

## Economic resilience and sustainable agripreneurship in tobacco value chains: A case of small-scale farmers in Gokwe district, Zimbabwe

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### ABSTRACT

With increasing economic instability coupled with climate change and the Covid-19 pandemic the subject of economic resilience in agripreneurship value chains in rural farming has gained prominence. Despite the constant engagements on the subject, there still is a missing piece on the determinants of economic resilience and sustainability for agripreneurship in tobacco value chains. The objective of this study was to characterize rural farming typologies which will assist in determining resilience and sustainability for tobacco value chains. The research adopted a pragmatic research approach, where quantitative results were triangulated with qualitative results to test the robustness of the research findings. A total of 250 questionnaires were administered to small scale tobacco farmers in Gokwe and interviews were held with selected 8 Agri-text-officers. STATA version 12 was used to analyse quantitative data and thematic analysis using vignettes for qualitative data. The research findings showed a significant positive relationship between sustainable agripreneurship and economic resilience in tobacco farming in Gokwe district. The study recommends that the government prioritise the development of sustainable tobacco infrastructure throughout the value chain and training of tobacco farmers on resilient farming methods. This study offers theoretical contributions on how to achieve economic resilience and sustainable agripreneurship in tobacco value chains in Gokwe district.

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## 1. Introduction

The subject of entrepreneurship has gained prominence in diverse sectors including agriculture. Over the years there has been development of models or ways that are viable in enhancing the success and sustainability of agro-based businesses such as tobacco manufacturing. This is evidenced by Pavlopoulou (2021) who states that modern business recognised the importance of good management, motivation of employees, flexibility, and entrepreneurship and more so in the tobacco industry where there are complex interconnections and interdependent activities across the value chain system. In Macedonia and Balkans, there has been traceable evidence of the establishment of tobacco businesses as family-owned or inherited businesses as yielding more benefits than harm. It has also been established that there is a need to ensure continuous improvement which will lead to sustainability, value creation in the production process, and economic resilience. However, Nguyen et al. (2016) and Dunaway et al. (2018) note that information and communication technology (ICT) plays an integral part in the success and performance of tobacco companies. However, due to the technological inequalities, much success of ICT in tobacco contract farming organizations has witnessed debt recovery management and in stimulating value creation, and sustainability much work still must be done. There have been a lot of opposing motions about the tobacco industry and its sustainability considering the adverse health implications. This is evidenced by Omara et al. (2021) who identified that in the USA there has been an increasing contest by activists who see no future in the tobacco industry and compel companies to make products that are less harmful to people. This has left the industry highly vulnerable and left with no choice but to devise alternative survival strategies or be pushed out of the industry. The problems experienced in the first

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world nation pertaining to the tobacco industry have also been experienced in African countries such as Zimbabwe which is identified as one of the biggest tobacco exporters. Zimbabwe for years has been an agro-based nation and popularly known as the breadbasket of Africa, however, with increasing economic hardships coupled with climate change and other man-made problems has increased food insecurity and vulnerability in the country. In its agricultural initiatives, much of the subject on its sustenance has been from the production of Tobacco.

