household income from non-farm sources have grown[7]. A similar study reported that 82.5 % of rural households diversified their income sources into other non-farm activities, as against 17.5% that depended solely on farm activities in Southeastern Nigeria[8]. In another report[9], artisanal and small-scale mining employs around 44.7 million individuals, rendering it the most important non-farming-related employment activity in the Global South.

In South Africa, approximately 20.7% of households engage in agriculture, with 65% relying on smallholder farming to meet household food demand[10]. Both numbers have likely increased due to the impact of the COVID-19 pandemic on the economy and South Africa's worsening unemployment rate. The South African rural communities depend largely on smallholder farming as a primary strategy to improve their livelihoods[11]. This livelihood strategy has the potential to eliminate poverty and hunger by means of ensuring food security. The authors, however, identified the inability of the challenging state of smallholder farming to rescue South African rural communities from risks and trends created by the poverty cycle. This is because the majority of South Africans are currently suffering from hunger and food insecurity. Similarly, the number of SMEs declined year on year by 11%, and the sector also shed about 90% of all jobs in the third quarter of 2020[12]. Study identified a lack of finance as a key factor constraining the growth of SMEs in sub-Saharan Africa[13]. Expanding non-farming enterprises requires more funds to run the businesses[14].

Agricultural finance or credit is an essential input and modern technology for increased farm productivity. Specifics of the business of agricultural producers are reflected in the seasonal nature of production, slow capital turnover and high production costs. Financing the agricultural enterprises' working capital using their own funds hinders the production process due to the long realisation that extends the time needed to set financial resources[15]. Agriculture holds considerable potential to provide gainful employment opportunities to many youths if it is supported with increased financial investment and conducive legal and policy frameworks[16]. According to the literature[17], access to finance, among other factors, determines the development of smallholder farming into viable agribusiness in South Africa. Just as consumption credit, among others, are inhibiting factor of entrepreneurship in smallholder farming[18].

While financial inclusion provides a framework for financial access, the segmentation theory caters to this study's methodological approach. Financial inclusion emphasises the role of access to credit, savings, and insurance as key drivers of economic development, particularly for small businesses and farmers who often face significant barriers to traditional financial services[19]. Small businesses require adequate capital for expansion and resilience, while smallholder farmers need access to financial products for investment in agricultural inputs and risk mitigation[20]. Segmentation theory suggests that a population's farming and non-farming

small businesses can be classified into distinct, unobserved subgroups based on shared characteristics or behaviours [21]. This implies that small businesses and smallholder farmers do not constitute homogeneous groups but instead exhibit varying financial behaviours, challenges, and outcomes that can be attributed to differences in access to financial services, institutional barriers, and socioeconomic factors. Segmentation theory suggests that financial outcomes are not uniform but depend on specific latent characteristics that distinguish different classes within the population.

Extant literature has paid much attention to factors limiting access to finance by SMEs. Studies document that economic activity and financial institutions often vary by region, affecting SMEs' access to finance [22]. This can be true for smallholder farmers living in remote rural settlements. Businesses located in economically disadvantaged or remote areas often face more significant challenges in accessing finance due to a lack of nearby financial institutions and lower levels of economic activity and digital connectivity [23]. The low personal income of the business owner can also limit the personal resources available to invest in the business or use as collateral for business loans, which can restrict access to external finance [24]. A study in Ghana found that access to financial services has a larger income impact on households and recommended financial service patronisation to improve the welfare of rural people [25]. In the same vein, the financial performance of cooperative societies in Kenya influenced the higher interest rate of unsecured loans by commercial banks due to the associated higher credit risk [26]. Similarly, a rural United States of America study found that lower performance in gross sales is attributable to constrained borrowing with a deficit to obtain agricultural loans at the required or desired level by farmers [27]. In addition, developing inclusive financial systems that emphasise quality rather than quantity is necessary in rural areas to promote economic growth [28]. Furthermore, low levels of financial literacy can impede access to finance, as they limit SMEs' ability to understand financial concepts, manage financial resources and navigate financial markets [29, 30]. Moreover, race can play a role in SMEs' access to finance, particularly in countries with racial disparities in wealth or credit markets; however, introducing fintech platforms is favourable for racial minorities to have access to finance [31]. Similarly, the business size can impact access to finance, as smaller businesses often face greater financial challenges due to their higher risk profile and lower collateral [20, 32].

