THE AFRICAN CAPACITY BUILDING FOUNDATION | FONDATION POUR LE RENFORCEMENT DES CAPACITES EN AFRIQUE

ZEPARU Zimbabwe Economic Policy Analysis and Research Unit

THE IMPACT OF TOBACCO CONTROL MEASURES ON LIVELIHOODS:

A GROWER-BASED PERSPECTIVE

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TABLE OF CONTENTS

List of figures

List of tables

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Acronyms and Abreviations

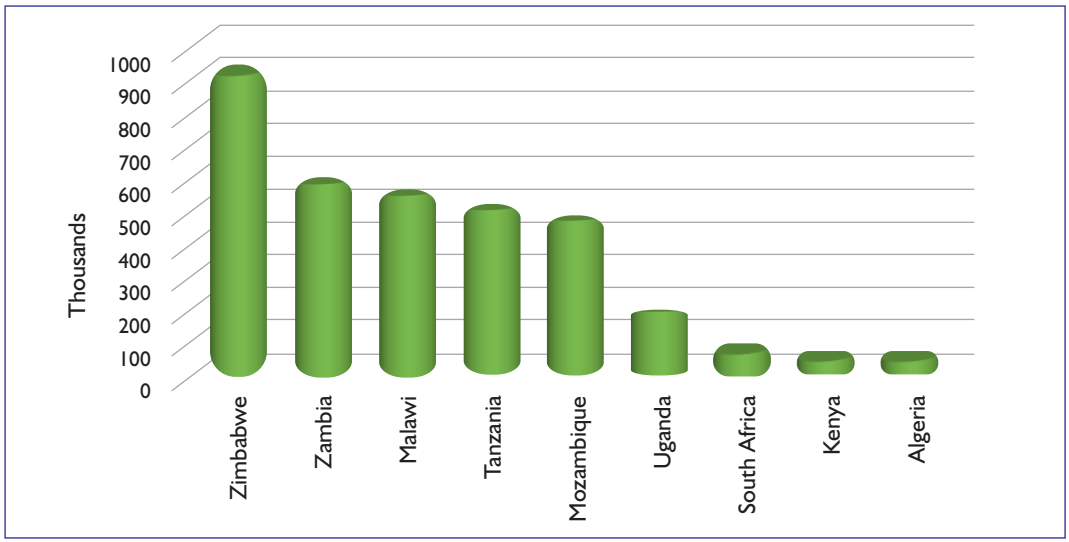
AGRITEX	Agricultural, Technical and Extension Services
CDC	Center for Disease Control
COP	Conference of Parties
FCTC	Framework Convention for Tobacco Control
GDP	Gross Domestic Product
NDS1	National Development Strategy 1
TB	Tuberculosis
TIMB	Tobacco Industry and Marketing Board
WHO	World Health Organisation

1. INTRODUCTION

1.1 Background

Zimbabwe is among the leading producers of tobacco in Africa. Over the five-year period to 2018, Zimbabwe was the top producer in Africa, ahead of other tobacco producing countries such as Zambia, Malawi, Tanzania and Mozambique (Figure 1).

Figure 1: Tobacco production (tonnes) by the leading producers in Africa-2014-2018 totals



Source: *Author's compilation based on FAOSTAT*

Tobacco production accounted for about 10% of the country's Gross Domestic Product (GDP) in 2018 (TIMB, 2019). Tobacco is also the second largest foreign currency earner in Zimbabwe after gold. Over the three-year period to 2019, tobacco exports on average constituted about 21% of total exports receipts for Zimbabwe[2]. To promote production and marketing of tobacco, government and the tobacco growing industry have developed institutional arrangements to facilitate registering of tobacco growers; provision of input requirements through contract farming arrangements, provision of research, extension and other support services; handling and marketing tobacco. This resulted in an increase in tobacco output over the years. Total tobacco production in Zimbabwe increased by more than 300% to about 259 million kg between 2009 and 2019[3]. This constant increase in output over the period underlines the extent to which the economy has become dependent

[2]Calculations from ZIMSTAT export statistics
[3]Calculations from TIMB statistics

on tobacco. In addition, the number of farmers growing the crop has also increased significantly over the same period. The increase in the number of participating farmers in growing tobacco is also reflected in the increase in tobacco output. The number of participating farmers increased by more than 400% to about 155,000 in 2019 (Figure 2).

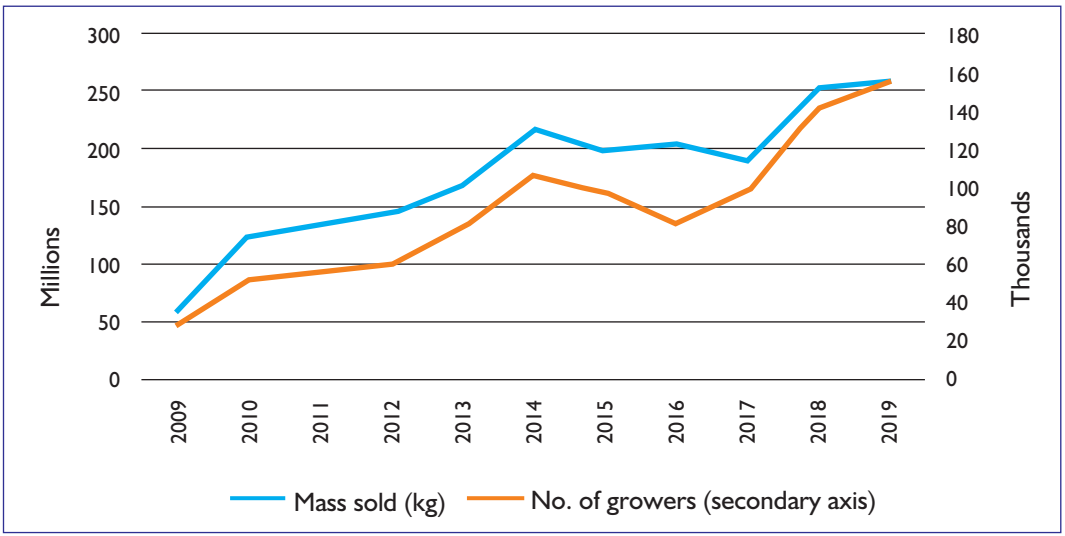
In this regard, tobacco growing has become a livelihoods issue as a significant source of income. On average, each farmer earned a gross value of about US$3,400 in 2019 (TIMB, 2019)[4]. Although tobacco cultivation may be perceived by farmers as highly profitable, some studies have shown that when the opportunity costs of unpaid family labour and other owned resources, as well as health effects of tobacco cultivation are included, tobacco is a loss-making activity (Hussain et al, 2020).In this regard, the full costs (both economic and social) of tobacco production are over shadowed by incentives such as easy access to credit and market, which reinforce the profitability perception by tobacco farmers.

