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Farmer Protection and Sustainability of Small-scale Tobacco Production in Zimbabwe

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PRECIOUS KUZIVA HOVE[4], PRAXEDIS DUBE[5], WONDER NGEZIMANA[6]

Abstract

The fast-track land reform (FTLR) programme resulted in an influx of small-scale African tobacco farmers. This was a plus for the country. This was followed by an increase in auction floors and the emergency of tobacco contract farming. Since 2000, small-scale tobacco farmers have been accounting for a significant proportion of tobacco produced and the Gross Domestic Product (GDP) in Zimbabwe. Despite the significant contribution by tobacco farmers to the economy, the issue of farmer protection in contractual arrangements is often overlooked when it comes to small-scale tobacco farming. Contract farming encourages sustainable crop production and shift towards crop specialisation, resulting in quality tobacco produced and helping in poverty alleviation among small-scale farmers. Several organisations have been formed to support farmers like, e.g. the Tobacco Industry and Marketing Board (TIMB) and the Zimbabwe Tobacco Association (ZTA), with a spirit to fight to protect farmers. However, small-scale farmers cried out for protection against unscrupulous business players in contract farming from the risk of low prices, fraud and general economic squalour. Several studies have been done on how to increase tobacco production and profitability of farmers, but long-standing issues of famer protection are often left out. It is easily overlooked that tobacco production is a business and that small-scale farmers as players in the business, are driven by motivation (income, returns and protection) just as employees do. Thus, this study focused on the impact of farm protection on small-scale tobacco production in Zimbabwe.

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Keywords: contract farming, profitability, fraud, risks, unfair contract

INTRODUCTION

Zimbabwe is Africa's largest producer of flue-cured tobacco (Dube *et al.*, 2017; Chingosho *et al.*, 2020). The tobacco crop accounts for 10% of the country‘s GDP (Chingosho *et al.*, 2020). Tobacco is a major source of government revenue raised by levying growers and buyers. According to the Food and Agriculture Organisation (FAO) (2016), tobacco farming is an achievable strategy for mitigating rural poverty. Smallholder farmers view farming tobacco as a good livelihood strategy because they anticipate getting a good income by selling leaf tobacco (Chingosho *et al.*, 2020). Most smallholder farmers are resorting to tobacco farming since it tends to reward them well (Jerie and Ndabaningi, 2011). Tobacco smallholder farmers face the challenge of failing to access loans from banks that traditionally supported the tobacco farmers, as most of the farmers had limited experience, and no bankable collateral (Dube, 2017). The promised 99year lease and permits have proved insufficient for banks to release agricultural credits that were accessed by the large-scale commercial farmer before the land reform program (Moyo and Nyoni, 2013;
Scoones *et al.*, 2017, Mazwi *et al.*, 2020).

Support for agriculture by banks has been a recurrent challenge since the fast-track programme. This has caused a rise in contract farming as an optional source of financing for tobacco production (*ibid.)*. Thus, most smallholder tobacco farmers depend on contract farming. Easey access to inputs, employment creation, technology transfer, markets, foreign exchange generation and alleviation of poverty are incentives promised under contract farming (Ochieng, 2010).

However, from a critical point of view, contract farming leads to loss of autonomy, indebtedness, unequal power relation and converting the farmers into proletariats as agribusiness sector capitalises on free labour provided by farmers to engage in extracting value through labour taking advantage of smallholder farmers (*ibid.*). Agrarian political economists consider power asymmetries that are reflected through quality controls, unfair pricing and uneven sharing of risks (Smalley, 2013; Martiniello, 2016). High input and low output prices are techniques used by most contractors to exploit smallholder tobacco farmers by extracting and collecting surplus value. Critics of contract farming, such as Shivji (2011), note these malpractices. According to Mazwi (2019), the low prices on the market are caused by collusion of contractors at a local level in setting prices.

Although there are grower associations in the industry of tobacco recognised by the TIMB, for instant, the Zimbabwe Progressive Tobacco Farmers Union (ZPTFU) and the Zimbabwe Association of Tobacco Growers (ZATG). The influence of the grower associations in bargaining for better contracts is restricted by the power of financial capital and agrarianism (Mazwi *et al.*, 2020). Even though ZPTFU represents more than 5 000 tobacco smallholder farmers, it is a new organisation with less influential skills. To further complicate the situation for smallholder tobacco farmers, all contract forms are written in English, a language that may not be understood by all farmers, thus disadvantaging farmers with low levels of education signing contracts they do not understand (*ibid.*). Thus, this study focusses on the impact of farm protection on small-scale tobacco production in Zimbabwe.