Several authors argue that many SMEs do not maintain formal credit records, making it difficult for lenders to assess their financial health and thereby limiting their access to finance in South Africa [33]. The day-to-day financial management skills significantly influence access to finance by SMEs in South Africa [34]. A positive correlation exists between a lack of collateral assets and rejection of credit for SMEs, particularly new and small ones, which often lack the necessary collateral to secure loans, inhibiting their access to finance [35]. Several factors, such as access to external finance, competition, inflation, and government policies, influence the growth of SMEs, especially in developing countries [36]. In South Africa, SMEs' access to the size of the business, legal entity, area of operation and business plan all influence the ability of SMEs to obtain credit and loans and are constrained by regulatory and legislation [37].

The preceding studies identified various factors that constrain small businesses, including smallholder farmers, from accessing finance. However, the problem is the differential impact of financial access factors on South African smallholder farmers and small businesses. Extant literature tends to assume that these groups face similar challenges, resulting in generalised interventions that may not address their distinct needs [22]. Additionally, smallholder farmers and businesses in rural or remote areas face greater challenges due to a lack of nearby financial institutions and limited resources [23, 37]. Assuming that these factors affect them similarly may be misleading and hinder appropriate intervention. Therefore, this study sought to fill this gap and categorise the pattern of the impact of factors constraining financial access on smallholder farmers and small businesses using field data collected in the Eastern Cape province in South Africa.

This study contributes to the literature in two ways. Firstly, it identified factors impeding access to finance peculiar to smallholder farmers in the Eastern Cape

province of South Africa. Secondly, the study categorised how these factors influence the farmers' needs for finance in different ways. Based on logistic and multinomial logistic regression analysis, we modelled a categorical latent class analysis (LCA) to classify the surveyed individual smallholder farmers and small businesses by clustering the financial factors into groups based on their influence on their access to financial services. We found that several factors, such as personal income, race, state and size of business, and proximity to financial institutions, influenced farmers' access to finance in the province. More importantly, we found that these factors are pervasive for 38% of the farmers surveyed, while the factors ranged from low to moderate impact for 39% and 23% of the farmers. The implication is not far-fetched. Where specific factors that affect the financial access of a certain group of farmers can be identified based on their business lifecycle, personalised intervention can be provided. It does not only have the capacity for business expansion, but the spill-over effects on the local and, by extension, the national economy can be invaluable. The rest of the study covers underpinning supporting literature, the method, results, and conclusions.

2. Material and Method

2.1. Data and Variable Description

This study collected data from 283 smallholder farmers and small businesses in the Eastern Cape province of South Africa. It was targeted at the rural settlers of the agrarian areas of the grasslands (Mthatha), savanna (East London) and the Karoo (Queenstown), which constitute the three agricultural areas in the province. The profile of the participants revealed that out of the participants, 210 were women, 160 were categorised as being above the youthful age, 192 had completed up to Grade 12 education, and the remaining participants had tertiary education. Additionally, 220 participants obtained their financing from commercial banks. The participants owned either a small farm or a subsistence business in a ratio of 40:60.

This study categorises small farmholders as those who primarily rely on rainfall for their agricultural production, cultivate less than five acres of land, and have limited access to market opportunities. In contrast, subsistence businesses are small enterprises that operate solely for survival purposes and are unlikely to expand beyond their current size and generate employment opportunities. The participants were selected using simple random probability and snowball sampling techniques. The former sampling method ensured that each member of the targeted farming and non-farming business population had an equal chance of being sampled, thereby minimising bias and potentially resulting in a representative sample [38, 39]. The latter approach, which relied on the recommendations of known contacts to facilitate the recruitment of additional participants, proved particularly advantageous given the unknown nature of the study population, highlighting the importance of personal networks in research [40]. In other words, the study initially used simple random probability sampling to ensure an unbiased selection of participants from the broader population. Snowball sampling was then employed to reach additional participants who were harder to identify or access through random sampling alone, expanding the sample size through referrals from initial participants.