Magati et al (2015) also provided evidence that show that contract tobacco farmers in Kenya made a net loss of US$13/acre when unpaid family labour and other inputs were taken into account. In addition, independent tobacco farmers' profits dropped to US$43/acre when family labour and other inputs were taken into account. In Zimbabwe, a study conducted in the Manicaland Province by Chingosho, Dare and Walbeek (2020) found no evidence that tobacco farmers have benefited from tobacco farming given the relatively high levels of tobacco-related debts among tobacco contract farmers. The study revealed that 91% of tobacco contract farmers would prefer to be independent farmers. Most of the tobacco farmers make losses which perpetuate their indebtedness to contracting companies. As an acknowledgement of this challenge, the Government of Zimbabwe set aside US$60 million tobacco production facility to fund local farmers using domestic resources following an outcry over the ripping off of local tobacco farmers by contractors[5].

Approximately 2,000 farms out of 6,000 large scale commercial farms in Zimbabwe, before land reform, grew tobacco with an average production of around 200 million kilograms per annum (Scoons, Mavedzenge, and Murimbarimba, 2016). After the land reform program in 2000 over 10 million hectares of commercial farm land were transferred to around 146 000 smallholder farm households with 29% of them growing tobacco (Moyo, 2011). Communal farmers have about 50% share of the total registered tobacco growers followed by A1 farmers (37%), A2 farmers[6] (7%) and small-scale commercial farmers (6%) (TIMB, 2019). An increase of 29% in tobacco production between 2016 and 2018 was also facilitated by a 41% increase in the number of small-scale farmers over that same period and also through a significant investment by the China National Tobacco Corporation (TIMB, 2019).

[4]TIMB statistics show that the gross value of tobacco produced in 2019 was about US$527 million in 2019
[5]https://www.sundaymail.co.zw/us60m-kitty-for-tobacco-farmers- 22 August 2021.
[6]The land reform programme instituted in 2000 saw land being redistributed into small scale and medium scale farms under A1 and A2 schemes. A1 farms average approximately 6 hectares, mainly benefiting villagers from communal areas, some farm workers and some retrenched urban workers. A2 farms are commercial farms averaging about 142 hectares.

Figure 2: Number of growers and tobacco produced in Zimbabwe, 2009-2019



Source: *Author's compilation using statistics from TIMB*

While the importance of the contribution of tobacco production to economic growth, exports and livelihoods is celebrated, tobacco use also creates a significant health burden on society at large which may-be underestimated. A holistic analysis of the impact of tobacco cultivation need to take into consideration the negative health implications from tobacco use and exposure to harmful tobacco-related chemicals.

Further, tobacco cultivation has been shown to be relatively labour intensive compared to other cash crops (Hussain et al, 2020). In Nyanza Province, Kenya, Ochola and Kosura (2007) found that on average tobacco growing required 220 labour days, which was very high compared to passion fruit (less than 50 labour days), watermelon (50 labour days), soya bean (just over 50 labour days) and pepper (75 labour day). In addition, these alternative crops also provide some food security for the farmers, which tobacco might fail to provide, especially during a poor agricultural season.

Tobacco farming also has negative environmental effects such as deforestation due to the increased demand for wood fuel used in curing tobacco. According to the Forestry Commission, the country is losing on average 330,000 hectares of forest land per year[7]. This is attributed to agricultural expansion and tobacco curing, over reliance on fuel wood energy, greater demand for human settlement, uncontrolled veld fires and invasive alien species among others. Evidence from Bangladesh also shows that the total wood consumption for

[7]News article by Marko Phiri (2019), "As Zimbabwe's forests fall, timber shortage tightens screws on carpenters", Reuters News at website https://www.reuters.com/article/us-zimbabwe-environment-forests-feature-idUSKCN1T10KK

tobacco curing, converted to carbon emission and associated environmental costs approximated US$310.06/per acre of land used for tobacco cultivation (Hussain et al, 2020).

Tobacco farming is also associated with health risks such as 'green tobacco sickness' or acute nicotine poisoning which occurs during leaf harvesting and smoke inhalation during leaf-curing (Clark et al, 2020). Hussain et al (2020) estimate that direct and indirect health costs for current and former tobacco farmers are 11% and 50% higher than for non-tobacco farmers in Bangladesh.

Tobacco smoking has been suspected to be a risk factor for tuberculosis (TB) for more than a century, but only recently has consistent epidemiological evidence between tobacco and TB been established. Sandy et.al (undated) observe that each year, 10.4 million patients are diagnosed with TB and 1.7 million people die from TB. They further argued that in Zimbabwe, comparatively high rates of TB, tobacco use, and alcohol use coincide[8]. Amere et.al (2017) also highlight that smoking approximately doubles the risk of TB disease and TB mortality[9]. They further argued that compared to non-smokers, those who smoke tobacco have twice the risk of TB disease, and patients with TB who smoke have twice the risk of death during TB treatment.

There are several reasons why farmers continue to produce tobacco despite its negative consequences. Rahman et al (2019) studied the determinants of the size of the area under tobacco cultivation in Kushtia District, Bangladesh, and found out that age, education, annual income, family labour and agent contact positively and significantly influence the production of tobacco. This suggests that these factors should be taken into consideration when making policies on tobacco control. Talukder et al (2020) studied the determinants of farmers' decision to grow tobacco in Bangladesh. Their results show that older age, less education, tobacco firms' short-term financial support of growing tobacco, greater ease of selling tobacco products at market, better access to credit (also provided by the tobacco companies), and farmers' perception about higher profits from tobacco cultivation compared to other crops, positively and significantly influence farmers' decision to grow tobacco. These findings suggest that improving farmers' level of education (especially the older farmers), giving financial support, credit access, and market access could potentially be effective in tobacco control initiatives.

The results also suggest that improving the profitability of other crops may potentially help in curbing the cultivation of tobacco and its associated negative impacts. Appau et al (2020) undertook a study covering Kenya, Malawi and Zambia to understand the reasons why

[8] http://www.brti.co.zw/tb-alcohol-smoking/-Sandy.C and S. Munyati (undated abstract)-Integrated Alcohol and Smoking Behavioural Interventions with TB Care for Improved TB Treatment Outcomes in Zimbabwe: A Randomized Controlled Trial.
[9] https://academic.oup.com/aje/article/187/9/1846/4964691-Amere. G, P. Nayak, A.D. Salindri, K.M.V. Narayan and M.J. Magee (2017), Contribution of Smoking to Tuberculosis Incidence and Mortality in High Tuberculosis-Burden Countries.

farmers grow tobacco. They found that a consistent reason for growing tobacco is the perceived economic viability of the crop and market access. They concluded that there is need for understanding what contributes to perceived economic viability of a crop among farmers. Such understanding would lead to effective uptake of alternative livelihoods. Lukanu et al. (2009) found that farmers consider factors such as reliability of prices, assurance of buyers, and availability and easy access to extension workers in conceptualizing profitability of a cash crop. Recent studies (e.g. Appau et al, 2020; Hussain et al, 2020; Talukder et al, 2020; Rahman et al, 2019) have evidence pointing that the reasons for growing tobacco differ across countries and even between regions within a country. This suggests the importance of the differences in country and regional contexts in shaping effective interventions of tobacco control. In this regard, a copy-paste approach in strategies for promoting alternative livelihoods would be ineffective. Thus, country specific studies are important. This study therefore seeks to give a specific Zimbabwean context of the impact of tobacco control on the livelihoods of farmers.