THEORETICAL FRAMEWORK

The research is inspired by the Human Motivation Theory of 1983, developed by American psychologist Abraham Maslow. The theory is also known as Maslow's Hierarchy of Needs Theory that suggests five groups of human needs that influence an individual‘s behaviour (Maslow, 1987). Maslow‘s Theory emphasises that human decisions are influenced mainly by the five psychological needs, presented in ascending order of groups as follows: 1. Physiological needs; 2. Safety needs; 3. Love and belonging needs; 4. Esteem needs); and 5. Selfactualisation needs (*ibid.*; Tay and Diener, 2011). The lower order physiological needs encompass the basic needs for human survival that include food, shelter, clothes, reproduction, water and rest. Once these are satisfied, then a person can move to second order needs. Safety needs focus on the protection of individuals from any form of adversities that include emotional, financial, health, wellbeing, violence and even theft. Safety needs are the ones mainly supporting this study of farmer protection.

Farmer protection is influenced by the extent to which the second order Maslow‘s human needs are satisfied. Financial, health, emotional and well-being are key factors that influence farmers‘ decision to continue or abandon tobacco enterprise, thus having a bearing on the sustainability of tobacco production by them. In Zimbabwe, tobacco production plays a significant role in the economy, contributing approximately 10% of the country‘s GDP, 30% of total export earnings and 50% of agriculture exports (Ministry of Agriculture, 2018). In addition, approximately 250 000 people (almost 5% of Zimbabwe‘s total population) are engaged in tobacco related work, including tobacco farming (TIMB, 2018; 2019). Most of the tobacco in Zimbabwe is grown by small-scale farmers, accounting for about 57% of the land under tobacco and 95% of the total crop. However, tobacco farmers are crying over poor pricing, unfair input pricing under contract farming and fraudulent practices by some contracting companies

that which a bearing on the satisfaction of the second order tobacco farmer‘s safety needs (Chingosho *et al.*, 2020; Ruckert *et al.*, 2022).

Given that tobacco production is labour and capital-intensive, tobacco farmers focus mainly on tobacco production on large sizes of land and allocate food crops on small land portions, or no none at all (Sakata, 2018; Clark *et al.*, 2020). As result, failure to satisfy the safety needs of tobacco farmers has the trickledown effect that extends to lower order tobacco farmer‘s psychological needs of food, shelter, health, water and many others that farmers anticipated to buy from tobacco production earnings. Hence, farmers may be forced to reduce the size of tobacco enterprises or completely forego tobacco production for food crop production. Farmer protection is of paramount importance for sustainable production and economy as tobacco is the major foreign currency earner.

CONCEPTUAL FRAMEWORK

FAIR PRICING

When farmers are under a tobacco grower contractual agreement, they are obliged to sell to the contracting firm. This creates a hold-up problem and ex-post opportunistic advantage in favour of the contracting firm. Contracting firms can suppress tobacco prices to farmers to maximise their profit margin as farmers cannot sell to any other firm due to the contractual agreement. In some instances, farmers fail to clear off their debt with the contracting firm. The farmers are crying over poor pricing, unfair input pricing and fraudulent practices by some contracting companies that have a bearing on the satisfaction of the second order tobacco farmer‘s safety needs (Chingosho *et al.*, 2020; Ruckert *et al.*, 2022). This was further endorsed by Chifamba (2021), who states that the TIMB statistical report of 2020 revealed that the highest price paid on auction floors has remained $4.99 per kilogram for the past six years. However, farmers have seen their tobacco sell for as little as $0.80 per kilogramme, resulting in paltry earnings after contractors, middlemen and the auction floor commissions are paid out. Mango (2022) concurred with the same notion when discovering that 55% of the respondents in Shamva revealed that the greatest challenge faced by contract tobacco farmers was the low producer price. At such low prices, farmer protection is not guaranteed and tobacco farming for smallholder farmers is not sustainable.