Notably, the participants' profile statistics highlighted a significant level of education, which could potentially drive financial literacy, even at the grassroots level. Furthermore, the number of banking participants indicated considerable financial inclusion, suggesting their potential to provide informed information about the issues they face in accessing the requisite financing for their business. The survey consisted of questions requiring "yes" or "no" answers addressing financial access issues by the province's target population. Walter Sisulu University provided ethical clearance for the instrument containing a consent form that was used to obtain the participants' permission before data collection. Hard copy distribution of the questionnaires was deemed most suitable for the study, given the nature of the target population with enumerators were appointed to assist with the data collection.

Table 1 presents the financial access elements on which the questions requiring a "yes" or "no" response from the participants were asked. The participants selected "yes" or "no" regarding how the areas in which

Table 1. Financial access factor variables.

Variable Name	Yes	No	Variable Label	References
MA	89	198	My area	[41, 42]
MPI	125	158	My personal income	[43, 44]
MBR	91	192	My business revenue	[45, 46]
AFI	65	218	Availability of financial institutions	[47, 48]
MFI	95	188	My financial literacy	[29, 30]
MR	56	227	My race	[31]
SMB	117	166	Size of my business	[?]
SOMB	125	158	State of my business	[49, 50]
IR	50	233	Interest rate	[51]

Source: Survey responses, 2022.

they lived, their personal income, and their level of financial literacy, among others, influence their access to finance. The coding indicated 1 for any factors that affected their ability to access finance and 0 if otherwise.

2.2. Model Specification

This Latent Class Analysis (LCA) model was used to implement the objective of this study. LCA is a statistical technique that identifies unobservable or latent classes within a population based on observed variables. We applied LCA to classify the surveyed individual smallholder farmers and small businesses by clustering the financial factors into groups based on how important they were in impeding the farmers' ability to access the needed financial access by examining the predictors of the group. Existing literature [52] used logit regression analysis to test the determinants of financial inclusion. Studies have analysed factors affecting the financial sustainability of small businesses using descriptives and multivariate regression analysis [53]. Other studies considered structural equation modelling in exploring the demand-side barriers to credit access and financial inclusion [54]. This study differs from these various studies and methods by examining what individual financial access factors contribute to accessing finance using LCA.

The LCA model [55] for factors influencing financial literacy is presented as follows:

Let $Y = Y_1, Y_2, \ldots, Y_\rho$ be a set of ρ observed variables, where Y_j represents the jth variable. These variables represent the financial access factors presented in **Table 1**. Assume there are K latent classes in the population and let $\eta = (\eta_1, \eta_2, \ldots, \eta_k)$ be the probabilities of class membership, where η_k is the probability of an individual belonging to the kth class, and $\Sigma\eta_k = 1$. Fixing a logistic regression, $X = (X_1,\ X_2,\ \cdots,\ X_q)$ for a set of X_q covariates help to predict the probability of belonging to a specific latent class. The logistic regression model for the binary latent class membership $(K = n)$ can be written as:

$$log\left(Pr\left(C_n = n|X = n\right)\right) = \left(\frac{exp(\alpha_{nn})}{1+exp(\alpha_{nn})}\right)$$

Where C is the variables and X the categories for estimating the intercept affecting each variable. The probability of a farmer belonging to each class is modelled in the following multinomial logistic regression:

$$log\left(Pr\left(C = n\right)\right) = \left(\frac{X_n}{\sum^C \in^{X_C}}\right)$$

The LCA model estimates the conditional probabilities of each observed variable given the latent class membership. Let $\sqcap_{jk} = P\left(Y_j = 1|C = k\right)$ be the probability of the jth variable being equal to 1 given the kth latent class. The joint probability distribution of the observed variables given the latent class membership can be written as:

$$P\left(Y|C = k\right) = \prod\left[\left(\pi_{jk}^{Y_j}\right) * \left(1 - \pi_{jk}\right)^{Y_j}\right]$$

The parameters η and π_{jk} and the logistic or multinomial logistic regression coefficients can be estimated using the expectation-maximisation algorithm, which iteratively updates the estimates until convergence.