1.2. Justification of the Study

The World Health Organisation Framework Convention for Tobacco Control (FCTC), to which Zimbabwe is a signatory, encourages governments to promote transition toward alternatives to tobacco farming. In 2008, the Conference of Parties (COP) to the WHO FCTC established a working group on economically sustainable alternatives to tobacco growing in relation to Articles 17 and 18 of the WHO FCTC. This has promoted among other initiatives, studies on the effects of tobacco growing in several countries with a view of coming up with policy options and recommendations on economically sustainable alternatives to tobacco growing.

Delays to implementing the FCTC are due to conflicting economic benefits associated with tobacco growing in Zimbabwe. An extract from the National Development Strategy (NDS1) Food Security and Nutrition Sector development result as shown in Table 1 reflects that production targets for tobacco in metric tonnes (Mt) are increasing from 154926 Mt in 2020 (baseline) to 300000 Mt in 2025.

Table 1 : Tobacco Production Targets (2020 to 2025)

Year	2020	2021	2022	2023	2024	2025
Tobacco Produced (Mt)	154 926	175 000	200 000	250 000	300 000	300 000

Source: *National Development Strategy (NDS1), 2020.*

The FCTC measures are aimed at voluntary global target reduction level in tobacco consumption of 30% by 2025. This will be through a reduction in tobacco leaf demand and

supply. With the future of tobacco markets uncertain, Zimbabwe has reason to worry and reverse the production trend reflected in the Table 1. The conflicting economic benefits versus the social costs associated with tobacco production/use calls for government to explore other economically viable alternatives for tobacco workers and growers, in line with Article 17 of the FCTC. It has been shown that there could be a lot of difficulties in shifting to alternative crops, due to limited market access for such crops, low education and support for farmers, limited access to loans, as well as limited support in terms of access to inputs (Clark, Magati, Drope, Labonte, and Lencucha, 2020). There is growing evidence that opportunities for growing other viable crops besides tobacco that can sustain livelihoods in the tobacco growing countries do exist. Clark et al, 2020, argued that, while tobacco generates profits ranging between US$245.85 and US$456.75/acre, crops such as tomatoes generate between US$843.60 and US$1,349/acre, groundnuts generate US$543.60/acre and maize generates between US$354.50 and 767.60/acre in Kenya.

Government has been facing challenges to adequately fund the health system which has been compounded by the COVID-19 pandemic. In this regard the additional disease burden caused by the direct and indirect health costs associated with tobacco-related diseases, premature loss of life and productivity losses due to illness makes it paramount that the country puts in place adequate measures for dealing with the problem. The Tobacco Atlas Zimbabwe Fact sheet reveals that in 2016 about 8% of men and 3% of women in Zimbabwe die from tobacco related diseases annually[10]. This also comes at a time when about 20.5% of males and 1.3% of females in Zimbabwe use tobacco daily[11]. The future generations are also under threat as smoking is prevalent among children; about 0.7% and 0.03% of boys and girls respectively below 14 years also smoke[12].

These challenges, reflect the need for tobacco control programmes to be prioritized in Zimbabwe, while exploring other viable alternative livelihood options for tobacco farmers. Tobacco use control measures are generally revenue enhancing, especially excise tax, which is the main tool for tobacco control. This is largely due to the low price-elasticity associated with cigarette smoking (U.S. National Cancer Institute and World Health Organization, 2016), as those already smoking are expected to continue despite the increase in prices from the introduction of excise tax. However, while those already smoking might continue to smoke after the introduction of excise tax, new smokers are discouraged, which in the long run, will help reduce tobacco use in the country and reduce the health burden associated with tobacco usage.

While the health benefits of tobacco control are clear, the tightening of tobacco usage is likely to be met with some resistance in Zimbabwe due to the critical role that tobacco plays in

[10]Downloaded at website https://tobaccoatlas.org/country/zimbabwe/, accessed 25 November, 2020
[11]Ibid
[12]Ibid

terms of livelihoods and as an economic pillar. Thus, the pursuit of tobacco control measures need to take into account other viable alternatives, which would cushion the potential short-term negative effects of tobacco control measures. Moreover, in order to effectively design and implement tobacco control measures, it is important to understand farmers' reasons for and against tobacco control. Understanding farmers' reasons for supporting tobacco control provides an opportunity to assess the knowledge gaps that need to be filled to strengthen tobacco control. It also enables the identification of the most appealing reasons to farmers, why tobacco control is important, and this could be harnessed to strengthen support for tobacco control among farmers. On the other hand, it is important to understand why some farmers are against tobacco control as this provides insights on the sensitivities that need to be addressed in order to ensure their buy-in for tobacco control.

The above narrative generally forms the context and justification of this study which is intended to assist government in compliance with Article 17 of the FCTC. This study focused at the growers' level to check the readiness of tobacco farmers to embrace other alternative crops as sources of livelihoods. The intention was to establish the barriers and challenges which policy has to address to enable a smoother transition from over reliance on tobacco in the face of increasing tobacco control.

1.3 Study objectives

The primary objective of this study was to assess the scope for shifting towards other alternative crops as sources of livelihoods for tobacco farmers. The following specific objectives were explored to attain this broad objective:

* To investigate the primary motivations for tobacco growing by the farmers;
* To investigate the appreciation by tobacco growers of the tobacco control measures;
* To understand the characteristics of tobacco farmers in terms of experience in growing other crops and capacity needs to transition from tobacco to other cash crops;
* To understand the attitudes and perspectives of the farmers with respect to mitigatory strategies and policy support to guarantee sustainable livelihoods;
* To prepare a compendium of identified available alternative crops based on previous scientific research studies for the respective ago-ecological regions of the country and advice from government agricultural extension officials;
* To recommend strategies and policy options that can be adopted by government and targeted interventions by other stakeholders with interest in tobacco control to

reduce barriers towards a smooth transition towards other alternative cash crops to support farmer livelihoods and income base.

1.4 Methodology

The study relied on extensive document reviews, analysis of secondary data on tobacco and its contribution to the economy and disease burden, it is mainly primary data analysis that informed the policy recommendations. Qualitative and quantitative primary data were collected and used in assessing various aspects of livelihoods and tobacco growing decisions by tobacco farmers. The study also captured the perspectives of the tobacco farmers and key informants drawn from institutions that are directly involved in promoting the tobacco farming activities. The data collected was on various aspects of the farmers and the distribution of variables across a sample of farmers was used to capture the perspectives.

A representative sample of tobacco farmers in Zimbabwe was drawn and interviews were conducted with them for their views and thoughts concerning the current operating environment and the prospects to shift to alternative crops. In Zimbabwe, tobacco farmers have to be registered with the Tobacco Industry and Marking Board (TIMB) in order to be able to sell their tobacco. Therefore, the register of tobacco growers and their distribution was considered as the basis for sampling. Tobacco, which is predominantly flue-cured, is grown mainly in four of the country's ten provinces. As at 2018, Mashonaland West province had the highest number of tobacco growers constituting 38% of the total registered growers followed by Mashonaland Central, Manicaland, and Mashonaland East provinces who had a share of 35%, 14%, and 13%, respectively (TIMB, 2018).