UNFAIR CONTACTING TERMS

In most instances, the contractual agreement between the farmer and the firm are crafted in a manner that favours the firm. Muleya (2021) states that A Tian Ze contract for the 2019-2020 season shows how the system is rigged in the

company‘s favour, with farmers running the risk of shouldering debts larger than they are likely to earn from their tobacco. Loans must be paid in full before the grower makes any profit, and sometimes their property is offered as collateral in case they default. Chazovachii (2021) further alludes that centralised contract farming arrangements are manipulative. Arrangements are characterised by uncertainty and information asymmetry. With contract terms that are skewed in favour of the contracting firm, the small farmer may not even get any income if the harvest is below break-even and runs the risk of losing other assets in debt repayment.

HIGH INPUT PRICES

Under contractual agreements, the price of inputs is highly inflated by the contacting firms. In some cases, the inputs are priced at over 100% of their market value. This information is usually not disclosed to the farmer for them to make comparisons with the market values. This is coupled with the small-scale farmers‘ lack adequate resources to buy their own inputs hence the desperation to enter into contracts. Chazovachii (*ibid.*) discovered that interest rates on inputs and extension services they offer set by contracting firms are beyond famers‘ capacity to manage, as their products are given poor market prices. Mango (2022) posits that high costs of production and uncompetitive producer prices imposed by contracting companies on tobacco farmers render the credit scheme unviable and unprofitable to the farmers. The high input costs imply that the farmer must harvest a high yield to be able to cover the high cost of production. This is the main reason behind the vicious debt cycle that small-scale farmers have with their contracting firms.

RISK MANAGEMENT

Farming, as an enterprise, is plagued by a plethora of risks and tobacco farming is not spared from these unexpected circumstances. These risks and their severity have been greatly increased by climate change. Most small-scale farmers who venture into tobacco farming do not employ risk mitigation measures. The risks they face include, but are not limited to, price risk, inputs cost risk, adverse weather conditions and human resources (*ibid.*). The contracts that smallholder farmers get into do not have insurance or any risk mitigation tool incorporated in them. Any smallholder farmer under a contract is totally exposed to these risks and due to their low net worth; they cannot purchase insurance on their own. In the event of adverse conditions, smallholder farmers bear the full brunt and, in some instances, make total losses (Muleya, 2021). However, the contracting firm must be paid for the inputs that were provided and other costs associated with the contracts. In most instances, smallholder farmers are compelled to sell other assets on the farm to pay off the debt to the contacting firm in the event of risks.

LACK OF INFORMATION ON TOBACCO TRADE

To most smallholder farmers, tobacco trade is a _black box system‘. The farmers do not understand how the auction system works, how their crop is graded and the prices that are commensurate with each grade. This information asymmetry allows for opportunistic behaviour in that contracting firms lower the grades of smallholder farmers‘ tobacco, thus lower prices (Mango, 2022). Low prices mean lower revenues for the farmer. In addition, the smallholder farmers are not aware of their right to appeal against low prices that are not a true reflection of the quality of their crop.

TRAINING

Lack of comprehensive training on tobacco agronomic practices and trade has been an impediment to farmer protection. Mango (*ibid.*) argues that smallholder farmers lack the knowledge to identify pests and diseases on time. In instances where they identify the pests, they lack the knowledge on proper usage of pesticides. Thus, they suffer losses on yield. This lack of training is further worsened by usage of rudimentary technology and substandard facilities. In most instances, smallholder farmers use substandard flue-curing barns, hence producing low quality output that fetches low prices on the market.

METHODOLOGY

STUDY AREA

The research was conducted in Wards 21 and 22, Marondera District in Mashonaland East Province of Zimbabwe. The research area falls in agricultural ecological natural Region IIb. The district has an average annual rainfall of between 750mm and 1 000mm (ZIMSTAT, 2019). Its altitude varies from 900m to 1 000m above sea level (Ruckert *et al.*, 2022). The study area is endowed with heavy sandy and clay soils that are favourable for the production of cereal crops (maize, sorghum and rice) and horticultural crops (potatoes, paprika, tomatoes, cabbages) and cash crops (tobacco) and is characterised by both urban and communal farming (Mafuse *et al.*, 2021). People in Marondera District are engaged mainly in farming activities of tobacco and livestock production, such as cattle, sheep, goats and poultry.