To evaluate the model fit and determine the optimal number of latent classes, goodness-of-fit indices such as the Bayesian information criterion (BIC), the Akaike information criterion (AIC) and the Vuong-Lo-Mendell-Rubin likelihood ratio test (VLMR-LRT) can be used.

3. Results and Discussion

This study fit a categorical latent variable for financial access variables discussed in the previous section, **Table 1**, to group the factors most impactful to a particular class of smallholder farmers and small businesses in accessing the finance needed for the sustainability of their operations. **Table 2** presents the intercept-only logistic regression model for the financial access variable sets. This allowed the estimation of the intercepts separately across classes to assess the likelihood of a smallholder farmer small business obtaining the required financial access.

To ascertain the number of classes and their respective membership, three models were identified, beginning from class 1, after which convergence was unachievable. The class estimation outcomes are depicted in **Table 2**. The second through fourth columns of the table represent the projected coefficients from the multinomial logit regression model pertinent to each class, elucidating the likelihood of a participant being classified under a certain category from the three delineated ones. The remainder of the table, specifically columns 5 through 13, displays the results derived from the logistic regression models concerning the classes.

Table A1 delineates the comparison of the three intersecting models using two evaluative tools: the AIC and the BIC. These tools were applied to discern the most effectively fitted model for subsequent interpretation. The guiding principle here was to select the model that yielded the least information criterion, as it is considered the superior model. Both AIC and BIC selected the class 3 model as the best model, corresponding to the least information criterion. Nevertheless, for robustness, we determined the probability of belonging to each class by estimating the latent class marginal probabilities for the two models, two-class and three-class, consistent with the least information criterion in that order (see **Table A2**).

The forecast suggested that, in the two-class model, an expected 62% of the participants were likely to fall under class 1, while 38% were anticipated to be part of class 2. On the other hand, within the three-class model, the breakdown was 39% for class 1, 23% for class 2, and 38% for class 3, as per the analysis. Customarily, any model with a probability of less than 8% for inclusion in a specific class within the models is discarded. Given the LCMP results, we cannot dismiss the two- or three-class models. As a result, we gauged the fitness of the two models by computing the latent class goodness of fit, with the results presented in **Table A3**. The likelihood ratio evaluated the fit of the dual-model categories by contrasting them with the saturated model to determine whether our model's fit was on par with the saturated model. Ideally, the likelihood ratio chi-square ($\chi 2$) test should be as minimal as possible, and the probability should be insignificant.

Based on the established standards, we cannot dismiss the null hypothesis, suggesting the model fits and the saturated model for the three-class model. This is not applicable for the two-class model, which displayed a considerable P-value. Consequently, we identified the three-class model as superior for segregating the financial access components for smallholder farmers and small businesses in the research location. The three-class model was sorted into categories, namely less impactful factors (LIF), moderately impactful factors (MIF) and very impactful factors (VIF).

After setting up the class model, we assessed the likelihood of a single business being part of each subclass by applying the posterior probability of class membership predictions displayed in **Table A4**. This table contains the data for 10 randomly selected participants, arranged in the order they were surveyed. The analysis revealed that all the listed participants had a more than 90% chance of being categorised as LIF, MIF or VIF, except for the third and sixth participants. Their probabilities stood at 58% and 87%, respectively, which gave an indication of the model's aptness.

We further verified this in **Table A5**, where the class prediction probability demonstrates that our model could effectively differentiate participants into their specific sub-classes. The results showed a 99% probability of accurately categorising the participants as part of, for instance, LIF, with only roughly 0.9% and under 0.2% chances that the same participant could be mistakenly identified as part of MIF and VIF, respectively. This trend was similarly observed for the second and third sub-classes, where there were a 98% and 99%

Table 2. Financial access factors multinomial logit and logistic regression.