In 2019, a total of 154 926 tobacco farmers was captured in the TIMB database. Thus, assuming a margin of error of around 4% and a 95% confidence interval, a representative sample of the total of the 154926 growers in 2019 was calculated to be 598 farmers[13]. A stratified random sample technique was applied to distribute these 598 farmers across the four main provinces based on their 2018 proportions[14]. The provinces formed the strata from which tobacco farmers were sampled, and interviews were conducted taking advantage of the tobacco marketing decentralisation programme[15]. The size of the farmers in terms of their acreage was considered in the sampling technique so that dynamics for large, medium and small tobacco farmers as reflected by the land put to tobacco, were captured in the study. This resulted in the following distribution (Table 2) of farmers interviewed across the four leading provinces after data cleaning:

[13] Based on the Raosoft online sample size calculator at website http://www.raosoft.com/samplesize.html, accessed 25 November 2020
[14] The distribution of the farmers in 2019 across the different tobacco farming provinces could not be ascertained, and an assumption is that the 2018 distribution remained the same in 2019
[15] For Mashonaland Central, interviews were conducted at the auction floors in Bindura and Mvurwi; Mashonaland West in Karoi; Manicaland in Rusape; and Mashonaland East in Marondera

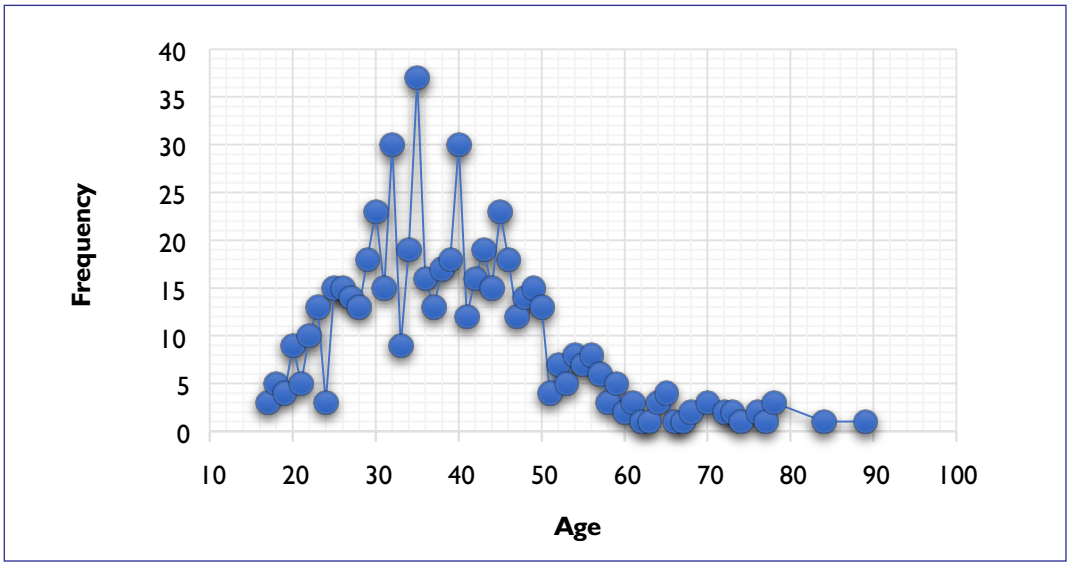
Table2: Distribution of tobacco farmers interviewed by province

Province	Mashonaland West	Mashonaland Central	Manicaland	Mashonaland East	Total
Targeted Number of farmers	227	209	84	78	598
Actual number interviewed	225	215	82	76	598

Participating farmers were drawn randomly at the auction floors based on their willingness to participate. Thus, there could be some bias in the sampling, which was not considered significant to affect the reliability of the results.

Out of the 598 farmers that constituted the sample for the analysis, about 77% were male, which would be expected given that the marketing of tobacco is often conducted over a number of days, making it difficult for women to stay so long away from their unpaid care work at homes. However, the interviewed farmers were spread across various age categories (Figure 3), although the 20-50 age group provided the bulk.

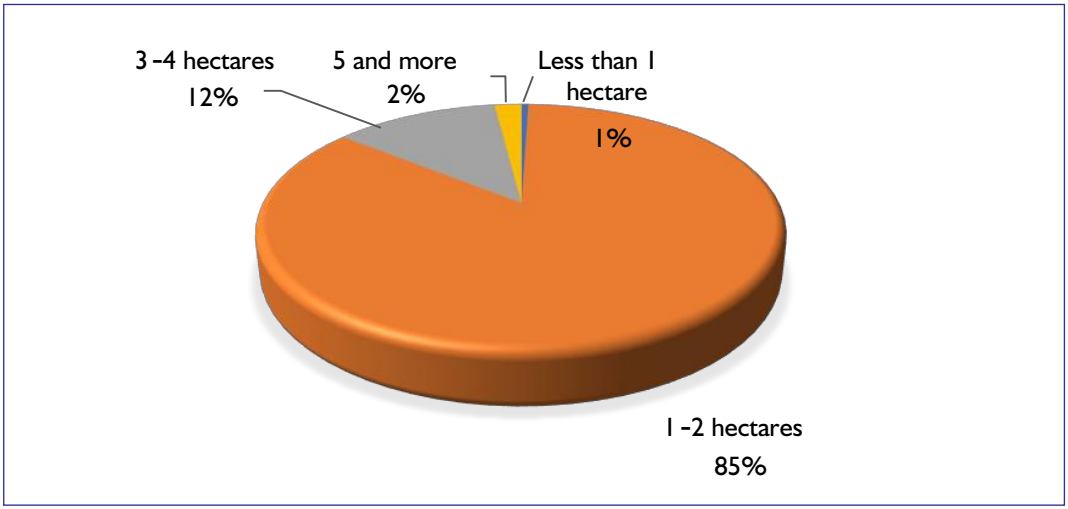
Figure 3: Age distribution of the tobacco farmers interviewed



Source: *Own construction from survey data*

Based on TIMB (2019) statistics, about 90% of tobacco growers in Zimbabwe are communal and A1 farmers. If small scale farmers are to be considered, then about 94% of the farmers in Zimbabwe are small-scale farmers. However, even where medium and large-scale commercial farmers grow the crop, they often devote their land to other crops and animal husbandry. The distribution of the farmers interviewed shows that the bulk of them only devoted 1-2 hectares of their land to tobacco. Discussions with a large-scale farmer as a key informant also revealed that many large-scale farmers could also consider about 2 hectares of land as large enough for tobacco, given the need to balance out with other crops. About 85% of the farmers interviewed fall in this category (Figure 4). However, there were also some farmers interviewed who had put more than five hectares of land to tobacco, including outliers with 15 hectares and 28 hectares. Thus, the study accommodated all categories of farmers, even though the majority are the small-scale farmers as per the national statistics.