According to Li (2012), China is the greatest market for tobacco evidenced by it consuming 40% of the global cigarette production and making headway to increase its partnerships particularly in the sub-Saharan region and officially announcing it has gone global strategy. Fang et al. (2020) posit that the increase in production of tobacco can be alluded to the investment done by China National Tobacco Corporation, which is recognised as one of largest tobacco companies invested in both auction floor and contract farming. TIMB (2018) and Chingosho et al. (2020) also observed that 80% of the small holder farmers had support from the private sector hence this proved to be attractive hence the 42% in the number of smallholder farmers between 2016 and 2018 resulting in a 29% increase in tobacco production. According to Lown et al. (2016) approximately 10-43% of the Gross Domestic Product (GDP) of Zimbabwe is contributed through Tobacco sales. Scoones et al. (2018) and Mkodzongi (2019) observe that the sector is largely dominated by small holder farmers who have been supported by the government evidenced by their significant contribution of over 10 million hectares of land allocated to over 146000 small holder farmers. This has ultimately enhanced its contribution towards employment and economic empowerment, evidenced by its absorption of over 90000 people into the sector (TIMB, 2018). Chingosho et al. (2020) and FAO (2020) state that Zimbabwe has been identified as one of the largest tobacco producers in Africa as it produced 25% of the African tobacco crop and 2, 8% of the world's crop. The tobacco industry plays a highly crucial role in the growth and development of Zimbabwe as a nation however it remains vulnerable because of the socio-economic challenge which therefore poses a threat to the resilience and sustainability of the sector. Muroiwa et al. (2019) identify that smallholder farmers continue to drown in problems centred on the socio-economic and institutions designed to support them. The sector has been seen to be transitioning and transforming in its myriad of problems which have been recognised from as early as 2000 which was around the same time when the land reform program started. According to Moyo and Chambati (2013) the mandate of the land reform program was to redistribute the land from the 4000 white farmers to the small-scale farmers grouped as A1 and A2 farmers, however this came with a drastic decrease in production of up to 65% within 2 years. This brought about overwhelming challenges of severe economic stagnation evidenced by hyperinflation, decreased GDP, high unemployment rate and escalating political conflicts.

In 2003 the World Health Organization (2019) introduced the Framework Convention on Tobacco Control which was meant to protect the environment and health of the farm workers. The framework addressed certain issues which included demand and supply of tobacco, trade issues that is trade liberalization, promotion and sponsorship beyond national borders amongst other issues. During the introduction of the framework, there was an increase in demand for tobacco in China as they expressed their support for tobacco farming (Fang et al., 2020; Smith et al., 2020). There was a shift particularly in the Zimbabwean producer from auction floor sales to contract farming which has been seen to contribute towards the economic wealth of farmers (Hu et al., 2020). However, despite this tobacco farmers are still constrained and fail to sustain operations and their own livelihood this is evidenced by 5.5 million rural hunger and the increasing rate of unemployment (UN Human Rights 2019). While there is literature on smallholder tobacco farmers in Zimbabwe, there is hardly any literature that relates to smallholder farmers and economic resilience and sustainability across the value chain. It is thus against this background to outline the value chain system in tobacco production, and this will assist in characterising the rural farming typologies thus ultimately assisting in determining resilience and sustainability of the value chain system. Therefore, this study sought to address causes in the reduction of export earnings and contribution to GDP by the tobacco industry from 2019-2022. The adverse effects of the unprecedented effects of cyclone Idai and the Covid 19 pandemic (Amankwah-Amoah, 2019) are evidence of a drastic fall in GDP contribution from 25% to 11%, which ultimately affected the livelihoods of 70% total population who sustain a living through tobacco farming and working (Kangogo et al., 2020). Despite the subject of resilience gaining traction in academia as its primary beneficiaries, the farmers have received inadequate knowledge to enhance their initiatives. Minimum research has been done on the determinants of resilience and sustainability in tobacco value chain systems, particularly in Gokwe. Therefore, this study sought to investigate farming typologies that will assist in determining resilience and sustainability for tobacco value chains.

## **2. Literature review**

### *2.1 The tobacco value chain*

According to the World Bank (2010), approximately two thirds of the population in developing countries live in the rural areas and sustain their livelihood through agricultural activities. However, much of their entrepreneurial engagements in agriculture is alluded to the buying and selling of commodities without value addition. This is supported by UN Comtrade (2013) who note that 51% of tobacco is exported raw and over the years the tobacco industry has become highly concentrated meaning the few tobacco and leaf buying companies have gained bargaining power and this has led to small scale farmers being more vulnerable. The plea to eliminate vulnerability of the small-scale farmers had led to several research