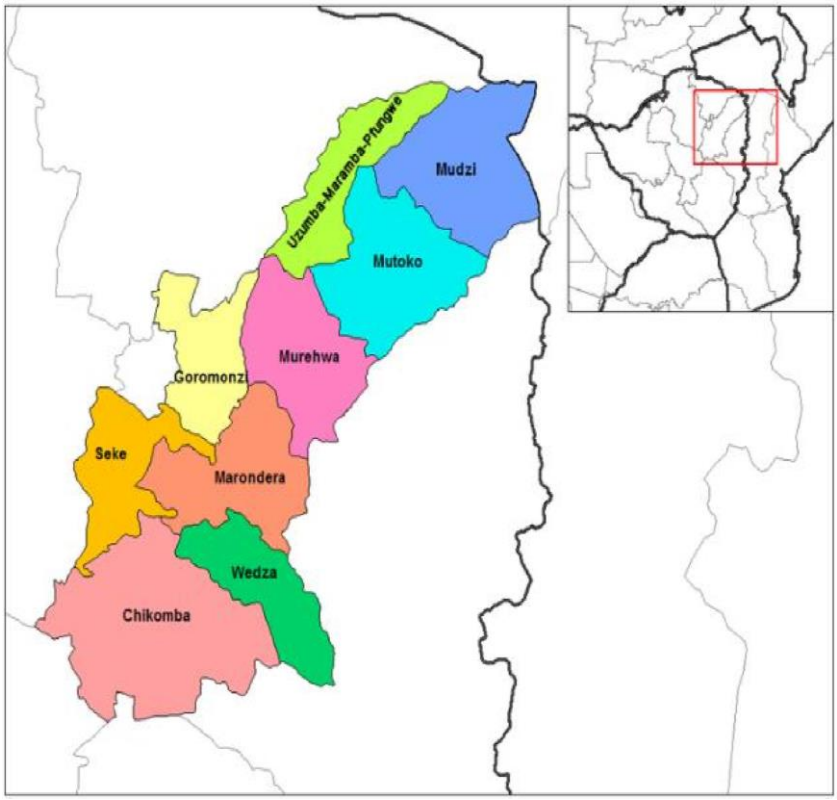

Figure 1: Map of Mashonaland and the specific study site, Marondera district (ZIMSTAT, 2019).

SAMPLE AND SAMPLING PROCEDURE

The research used the non-probability sampling technique, particularly snowball sampling, since not all farmers in the study area were smallscale tobacco farmers Therefore, to reach the tobacco farmers, the research made use of local extension officers. Other participants were reached through referral by the first participant. A sample of 172 small-scale tobacco farmers was sampled and interviewed for the research.

SOURCE DATA AND COLLECTION PROCEDURE

The study was conducted using semi-structured interviews and structured questionnaires. Semi-structured interviews were held with key stakeholders such as tobacco companies (contractors), agriculture extension workers, councillors and village heads. These stakeholders were interviewed on their perceptions of the contract scheme. Issues that were asked concerning the tobacco contract credit scheme were the provision of inputs on time, timely payment of tobacco leaf on the market, problems faced by the smallholder farmers in the contract credit scheme and challenges faced by contractors. The Statistical Package for Social Sciences (SPSS) was used to analyse data to assess challenges and benefits of tobacco growing under contract farming.

DATA ANALYSIS

The research utilised descriptive statistics such as frequencies and percentages to describe the tobacco contract related issues such as those asked concerning the tobacco contract credit scheme in the study area. A Multiple Linear Regression Model (MRM) was used to determine the factors influencing the profitability of small-scale tobacco production in the study area. Research data were used to come up with a multinomial regression express d as:

$Y_i = \beta_o + \beta_1 X_1 + \beta_2 X_2 + - - - - -+ \beta_n X_n$

Table 1: Variables of small-scale farmer's tobacco profitability.