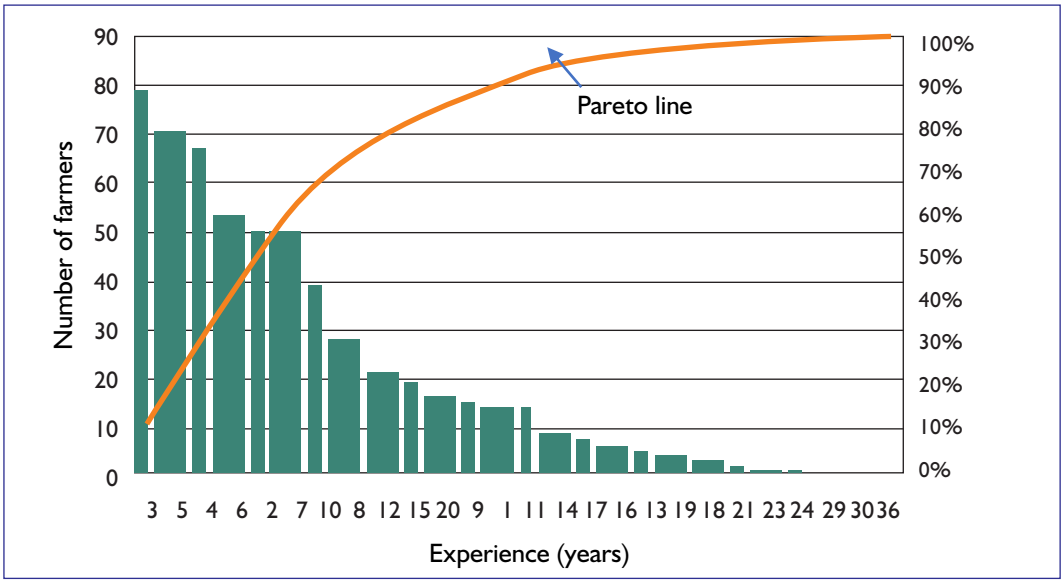
Figure 4: Distribution of land put under tobacco by the farmers



Source: *Own construction from survey data*

The farmers contacted also had a variety of experiences in tobacco farming (Figure 5). However, although there were farmers with experience going up to 36 years, the pareto line shows that farmers with experience ranging from 2 to 7 years constituted about 60% of the farmers interviewed. The majority of the farmers were those with three years of tobacco growing experience, demonstrating that there is a pronounced attraction to tobacco growing over the recent years. This was also further confirmed by the fact that almost half (47.5%) of the interviewed farmers had tobacco growing experience of five years and less.

Figure 5: Farmers' tobacco growing experience



Source: *Own construction from survey data*

Key informants drawn from the following institutions: the Department of Agricultural, Technical and Extension Services (AGRITEX), Tobacco Industry and Marketing Board (TIMB), Tobacco Research Board, tobacco experts and officials from the Ministry of Lands, Agriculture, Water and Rural Resettlement were contacted for interviews. However, response rate was low due to the perceived sensitiveness of the issue by the officials. Detailed responses were only received from one expert in the field as well as the Tobacco Research Board. The views were collated with those from the field to form the basis for the preparation of this report. Data in this study was analysed using univariate methods. While multivariate methods could have been adopted, this was not considered necessary in answering the objectives of the study.

2. PRIMARY MOTIVATIONS FOR TOBACCO GROWING BY THE FARMERS

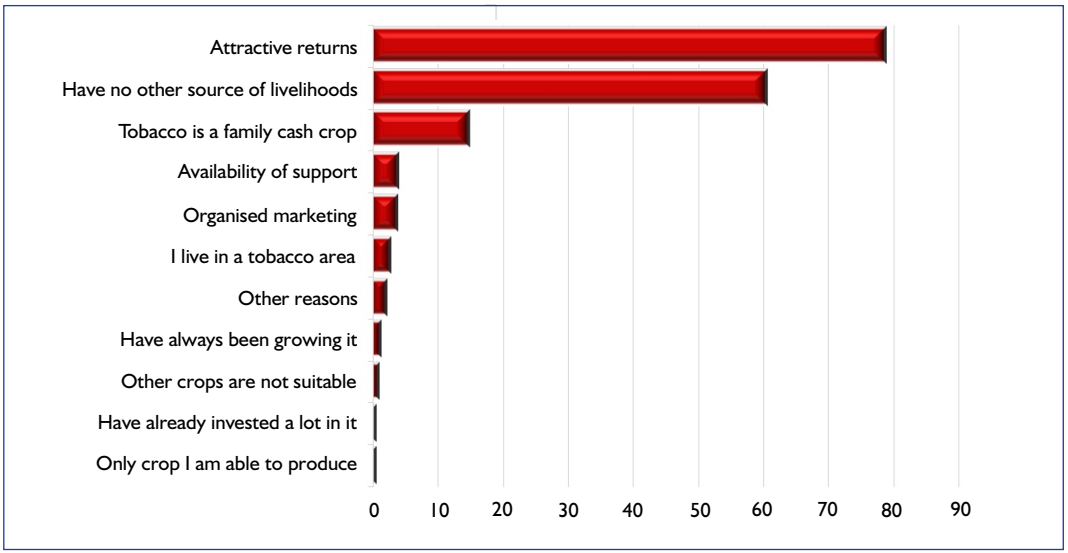
The majority of the farmers (79%) indicated that their primary motivation for growing tobacco is that it has attractive returns, especially the fact that they can earn part of the tobacco proceeds in foreign currency at a time when other crops are wholly paid in a volatile

[16] Excluding horticultural exports which also earn foreign currency.

local currency[16] (Figure 6) in the local market. This is consistent with the findings by Khumalo (2013) who established that the primary reason for growing tobacco in Zimbabwe was perceived higher profits relative to other crops. This means that as long as other crops are failing to offer the same attractive returns as tobacco, it will be difficult for farmers to transition to any other alternative livelihood sources. This is also confirmed by just above 60% of the farmers, who indicated that tobacco is now a sole source of livelihoods, as they cannot think of anything else to sustain themselves. Thus, only alternative options that can create attractive returns while also able to be a livelihoods anchor like tobacco should be able to incentivise the shifting of preferences from tobacco. The farmers also confirmed that tradition is also playing a role in influencing tobacco preference, given that about 15% of the farmers are growing tobacco mainly because it is the traditional family cash crop.

However, from the farmers' point of view, there are other crops that are suitable and can be grown besides tobacco, given that only 1% of the farmers think that other crops are not suitable. In addition, other expected influencing factors, such as farmers' inability to produce any other crops, the area being predominantly a tobacco area, or the farmers feeling obliged to continue with tobacco due to heavy investment in the crop are all proving to be insignificant, as only a few farmers consider them as the primary reason for growing tobacco. This means that the transition from tobacco to other alternatives could be possible as long as the main variables; attractive returns and livelihoods anchor are addressed. Thus, there are generally three main motivations for growing tobacco; attractive returns, livelihoods anchor and family traditions.

Figure 6 : Reasons given by the farmers for growing tobacco



Source: *Own construction from survey data*

A look across the different farming regions shows that the influence of family tradition is mainly felt in Mashonaland West province, where the role of tobacco farming as a livelihood anchor is also most pronounced (Table 3). This is largely because about a third (32%) of the respondents from the province identify tobacco as being a family crop, which is higher than the proportion from any other provinces while 78.7% attribute their reason for growing the crop to being the only source of livelihood[17]. Thus, the transition away from tobacco is likely to be more difficult in Mashonaland West province compared to other areas. It is also quite apparent that tobacco is mainly grown as a result of offering attractive returns across all provinces, almost everyone in Manicaland (96%) identify this as the reason for growing tobacco. This means that if tobacco becomes less attractive for one reason or another, it is more likely that farmers in Manicaland would shift to alternative crops, especially since the province has more alternatives being a high rainfall area. Tobacco farmers in the different locations have different motivations such that the transition path strategies which policy could aim for might not necessarily be uniform across the tobacco farming areas.