across the world being conducted. According to Mwimo et al. (2016) in a study conducted in Tanzania's Urambo district, the major challenge in enhancing the value chain was the capital shortages and traditional primitive and backward farming methods. This is very common in most African countries that engage in agricultural activities for example in a comparative study between Malawi and Zimbabwe the issues along the value chain mainly hinged on the practices adopted by the leaf merchant companies on the auction floor that had formed a cartel and also the marketing arrangements (Willemsen & Fooks, 2019). Exposure to adequate knowledge about the value chain proved to be a major challenge to the rural small-scale farmers hence they mainly focused on exporting raw tobacco. The International Tobacco Growers Association (2013) identifies the tobacco value chain system as consisting of three post harvesting stages which are curing, then the streaming, stripping and blending tobacco stage and lastly the transformation stage. This stage has varied demands in terms of labour, capacity, capital intensive and mechanisation, i.e. technology. Within this structure, small producers are situated in a low-value segment of the tobacco Global Value Chain that is highly competitive, while Multinational Corporations typically operate in the highest value segments of the chain (marketing and distribution). This can be especially problematic in countries, such as the case studies of Malawi and Zimbabwe indicate, where there are limited alternatives, because it makes small producers more vulnerable to declining prices, currency fluctuations, and other externalities (Bialous 2019; Scoones, 2020).

### *2.1.1 Farmer resilience in tobacco farming (Sustainable Agripreneurship)*

The world is constantly evolving and requires a lot of resilience and ability to adapt to different conditions. There is a need to come up with adaptive strategies which will enhance the value chain and facilitate growth and sustainability of the tobacco industry. Marshall et al. (2013) identify that farmer adaptive capacity focuses on the ability of the human resources to convert and reconvert existing resources into existing strategies. The subject of farmer resilience is mainly concerned with farmers being able to adapt to the changes and this often involves characterising farmers and relationships they adopt to respond to different issues such as climate change. Kangogo et al. (2020) argue that to effectively explain farmer adaptive capacity there is a need to focus on farmer adaptive capacity, supply chain resilience, entrepreneurship, and farmer organizations. Mukebezi et al. (2023) state that to better understand farmer adaptive capacity there is a need to incorporate farmer psychology factors such as entrepreneurship. Prabhavathi et al. (2023) further add that farmer entrepreneurship, membership in farmer organizations (FOs), and the nature of farmer–buyer relationships play powerful roles in shaping farm resilience through their influence on the farmer's adaptive capacity.

### *2.1.2 Rural livelihood (Economic Resilience)*

The performance of smallholder tobacco farmers in Zimbabwe in relation to the economic resilience, sustainability and the value chain system is a concept that attempts to break down the relationship that exists between the farmers and the innovative production process and the contractors. The study endeavours to establish measures to ensure economic resilience, sustainability and the ability to ensure value creation in the tobacco industry. Most tobacco farmers reside in the rural areas and are not well exposed to economic strengthening and strategies that encourage community growth and development. This is supported by Dube and Guveya (2013) and Goel et al. (2021) who identified rural development as a key engagement that is economic and social in nature which are targeted at ensuring growth which ultimately improves the quality of life. These include a vigorous and vibrant agricultural sector which can be characterised as adopting ICT, embracing research and engaging in innovative and sustainable agriculture. The poor performance of the small-scale farmers who live in rural areas and their inability to sustain their livelihoods through farming activities is hinged on lack of information on how to enhance the value chain system and ensure a sustainable production system which will ultimately assist them in realising value in the production processes. The small-scale tobacco farmers have been affected by the huge losses incurred by tobacco contracting companies and this has led to them having a legacy debt which has proved to be very difficult to recover.

## **3. Method**

The research adopted a pragmatic research approach where a Quan-Qual research approach was incorporated and quantitative results were triangulated with qualitative results to test the robustness of the research findings. Researchers used this approach because it offsets the disadvantages of quantitative and qualitative research methods. This is relevant to the study because quantitative results are inferential and can be used to predict the future status of small scale tobacco farmers and sustainable supply chains in Gokwe, whilst qualitative results will give a cross sectional analysis. The study target population was 2000 tobacco farmers in Gokwe district. Using Krejcie and Morgan (1970) sample calculator table a sample of 160 participants was justified as representative of research findings. Therefore 160 questionnaires were administered to 160 small scale tobacco farmers in Gokwe. To ensure reliability and privacy of responses, the respondent's identity was kept anonymous, and a conducive environment was maintained for interviews. The researchers purposefully interviewed 8 Agri-tex officers out of a total of 36 wards in Gokwe to get a representation even from the furthest wards. STATA version 12 was used to analyse quantitative data and Nvivo version 16 was used to analyse qualitative data.