VARIABLES	1b.C	2.C	3.C	MA	MPI	MBR	AFI	MFI	MR	SMB	SOMB	IR
o._cons	0											
	(0.000)											
1.C				−0.779***	−0.234*	−0.747***	−1.210***	−0.683***	−1.400***	−0.350***	−0.234*	−1.539***
				(0.128)	(0.120)	(0.127)	(0.141)	(0.126)	(0.149)	(0.121)	(0.120)	(0.156)
o._cons	0											
	(0.000)											
1bn.C				−3.587***	−1.617***	−3.382***	−18	−3.452***	−3.721***	−0.822***	−0.814***	−3.760***
				(0.479)	(0.208)	(0.456)	(0.000)	(0.491)	(0.630)	(0.165)	(0.167)	(0.506)
2.C				1.299***	2.131***	1.353***	0.431**	1.624***	−0.0665	0.366*	0.674***	−0.287
				(0.251)	(0.332)	(0.251)	(0.204)	(0.272)	(0.196)	(0.199)	(0.207)	(0.198)
Constant		−0.494***										
		(0.127)										
1bn.C				−16.58	−1.370***	−4.985***	−18	−4.774***	−15.83	−16.12	−13.82	−3.294***
				(421.0)	(0.237)	(1.379)	0	(1.105)	(385.8)	(407.1)	(252.5)	(0.509)
2.C				−2.661***	−2.089***	−2.782***	−17.85	−2.568***	−2.548***	1.802***	1.872***	−17.75
				(0.528)	(0.416)	(0.588)	(954.9)	(0.525)	(0.550)	(0.410)	(0.410)	(912.2)
3.C				1.321***	2.060***	1.418***	0.425**	1.606***	−0.0883	0.320	0.613***	−0.290
				(0.245)	(0.322)	(0.249)	(0.201)	(0.267)	(0.195)	(0.198)	(0.204)	(0.197)
o._cons	0											
	(0.000)											
Constant		−0.561***	−0.0388									
		(0.162)	(0.137)									
Observations	283	283	283	283	283	283	283	283	283	283	283	283

Note: Variables labelled 1.C, 2.C, and 3.C represent different categories or levels of the financial access factors, with the coefficients for each level shown in the corresponding columns. The asterisks indicate statistical significance, where ***p < 0.01, **p < 0.05, and *p < 0.1. The values in parentheses are standard errors. The model also includes constants (_cons) to show the baseline levels for comparison. Missing or "o._cons" rows represent omitted base categories for the reference comparison. Variables MA, MPI, MBR, AFI, MFI, MR, SMB, SOMB and IR are as denoted in **Table 1**.

probability, respectively, that businesses falling under these sub-classes would be correctly classified.

Having established the model, the results presented in **Table 2** can be placed in context and better understood by examining how the impact of financial access factors differs across the surveyed smallholder farmers and small businesses. **Table 3**, graphically represented by **Figure 1**, presents the actual predicted probability of financial access factors in terms of how they are likely to affect the ability of the target group to have access to finance, given the logistic regression model. We considered participants in class 1 as LIF, given the extent of the impact of the financial factors considered for the smallholder farmers and small businesses in that category. The result indicated that only personal income at 20% and interest rate at 4% were the factors that mattered to the participants in the class when seeking to access finance from banks or other financial institutions, for instance. In other words, farmers whose personal income accounts for 20% of capabilities of determining their access to finance are also having interest rates accounting for up to 4% influence on their financial access. **Table A2** in **Appendix A** estimated the probability of farmers and businesses identified in this category as 39% of the surveyed sample. Authors agree on the potential for low personal income to impede business access to finance [43, 44]. This poses challenges to providing the much-needed collateral in securing loans from finance providers [35]. Similarly, literature maintains that SMEs find it difficult to obtain financing due to high lending rates [51]. However, interest rates did not constitute a significant limiting factor for businesses in this class model, the same as factors such as the area in which they live, the availability of financial institutions, financial literacy, and the size of the business, among others. It is, however, a force to reckon with, especially in an economy such as South Africa's, with growing costs of capital.