Independent variables	Variable description
x_1Gender	Gender of household head (1=male, 0=female)
x_2Age	Age of the respondent
x_3Experience	Number of farming years of household head
x_4Edudacation	Level of education attained (0=primary, 1=secondary, 2=tertiary)
x_6Farmer Membership	Are you a member of a farmer group/cooperative? (1=yes, 0=no)
x_7Land Size	Total land size of farms in hectares
x_8Contract Farming	How long have you been in tobacco contract/agreement with the current partner?
x_9Divert Inputs	Did you use any of these inputs for non-tobacco crops? (1=yes, 0=no)
x_{10}Selling Inputs	Did you sell some of the inputs provided? (1=yes, 0=no)
x_{11}Outstanding Arrears	Do you still owe any money/balance from the previous

	year‘s contract/ production loan? (1=yes, 0=no)
X_{12}Balance Arrear	How much did you owe to the contracting company in USD$?
X_{14}Hired Labour	How much did you pay for hired tobacco-related labour?
X_{15}Non-Tobacco Crop	Did you plant any non-tobacco crop during the most recent tobacco farming season?
X_{16}Tobacco Levy	What amount of government tax was deducted from tobacco sales as Tobacco Levy?
X_{17}Warehouse Levy	How much did you pay for the warehouse?
X_{18}Tobacco Income	How much income did your household receive from tobacco
Dependent variable	
Y_i Tobacco Profit	Total household tobacco profit

RESULTS

DEMOGRAPHIC OF THE RESPONDENTS

Results of this study show that most of the respondents (72%) were male, suggesting that tobacco production in Marondera District is dominated by male farmers. On the contrary, female smallholder tobacco farmers constituted only 28%. This evidenced that tobacco farming is male-dominated, a sign of gender inequalities in smallholder tobacco production. These results agree with the notion that tobacco farming is common amongst males who are more technically talented, physically fitter, and do not bother staying in the fields for long hours to optimise the yields (FAO, 2012). In addition, the results reveal the decision-making structure of most households in Zimbabwe, where men are considered household heads since the study only considered the leaders of these households. So, based on this, it is wise to enact public agricultural polices be to encourage gender equality in maize production (the staple food), given that women constitute a significant proportion of the population in Zimbabwe.

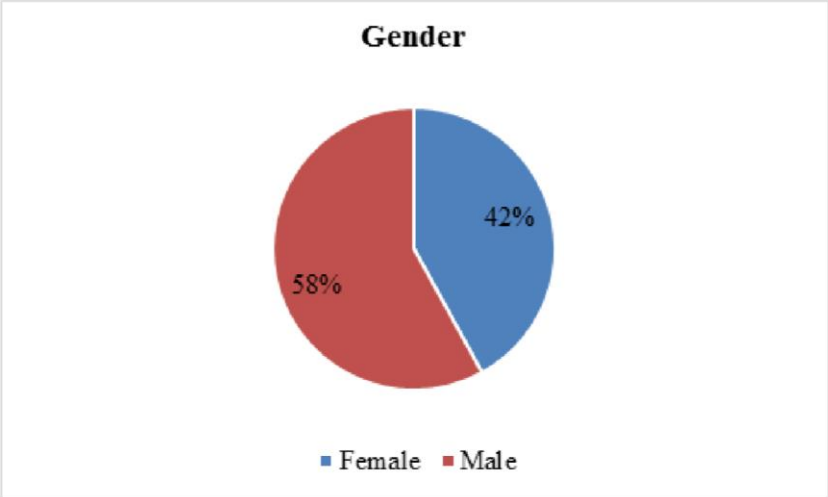

Figure 2: Respondents distribution by Gender (Research Data, 2022)

DISTRIBUTION OF RESPONDENTS BY AGE

To determine the impact of farmer protection and sustainability on small-scale tobacco production and profitability, the researchers considered the exploration of the ages of the respondents who worked under the contractual arrangements. This assisted in establishing the ages of small-scale farmers and take a broad view if the age effect is important in the research (Table 2).

Table 2: Distribution of Respondents by Age (Survey, 2021)

Age	**Count**	**Percentage**
< 30 years	5	2.9%
30-39 years	32	18.6%
40-49 years	42	24.4%
50-59 years	49	28.5%
60-69 years	29	16.9%
70-79 years	13	7.6%
80 years +	2	1.1%
Sub Total	**172**	**100.0%**

Table 2 reveals that the respondents‘ ages range from 21 years to 82 years with an average age of 47.5 years. The respondents‘ age groups were categorised into seven groups. The results show that tobacco production in Marondera District was dominated by farmers aged from 50 years to 59 years and 40 years to 49 years, constituting 28.5% and 24.4%, respectively. Furthermore, the results revealed that smallscale farming is not common among the young (aged below 30 years) and the elderly who are at least 80 years old, as they contributed only 2.9% and 1.1%, respectively. This is attributed to the fact that young people are concentrated mostly in towns and urban centres doing other jobs for a living, while the elderly have since retired from the farming business as it required able-bodied energetic people to carry out farm duties. As a result, the age groups that dominate tobacco production are people with energy, though most of them are resource constrained to support their production, implying poor production as tobacco farming is very capital intensive (Ruckert *et al.*, 2022).