Thematic analysis was used to analyse qualitative data and vignette excerpts were used to present key findings. A cross section analysis was done using thematic analysis and vignettes to test the robustness of results. This was supported by a conditional correlation test on economic resilience and sustainable agripreneurship in tobacco value chains. Regression analysis results showed a positive relationship between economic resilience and sustainable agripreneurship in tobacco value chains for small scale farmers in Gokwe district. To examine the relationship between sustainable agripreneurship (dependable variable) and economic resilience (independent variable) and other control variables, a conditional correlation model as specified below was used.

$$SA = \beta_0 + \beta_1 ER + \beta_2 NO + \beta_3 Gr + \varepsilon \quad (1)$$

Where  $\varepsilon$  is the error term

*SA* is Sustainable Agripreneurship

*NO* is Nature of Organisation

*ER* is Economic Resilience

*Gr* is Gender

The conditional correlation model is explained below.

### 3.1 Definition and Justification of Variables

Theoretical and empirical literature reviews from the previous chapter influenced the choice of variables. It was widely discussed that, sustainable tobacco value chains in agribusiness are largely dependent on the ability of small scale tobacco farmer's economic resilience.

#### 3.1.1 Dependent Variable

*SA* is sustainable agripreneurship which is attributed to contribute largely to the ability of small-scale farmer's economic resilience during ambivalent and unprecedented periods that keep recurring as climatic changes ravage mother earth.

#### 3.1.2 Independent Variables

*EC* is economic resilience which is the main independent variable in the above model. *ES* directly influences the ability of tobacco small scale farmers in Gokwe to develop resilient value chains that can withstand complex and unpredictable changes in the economies of developing countries. *NO* is the nature of the organisation. *Gr* is the gender of the farmer. The major variable is economic resilience tobacco value chains of small scale farmers in Gokwe district. The control variables were incorporated to enhance the validity of the study.

## 4. Results

**Table 1**

Conditional correlation of Economic Resilience and Sustainable Agripreneurship in Tobacco Value Chains

VARIABLES	(1) OLS	(2) OPROBIT	(3) OLOGIT
Sustainable Agripreneurship	0.251** (0.481)	0.2591** (0.393)	0.431** (0.146)
Nature of Organisation	0.272 (1.148)	0.416 (1.218)	0.682 (0.761)
Gender	0.463 (0.152)	0.066 (0.792)	0.251 (0.601)
Type of Ownership	0.419* (0.931)	0.833* (0.766)	0.712* (0.722)
Level of Education	0.092 (1.018)	0.0219 (1.337)	0.936*** (0.591)
Years in Operation	0.129 (0.794)	0.175 (1.0026)	0.0083 (1.023)
Constant	8.04 (4.82)	10.36* (10.59)	12.53*** (6.28)
Observations	348	348	348
R-squared	0.712	0.827	0.864

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The primary model, the OLS regression model, was run first. OLOGIT and OPROBIT regression models were also tested for robustness. As shown in Columns (2) and (3) of Table 1, when the OLS regression and robust regression models are compared, the results are essentially the same, indicating that the regression coefficients are robust and the model's struc-

tural validity. Findings in Table 1, Column (1) demonstrate the impact of sustainable agripreneurship on small-scale farmers' economic resilience in the tobacco value chains in Zimbabwe's Gokwe District. The findings show a statistically significant link between sustainable entrepreneurship and economic resilience. According to Column (1), a one-unit improvement in sustainable agripreneurship will significantly increase economic resilience by 0.25 points at the 5% level of significance. This result is in resonance with (Marshall, Park, Howden, Dowd and Jakku 2013) who stipulates that farmer resilience is mainly concerned with farmer's ability to adapt and respond to different issues such as climate change and economic recessions. Adopting Sustainable Agripreneurship is associated with economic resilience in tobacco agricultural supply chains. Qualitative results from one of the Agritex officers from Gokwe district shared the same view that economic resilience of tobacco value chains is dependent on the ability of farmers to erect viable value addition infrastructure that will promote value addition activities throughout the tobacco value chain.