Table 3: Primary reasons for growing tobacco by province (percentage of farmers)

	Mashonaland Central	Mashonaland West	Manicaland	Mashonaland East
Attractive returns	74.9	81.8	96.3	61.8
Only source of livelihood	50.2	78.7	57.3	39.5
Family cash crop	5.6	32.0	1.2	5.3

Source: *Own construction from survey data*

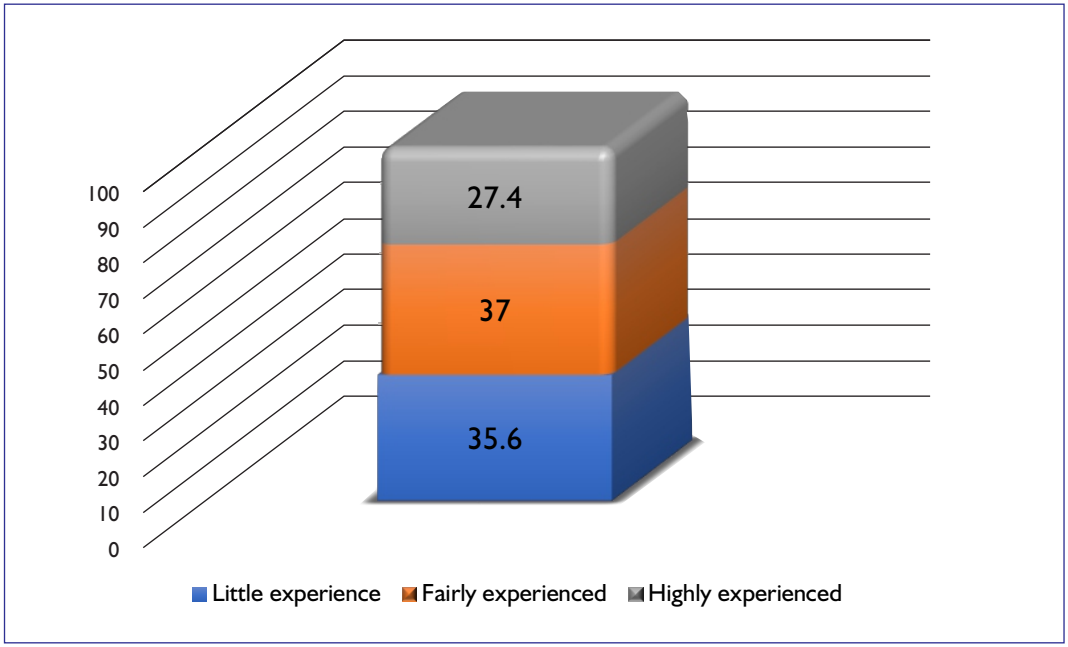
Contrary to Appau et al (2020) who identified gender as an important demographic factors that influence the decision to grow tobacco, the data gathered in this study shows that there are no apparent gender dimensions to motivations for tobacco growing. For example, an almost similar proportion of male and female respondents chose attractive returns as the motivation (79% and 80%), while the proportions are also comparable (about 60% and 50%) for the crop being the only source of livelihoods.

It is also expected that the more experienced farmers would be better positioned to give better insights about their motivations for growing tobacco, since they would be expected to have experimented with a variety of crops. By defining those farmers whose tobacco farming experience is less than five years as inexperienced, those with five to 10 years as fairly experienced, while those with more than 10 years as highly experienced, it can be revealed

[17] It is important to note that farmers gave up to five different reasons each and hence there were multiple responses, thus the percentages for each province need not add up to 100

that there is a fair representation of farmers across the three categories, with those that are fairly experienced having only a small edge (Figure 7).

Figure 7: Farmers' tobacco growing experience by category (percentage)



Source: *Own construction from survey data*

There is not much difference in responses between those that are fairly experienced and those that are highly experienced (Table 4). The responses underline that they grow tobacco because in their experience they have realised good returns, given that more than 80% in the two categories identify attractive returns as the main motivation. While the importance of tobacco as the only source of livelihoods is noted across all the three categories, this is more notable among those that are still inexperienced, who are yet to experiment with other alternatives. There is not much difference in the responses across the three categories with respect to tobacco being a family cash crop.

Table 4: Main reasons for growing tobacco by farmer experience (percentage of total farmers)

	Percentage of farmers in category with choice		
	Inexperienced	Fairly experienced	Highly experienced
Attractive returns	72	83	83
Only source of livelihood	71	56	52
Family cash crop	13	16	16

Source: *Own construction from survey data*

The level of education was also considered to be a critical determinant of the tobacco production decisions, especially at household level (Appau, et al., 2020). However, by comparing the percentage of the respondents in each education category that chose the three main responses, it is quite apparent that the influence of education as a motivation for growing tobacco is only partly apparent (Table 5). For example, all the farmers who have a degree indicated that tobacco has attractive returns compared to other crops hence their choice. This is also true for those who said they have no education, who all made the same choice. However, as expected, those with degrees and certificates/diplomas could have other sources of livelihoods, hence these two groups constitute the lowest proportion of respondents that indicated that tobacco was the only source of livelihoods. Although it would be expected that family influences on growing tobacco would be more pronounced for those with no education, it is actually those with certificates/diplomas who are influenced by family choices more than those without any education[18]. Thus, the influence of education is not quite pronounced.

Table 5: Farmers' primary motivations for growing tobacco by education (percentage)

	Attractive returns	Only source of livelihoods	Crop for the family
No education	100	75	13
Basic Primary	76	57	10
Secondary education	79	64	16
A-level	78	47	22
Certificate/diploma	82	36	27
Degree	100	29	14

Source: *Own construction from survey data*

[18] While it could have been more informative to carry out robustness tests of these assertions through statistical analysis, this was not done as the test were complicated by the multiple response questions.

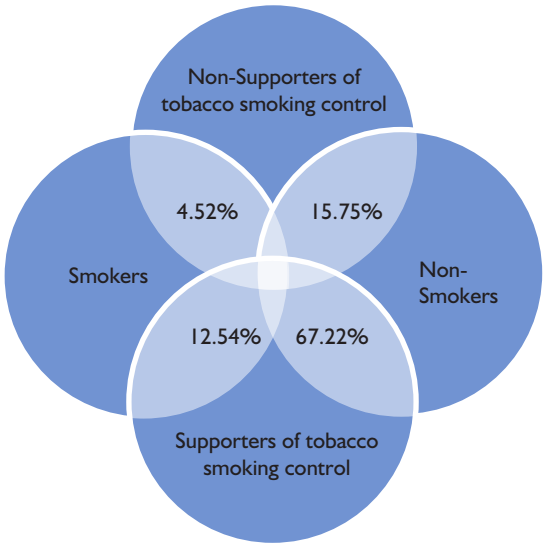
3. APPRECIATION AND SUPPORT OF TOBACCO CONTROL MEASURES BY TOBACCO GROWERS

The tobacco control measures would be more effective if the farmers and stakeholders in the tobacco value chain are aware and appreciate their importance. In addition to being aware and appreciating the measures, they should also support the efforts that are being made to control tobacco consumption. This section of the study assesses the appreciation and support of tobacco control measures by farmers. Farmers are a critical stakeholder as they produce and consume the tobacco.