Unlike the smallholder farmers and small businesses in class 1, the size and the business's state constituted the most important factors for consideration for financial access in class 2, categorized as MIF at 87% and 86%, respectively. This was followed by personal income accounting for 11%, the area where they live, financial literacy, and race each accounting for 7%, while business revenue sat at 6%. More specifically, farmers whose race had a 7% impact on determining their access to finance, for instance, had 87% and 86% chances that the size and the state of the businesses, respectively, constituted impediments. Participants categorised in this class were 23% of the sample surveyed. The size and state of farming and/or business were pervasive factors in this class, and this is reason for concern given the sample size surveyed in the category.

Table 3. Classification of factors affecting financial access.

Profile	Indicators	Margin	Delta Method Std. Err.	[95% Conf. Interval]	
Class 1	MA	6.30e-08	0.0000265	0	1
	MPI	0.2026664	0.0383692	0.1376327	0.2881613
	MBR	0.0067911	0.0093002	0.0004582	0.0925527
	AFI	1.52e-08	.	.	.
	MFI	0.0083768	0.0091786	0.0009677	0.068614
	MR	1.33e-07	0.0000514	0	1
	SMB	1.00e-07	0.0000408	0	1
	SOMB	9.98e-07	0.0002521	1.1e-221	1
	IR	0.0357863	0.0175801	0.0134887	0.0915234
Class 2	MA	0.065309	0.0322363	0.0242187	0.1643711
	MPI	0.1101491	0.0407594	0.0519435	0.2185424
	MBR	0.0582965	0.0322697	0.0191853	0.1638225
	AFI	1.76e-08	0.0000168	0	1
	MFI	0.0712292	0.0347188	0.0266862	0.1766285
	MR	0.0725535	0.0370265	0.0259171	0.1869991
	SMB	0.85835	0.0498642	0.7306332	0.9312126
	SOMB	0.8667366	0.0473047	0.744541	0.9355418
	IR	1.95e-08	0.0000178	0	1
Class 3	MA	0.7892649	0.0407451	0.698542	0.8582263
	MPI	0.88691	0.032248	0.8068086	0.9364169
	MBR	0.8049631	0.039041	0.7171194	0.8704561
	AFI	0.6047328	0.0480591	0.5077889	0.6940858
	MFI	0.832857	0.0372298	0.7468407	0.8938032
	MR	0.4779457	0.0486635	0.3844901	0.5729712
	SMB	0.5792057	0.0481889	0.4830054	0.6697451
	SOMB	0.6487323	0.0465105	0.5531582	0.7337053
	IR	0.427978	0.0481724	0.3372056	0.5238721

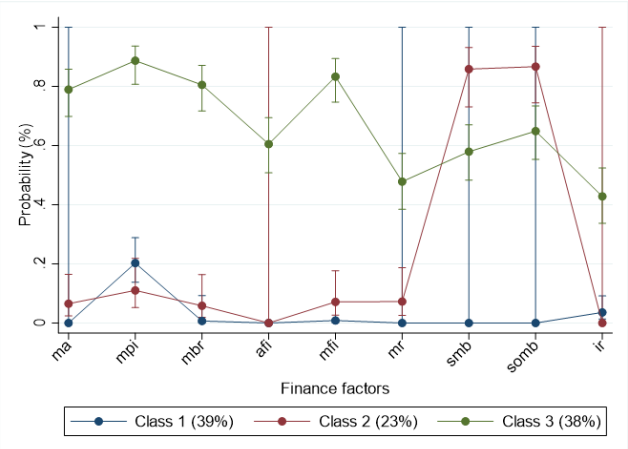

Figure 1. Financial factor access classification.