DISTRIBUTION OF RESPONDENTS BY THEIR HIGHEST LEVEL OF EDUCATION

Small-scale tobacco farmers in Marondera District under contract farming were also examined to determine their abilities to make comprehensive responses based on their highest level of education (Table 3).

Table 3: Respondents Distribution by their Highest Level of Education (Survey, 2022)

Education Level	Count	Percentage
Primary	14	8%
Secondary	127	74%
Tertiary	31	18%
Sub-total	**172**	**100%**

Table 3 reveals that that respondents in Marondera District attained primary, secondary and tertiary education level as their highest level of education. The findings revealed that the bulk of the respondents (74%) had attained secondary level education; with the least (8%) having attended only primary level education and 18% of them had attained tertiary education in different areas. Considering the respondents‘ literacy rate, the study expected a better understanding of the tobacco contract terms as most of the respondents could read and write. Those semi-literates were able to understand the contract agreement terms with some assistance.

USE TOBACCO INPUTS TO NON-TOBACCO CROPS

The study results shown in Figure 3 revealed that small-scale tobacco farmers in Marondera District used some of their tobacco inputs in non-tobacco crops as evidenced by the minority (18.6%) of the respondents who submitted that they have used some of the contract inputs in non-tobacco crops. However, only 140 small-scale farmers, 81.4% of the total respondents, used their contract inputs solely for tobacco production. This, therefore, means that the minority had to underfeed the crop according to its nutritional requirements, hence small-scale tobacco production is characterised by reduced tobacco production and profitability. This emanates from using tobacco contract inputs on other non-tobacco crops, hence improving tobacco production remains difficult as small-scale farmers are resource constrained. This is supported by Ruckert *et al.* (2022), who posits that tobacco production is capital intensive mainly the purchase of the much-needed plant nutrients in the form of fertilizers. As a result, small-scale tobacco farmers could not fully utilise inputs or attain optimum production and profits as well.

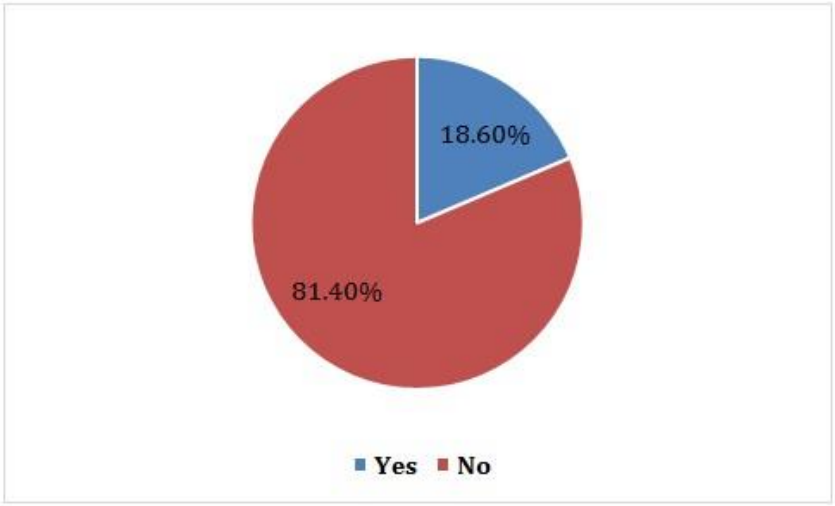

Figure 3: Use tobacco inputs to non-tobacco crops (Survey, 2022)

SELLING OF TOBACCO INPUTS

The study findings shown in Figure 4 reveal that some of the smallscale tobacco farmers in Marondera District sold some of the contract inputs as evidenced by the minority (21.5%) of the respondents who submitted that they sold some of the tobacco inputs. However, about 135 small-scale (78.5%) of the total respondents had not sold any of their inputs. They wholly used the inputs to support their tobacco production. This therefore means that the 21.5% had to underfeed the crop as well, hence small-scale tobacco production is characterised by reduced production, grading and profitability. This emanates from selling inputs by small-scale tobacco farmers under contractual arrangements, hence, improving tobacco production remains difficult.