3.1. Tobacco smoking control perceptions among smoking and non-smoking farmers

Among the 598 farmers who participated in the survey, 17% were smokers and 83% were non-smokers (Figure 8). Only 20% of the farmers interviewed did not support tobacco smoking control. The fact that 80% of the farmers support tobacco smoking control generally reflects that the health hazards associated with tobacco smoking are known by the farmers. About 4.5% of those who do not support tobacco control initiatives are smokers, while 12.5% of the supporters are smokers. This also shows a wide appreciation of tobacco smoking control among those who are actually smoking the product.

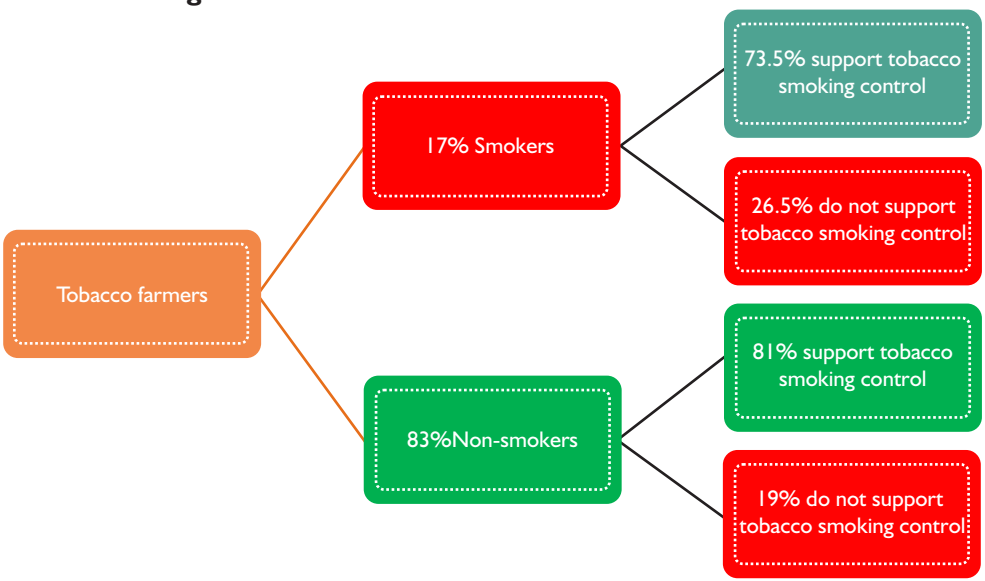
Figure 8: Tobacco control support among smoking and non-smoking farmers



Source: *Own construction from survey data*

The appreciation of tobacco control by smokers is further confirmed by a disaggregation of tobacco smoking control support as a percentage of smokers and non-smokers (Figure 9). About seven (7) in every ten (10) smokers are in favour to tobacco smoking control. The smoking farmers have first-hand experience on the adverse effects of tobacco and therefore understand better why it is important to control smoking. Despite the appreciation of the importance of tobacco control by smokers, continued smoking could be due to the addictive nature of tobacco which makes it difficult to stop smoking even when there is conviction to do so. The appreciation of the importance of tobacco control by smokers could imply an opportunity to use smoking farmers as awareness raisers about the importance of tobacco smoking control using their adverse experience with tobacco. For instance, in the US, the Center for Disease Control and Prevention (CDC) runs adverts on a programme called 'Tips from a Former Smoker' which raises awareness about the adverse effects of tobacco consumption using former smokers (Schmidt, Kowitt, Allison and Adam, 2018). Thus, the group of farmers who support tobacco smoking control initiatives could be a resource that can be tapped into for their knowledge of the adverse experience with tobacco smoking. In addition, eight (8) in every ten (10) non-smoking farmers were in favour of tobacco smoking control. In general, the survey information indicates that most of the farmers, both smokers and non-smokers, are in support of tobacco smoking control. This implies that efforts to control tobacco targeted at farmers may not be very difficult to get buy-in and implementation, as the consumption of the product is already generally seen in a bad light.

Figure 9: Percentage of smokers and non-smokers in support of tobacco smoking control



Source: *Own construction from survey data*

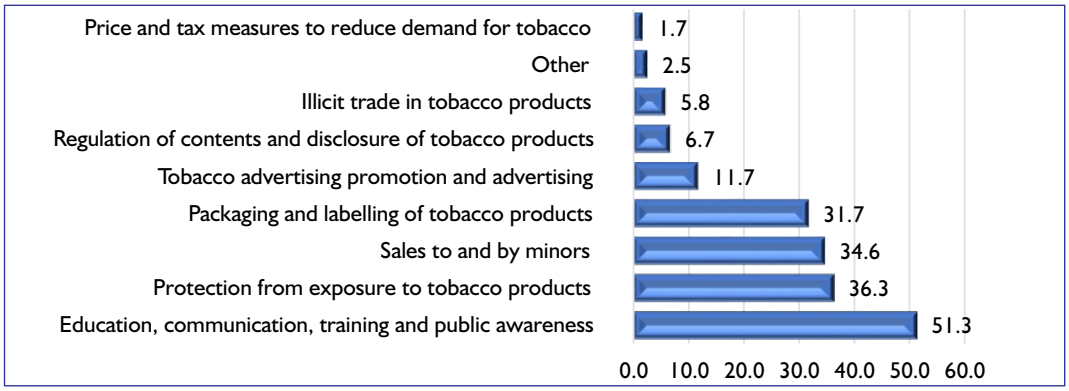
However, since there is still about 20% of the farmers who do not support tobacco smoking control, there is need for tobacco control efforts to consider and appropriately address the sensitivities that this group of farmers have around tobacco control.

3.2. Knowledge of tobacco control measures among farmers

Information from the survey indicates that most of the farmers (60%) are not aware of any tobacco control measures in place. However, the results also show that education matters in awareness generation. About 62% of the farmers who have basic or no education (primary education and secondary education) are not aware of tobacco control measures, while the rate for those who have at least A-level education is lower at 49%. Article 12 of the World Health Organisation Framework Convention of Tobacco Control (FCTC) requires raising of public awareness on tobacco control issues through educational programmes, all available communication tools, training and media campaigns. The limited knowledge exhibited by farmers about the tobacco control measures in the survey, suggests that there have been limited effective efforts to raise public awareness on, or popularize tobacco control in the country. It could also imply that not enough has been done to put in place tobacco control measures. Thus, the country may be lagging behind in terms of implementing the Articles of the FCTC.