The size of a business is germane in accessing finance, given its implication for the risk profile and the propensity to lower collateral [20, 32]. In a like manner, the financial health and the profitability of businesses could have an impact on their risk profile to access finance [49]. This is not unlikely for the sample in this survey, as often most of them were not likely to be profitable given the rural setting with less infrastructure for market access, production for consumption and less mechanisation of processes. Financial literacy featured prominently in this category and has always been considered in the literature as a major inhibiting factor for financial access [56]. Studies document that the inability to understand financial concepts, manage financial resources, and navigate the financial markets impedes small businesses' financial access [29, 30]. These futures can be expected to be pervasive with rural dwellers, as those in the areas surveyed. A further crucial factor featured in this category was the area in which the smallholder farmers and small businesses were located, which speaks to proximity to financial institutions that would be inher-

ently limited [42].

We considered smallholder farmers and small businesses in class 3 as VIF, as most financial access factors were prevalent in this group, which accounted for 38% of the smallholder farmers and small businesses surveyed. The results showed that smallholder farmers/small businesses whose access to finance had a 79% chance of being affected by the area they live had 89%, 80%, 60%, and 83% chances that personal income, business revenue, financial institution availability, and financial literacy, respectively, posed impediments to their financial access. In the same vein, the same categories of smallholder farmers/small businesses were also impacted by 48%, 58%, 65%, and 42% possibilities of their race, size, and state of business, including interest rates, becoming major issues in accessing business finance in supporting their operations. Unlike every other factor discussed in the above two categories, race was found to be a major factor in this class. South Africa is known to be a polarised society across race and gender. An earlier study alluded to race playing a role in accessing finance by SMEs in countries where wealth and credit markets are laced with racial segregation [31]. Although much could have changed since this study, given intense campaigns against racism, how this played out in South African society leaves more to be desired. Compared to the first two classes, it could be inferred that participants in these categories fell in the early stages of the business lifecycle or in the start-up stages in which much support is required to nurture such businesses. Each factor considered is critical for the survival of these smallholder farmers and small businesses categories.

Despite the degrees of impact of the factors considered that vary across the strata of the smallholder farmers and small businesses considered in this study, sizeable numbers of the farmers were affected by most factors, hindering their ability to access finance. The study findings suggest that the factors are often interlinked in that farmers with a low income are likely going to live in an environment where it may be difficult to access financial institutions, with low financial literacy inhibiting access to finance. All these factors were documented in the literature to impede financial access by SMEs, to which smallholder farmers and small businesses belong [29, 43, 47].

4. Conclusions

This study attempted to model an LCA to identify and classify financial access factors fundamental to the different categories of smallholder farmers and small businesses in the South African Eastern Cape province. Several factors were identified in the literature that impact SMEs' ability to access various forms of finance, especially from financial institutions. While these factors apply even to the categories of SMEs considered in this study, our study found that the factors impacted the businesses differently. The model classified smallholder farmers and small businesses into three classes impacted by varying numbers of financial access factors. The findings suggest that the evaluated factors were prevalent for 38% of the surveyed respondents. However, these factors had a low to moderate influence on 39% and 23% of the farmers.

Our study concluded that their impacts vary while various factors hinder financial access for smallholder farmers and small businesses. This finding has significant implications. Tailored interventions can be created by identifying specific factors that influence certain groups of farmers' financial access based on their business life cycle. Such interventions have the potential to not only facilitate business expansion but also to generate positive effects on local and national economies.

The policy implications of this study are not farfetched; they are numerous, specifically for smallholder farmers, small businesses, and stakeholders in the financial sector, including government and regulatory bodies. The findings inform policies encouraging financial institutions to offer tailored products and services that address different groups' specific financial access issues, leading to more inclusive financial systems. It could assist in formulating guidelines for more nuanced credit risk assessments, allowing for more precise lending and risk management. Furthermore, the local and provincial government in the Eastern Cape of South Africa could upscale the study and use the findings to design and implement targeted interventions, such as grants or subsidies, that address specific financial access issues differ-

ent groups face. The results could guide the creation of educational programmes designed to improve financial literacy and management skills among smallholder farmers and small businesses, enabling them to navigate financial access issues better. This study also has implications for rural development policy. With a focus on the Eastern Cape province, the study informs rural development policies, ensuring that such policies effectively address the financial access needs of smallholder farmers and small businesses in rural areas. In addition, based on the findings, the government may need to consider reforms to banking and financial sector regulations to ensure that they support rather than hinder access to finance for these groups. The findings can also stimulate policy conversations on public-private partnerships, bringing together government resources and private sector efficiencies to serve these communities' financial needs better.