As a result, smallholder maize farmers could not fully invest in optimum inputs or attain optimum production and profits as well, under leasehold.

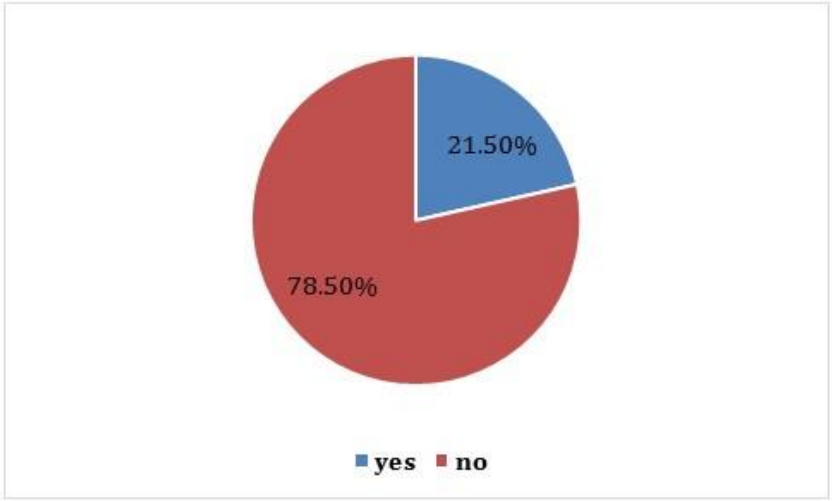

Figure 4: Selling of tobacco inputs (Survey, 2021)

The findings and discussions on small-scale tobacco production under contractual arrangements are displayed in the following sections.

Table 4: Testing for independence of residuals (Survey, 2021)

Model	R	R Square	Adjusted R Square	Durbin-Watson
1	.709[a]	.582	.509	2.383

The regression model results in Table 4 showed that the R-Square of 0.582 means 58.2% of the variation in profits is being explained by the model independent variables representing the small-scale tobacco production in Marondera District. Furthermore, results in Table 4 show the test for autocorrelation of the residuals done using the Durbin Watson test. The error term or residuals are said to be independent if and only if the Durbin Watson test is closer to 2.0
(Gujarati, 2004). Based on the Table 4, Durbin Watson value of 2.383, implies that the error terms generated by the regression model are free from auto correlated.

Table 5: Model Goodness of Fit the ANOVA Table (Survey, 2021)

Model	Sum of Squares	Df	Mean Square	F	Sig.

1	Regression	8125417.116	13	625032.086	11.715	.000[b]
	Residual	8056125.382	151	53351.824		
	Total	16181542.498	164			

A Multiple Regression Model (MRM) was used to analyse the effect of the small-scale tobacco on profitability, basing on data obtained from small-scale farmers, Marondera District. The study results are shown in Table 5. Collectively, the regression model is a good fit for the data (F=11.715, p=0.000). Thus, the characteristics of the small-scale farmers are statistically significant in determining tobacco profits.

Table 6: Profitability Coefficients for Small-Scale Tobacco Farmers (Survey, 2021)

Model		**Unstandardised Coefficients**		**Standardised Coefficients**	**T**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	.945	.390		2.423	.017
	Age	.932	.469	.123	1.987	.491
	Gender	.410	.953	.026	.430	.668
	Education	.448	.321	.087	1.395	.165
	Membership	.033	.013	.147	2.381	.019**
	Land size	-.422	4.652	-.006	-.095	.924
	Selling puts	-.136	.021	-.428	-6.260	.000*
	Divert inputs	-.975	.163	-.435	-5.946	.000*
	Outstanding balance	-.034	.053	-.046	-.648	.518
	Hired labour	.504	.391	.078	1.289	.199
	Non tobacco crop	.768	2.648	.017	.290	.772
		-.047	.207.	-.014	-.226	.822
		.937	.534	.104	1.752	.082
		.781	.528	.097	1.477	.142