#### *4.1 Type of ownership*

Type of farm ownership has both significant positive logit and probit results at a 5% level of significance indicating that land tenure affects a farmer's capacity for value addition. This is supported by Rao et al 2005, and Maxwell and Wiebe 1998) where they state that farm production and investment decisions are largely dependent on tenure security of a farmer. Tenure security encourages farmers to invest in technical and innovative production and processing infrastructure which results in effective and efficient tobacco value chains. Qualitative results from one Agritex officer in Gokwe south ward 7 concurred with the above and highlighted the importance of tenure security in tobacco farming. He further explained that those farmers who operate from their own farms have expanded operations and erected very good barns. They were able to partake in contract farming which gave them a stronger position to invest in fixed infrastructure and improved technologies, for example tobacco curing barns which improved both productivity and farm income. He further explained that, their livelihoods have improved greatly and employment for the local vulnerable has been created.

##### *4.1.1 Level of education*

Ologit results on the level of education has a positive beta of 0.936\*\*\* indicating a positive significant relationship between sustainable agripreneurship and value addition in tobacco farming. This resonates with (Dube and Mugwa 2017) who argues that small scale farmers who have at least attained secondary education have a success possibility of 14% than farmers who have no education, they have potential of possessing better and sound farm management skills. This is in agreement with (Masunungure 2021; Production & Statistics, 2018) who state that tobacco farmers should engage in more value addition than just being mere commodity producers, which will put them in a better position to absorb global market shocks in the complex agripreneurship period. This can be possible through training of small scale tobacco farmers in value addition skills. Another interviewee added that there is need for farmer education on sustainable value addition practices since Gokwe is marginalised and lags in development. This is supported by O'Reilly and Kassim (2015) and Johnston (2016) who identify rural development as a key engagement activity that is economic and social in nature, targeted at ensuring growth which ultimately improves the quality of life of tobacco farmers. Therefore, it is evident that the development of sustainable supply value chains in tobacco farming require farmers to adopt economic resilient farming methods and systems. Tobacco farmers must embrace technology and innovation to remain relevant and improve their productivity.

## **5. Conclusions and Recommendations**

Therefore, this study concludes that Gokwe district tobacco farmers need to adapt economic resilient strategies and come up with innovative value chain systems because their community is generally highly vulnerable as there is no infrastructure development. There is a need for the tobacco farmers to be able to respond to new farming technological requirements in the face of unprecedented disruptions. The community is not well equipped in terms of knowledge and skills to add value and also is a rural community that has its residents that are growing a cash crop but their lifestyles are primitive and backwards. Programs that promote the aspects of value addition need to be embraced in Gokwe district to ensure improvement in the value chain system which will ultimately improve the livelihoods of the farmers.

These researchers therefore recommend that the government prioritise the development of sustainable tobacco infrastructure throughout the value chain and training of tobacco farmers on resilient farming methods. The researchers further recommend that a construction of a tobacco solar drying system in Gokwe can go a long way in saving the environment since most drying barns use wood for heating energy. Also, an educational program targeted at innovative value addition in the tobacco industry will assist in enhancing sustainability and production of a wide range of products. This will promote climate friendly systems of production. As tobacco production and value addition moves up the value chain, it is mandatory to consider using tobacco for traditional medicinal purposes as it can be used in health maintenance and prevention of physical and mental illness at the primary source (WHO 2019; Siddiqi et al., 2023).

Furthermore, the researchers recommend that the government of Zimbabwe come up with policies that support NDS1 with the major trajectory to promote value addition in tobacco farming. The authorities should consider engaging the African Continental Free Trade Area to transform tobacco value addition on intra- regional trade to build cross border value addition

chains rather than concentrating on export trade, which is beyond the reach of many, let alone small scale farmers from Gokwe district. This study may also be useful to farmers, practitioners such as agri-value chain managers and Agritex-officers in coming up with strategies in case of disruption threats. It will also strengthen the power of tobacco farmers to develop alternative markets when prices are low. On another hand, the researchers recommend that future studies must be extended to other crops in the country and beyond.

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