However, our study acknowledges the limitations posed by our small sample size, which hinders generalisation and comprehensive coverage for policy formulation. Despite this, our findings highlight the need for a targeted approach to enhance financial inclusion, particularly in rural development, given the government's efforts in this area. Therefore, efforts should focus on appropriately profiling these smallholder farmers and small businesses to identify their specific challenges for potential support.

Author Contributions

Conceptualization, J.O.A. and Y.S.H.; methodology, software, validation, and formal analysis, J.O.A.; investigation, resources, data curation, writing—original draft preparation, writing—review and editing, visualization, J.O.A. and Y.S.H.; supervision, project administration, funding acquisition, Y.S.H. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki and approved by the Senate Research Ethics Committee of Walter Sisulu University (Ethical Clearance No: 2023/Staff/ND-7195; Approval Date: 26/09/2023).

Informed Consent Statement

Informed consent was obtained from all participants involved in the study's survey.

Data Availability Statement

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

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Every material utilized in the study has been adequately cited and referenced in the study.

Conflict of Interest

The authors declare no conflict of interest.

Appendix A

Table A1. Information criteria.

Model	N	ll (Null)	ll (Model)	df	AIC	BIC
c1	283	.	−1540.149	9	3098.298	3131.107
c2	283	.	−1140.837	18	2317.675	2383.293
c3	283	.	−1068.445	28	2192.889	2294.962

Table A2. Latent class marginal probabilities.

	Class	Margin	Delta-Method	[95% Conf. Interval]	
c2	1	0.6209899	0.0297897	0.5611128	0.6773947
	2	0.3790101	0.0297897	0.3226053	0.4388872
c3	1	0.3948255	0.0294149	0.3388646	0.4536861
	2	0.2253599	0.0258638	0.178715	0.2800283
	3	0.3798146	0.0294318	0.3240491	0.438945

Table A3. Latent class goodness of fit.

	Fit Statistic	Value	Description
c2	Likelihood ratio		
	chi2_ms (493)	670.727	model vs. saturated
	p > chi2	0.000	
	Information criteria		
	AIC	2317.675	AIC
	BIC	2383.293	BIC
	Fit statistic	Value	Description
c3	Likelihood ratio		
	chi2_ms (483)	525.942	model vs. saturated
	p > chi2	0.086	
	Information criteria		
	AIC	2192.889	AIC
	BIC	2294.962	BIC

Table A4. Predicted probability of finance access factors in a class.

Participant	cpr1	cpr2	cpr3	maxpr	Predclass
1.	0.999653	5.03e-09	0.000347	0.999653	1
2.	8.81e-30	5.25e-17	1	1	3
3.	8.16e-06	0.4167418	0.58325	0.58325	3
4.	0.9113131	0.0794297	0.0092572	0.9113131	1
5.	0.9904739	0.0095091	0.0000171	0.9904739	1
6.	1.40e-06	0.134948	0.8650506	0.8650506	3
7.	1.54e-09	3.96e-17	1	1	3
8.	3.50e-24	0.0005872	0.9994128	0.9994128	3
9.	2.02e-16	0.0305315	0.9694685	0.9694685	3
10.	4.15e-16	0.0006109	0.9993891	0.9993891	3

Table A5. Class prediction.

Predclass	Class1pr	Class2pr	Class3pr
1	0.9886716	0.0090361	0.0022922
2	1.60e-06	0.9847025	0.0152959
3	0.0002453	0.0066204	0.9931343
Total	0.3948631	0.2253206	0.3798164

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