Tobacco income					
Warehouse					
Household size					

A. Dependent Variable: Profit

Basing on the SPSS output shown in Table 6, the regression model results confirm that only three variables, i.e. membership, selling of inputs and diverting of inputs, were significant in explaining variation in profit as indicated by their p-values of less than 0.05 at 5%. Basing on the SPSS regression results shown in Table 6, the regression model which only considers the effect of statistically significant variables on profits, is thus given as shown as:

Yi = .945 + .033 Membership - .136 Selling puts - .975 Divert inputs

The above model results show that membership, selling inputs and diverting inputs were statistically significant in explaining the variation in profitability on small-scale tobacco production. A .033 coefficient for membership implies that when all other variables are held constant, an increase in membership by a unit leads to an increase in profitability per hectare by about .033 units. Selling inputs has a significant impact on profitability as indicated by a significant tstatistic (t=-6.260, p=0.000) at 5% level of significance. This implies that selling inputs was an important factor contributing to decrease smallscale farmers‘ low profitability under contractual faming. It also means that farmers who sell tobacco inputs had low profitability under contractual farming. These results are consistent with several researches done worldwide, including one by Chingosho *et al*. (2020) who analysed the impact of Tobacco Farming and Current Debt Status among Smallholder Farmers in Zimbabwe using multivariate the Tobit model and found out that tobacco contract farming is making farmers indebted by about 15% to 20% points more compared to independent farmers. In their concluding remarks, they found out that an increase of land size by one acre of the farm was likely to increase the probability of the farmer going into debt by 1.6% to 1.8% points.

Secondly, membership to farmer training groups was also significantly impacting on tobacco profitability as indicated by significant t-statistic (t=2.381, p=0.000). The positive coefficient of .033 shows that increasing membership on tobacco production leads to increase of profitability per hectare. This also implies that more extension training should be availed to all smallholder farmers under the leasehold tenure system to increase tobacco profitability. It also means farmers who had greater access to extension training had higher profitability levels.

Lastly, diverting inputs and using them for other non-tobacco crops also appeared to have a statistically significant effect on profitability (t=-5.946, p=0.000). Looking at the coefficients, holding all other variables constant, increasing diverting inputs for other non-tobacco crops by small-scale farmers by one unit will force tobacco profits to also decrease by .975 units.

Overall, it is evident from the regression results that contract farming has a negative effect on profitability of small-scale tobacco farmers. Three variables proved to have a positive impact on profitability, and these are membership, selling inputs and diverting inputs for nontobacco crops. Li *et al*. (2019) and Chingosho *et al*. (2020) posit that the small-scale tobacco production under contract farming is not profitable, after considering all the costs of factors of production, such as family labour used. However, given that the small-scale tobacco production under contract farming is labour intensive, relies on family labour and discourages farmers‘ opportunity to grow other crops, it is thus evident that the small-scale tobacco production, when family is considered in profit accounting, has a negative impact on profitability. Results proved that an increase in area of planted tobacco will result in family using more labour and also decrease profitability when labour is included in the accounting under contractual arrangements. These results are consistent with Ruckert *et al*. (2022), who concluded that farmers under the tobacco contract scheme are left in debt-traps as they fail to pay off the loans obtained from contracting companies.

CONCLUSIONS ON FARMER PROTECTION AND SUSTAINABILITY OF SMALL-SCALE TOBACCO PRODUCTION IN ZIMBABWE

The objective of the study was to determine the effect of farmer protection and sustainability on small-scale tobacco production. The research ran a regression model of various factors under the tobacco contractual arrangements. Collectively, the regression model was a good fit for the data (F=11.715, p=0.000), prompting the research to conclude that the characteristics of the small-scale tobacco farmers under contractual arrangements are statistically significant in determining profitability as the independent variables managed to explain 58.2% of the variation in profitability as evidenced by an RSquare of 0.582. The regression model results show that membership, selling inputs and diverting inputs to non-tobacco crops were statistically significant ($p<0.05$) in explaining the variation in profitability on small-scale tobacco production under the contractual arrangements. Of the three variables, diverting inputs to other nontobacco crops proved to be the leading factor that determines profitability, coinciding with the fact that small-scale farmers divert some tobacco inputs to non-tobacco crops as they are resource constrained and do not have the required capital to finance other food crops. To this end, overall, this proves that small-

scale tobacco production under contractual arrangements has a negative impact on profitability of small-scale tobacco farmers.

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