Among the 40% of who farmers that indicated that they have knowledge of some existing tobacco control measures, the most known tobacco control measures to farmers were: education, communication, training and public awareness measures; protection from exposure to tobacco products; sales to and by minors; and packaging and labelling of tobacco products measures (Figure 10). This means that despite mainly being small scale producers, there are some knowledgeable farmers on issues of tobacco control.

Figure 10: Percentage of farmers who know particular tobacco control measures



Source: *Own construction from survey data*

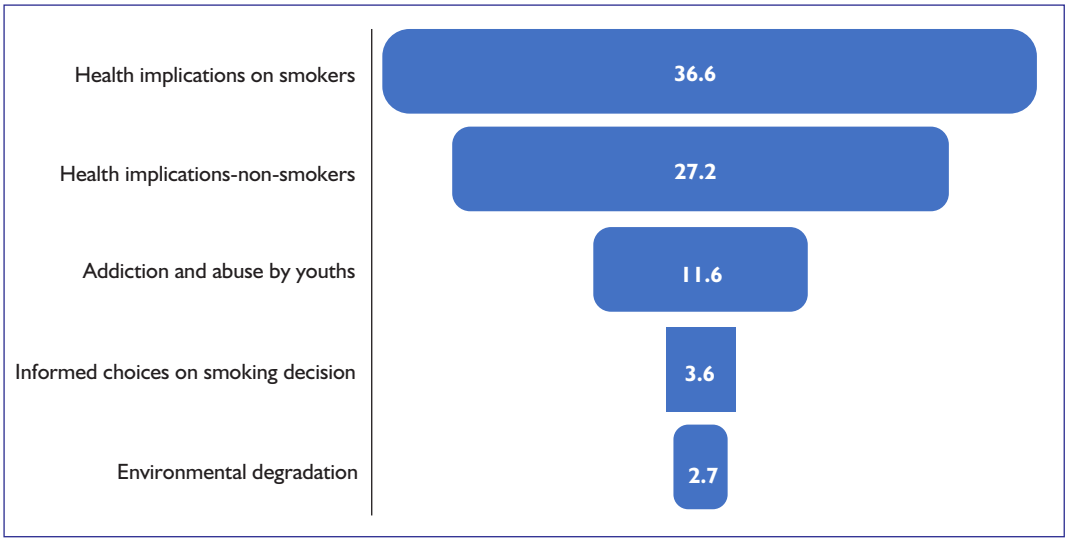
However, the study also sought to understand whether the farmers were in support of the tobacco control measures. About 93% of the farmers that indicated that they are aware of the tobacco control measures indicated that they supported them. This is also surprising, given the central role that tobacco growing plays in farmers' livelihoods. It is, therefore, critical to understand the basis for the farmers' perceptions for and against tobacco control.

3.3. Some reasons for and against tobacco control given by the farmers

Farmers who had indicated that they supported tobacco control measures were asked to state the reasons why they supported them. There were a number of reasons given, for which the most cited reasons had to do with the critical role that the tobacco control measures have on improvement of health, especially the health of the smokers as well as non-smokers through passive smoking (Figure 11). About 37% of the farmers who had indicated that they supported tobacco control measures were worried about the impact that tobacco has on smokers, while about 27% were worried about the impact on non-smokers. The farmers were also worried about the future generation as youths are now smoking at a tender age, which they perceived as one of the reasons why drug addiction and abuse is now prevalent. Tobacco farmers also highlighted that tobacco smoking is the starting point for drug addicts and therefore there is need for control, especially among the youth where drug abuse is becoming a major problem in the society.

Farmers also appreciated the role that the current tobacco control measures are playing, especially through the health warnings, as this allows people to make informed decisions concerning the decision on whether or not to smoke. However, farmers also identified the devastating effects of tobacco production on the environment through deforestation if tobacco smoking is not controlled. Most tobacco in Zimbabwe is cured using fuel wood, leading to deforestation, land degradation and climate change and its concomitant adverse effects. It is estimated that up to 5% of global deforestation emanates from tobacco production (UNDP, 2018). In Zimbabwe, it is estimated that nine (9) in ten (10) smallholder tobacco farmers rely on wood fuel for curing tobacco, resulting in 15% of the country's deforestation (FAO, 2010). It is also encouraging that the farmers appreciated the need for protecting the environment, and hence support to tobacco control measures.

Figure 11: Percentage distribution of the reasons for farmers' support for tobacco control

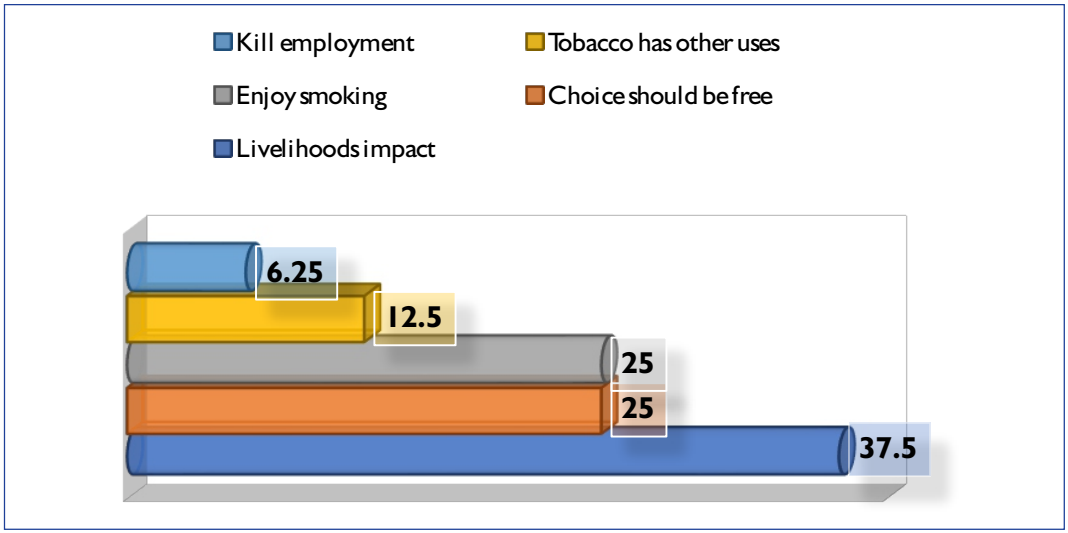


Source: *Own construction from survey data*

There were also other reasons given by farmers, although these were given by less than 1% of the respondents. For example, farmers claimed that tobacco has social side-effects such as negative effects on the mind, promoting bad behaviour and increasing crime.

The 7% of the farmers who indicated that they do not support tobacco control also gave their own reasons. The most cited reason for lack of support for tobacco control was that tobacco control measures would have an impact on demand and thus would reduce the returns from tobacco growing, at a time when tobacco farming is the main source of livelihoods. More than a third (37.6%) of the farmers not in support gave this as the reason (Figure 12).The other reason that farmers raised against tobacco control was that smoking is a free will and therefore people have a right to make their own choices about whether or not to smoke. It was claimed that some derive energy to work after smoking tobacco, implying that it enhances productivity. Thus, some tobacco smokers also indicated that they do not support measures that are aimed at discouraging tobacco smoking.

Figure 12: Reasons for farmers' lack of support for tobacco control (percentage of farmers)



Source: *Own construction from survey data*

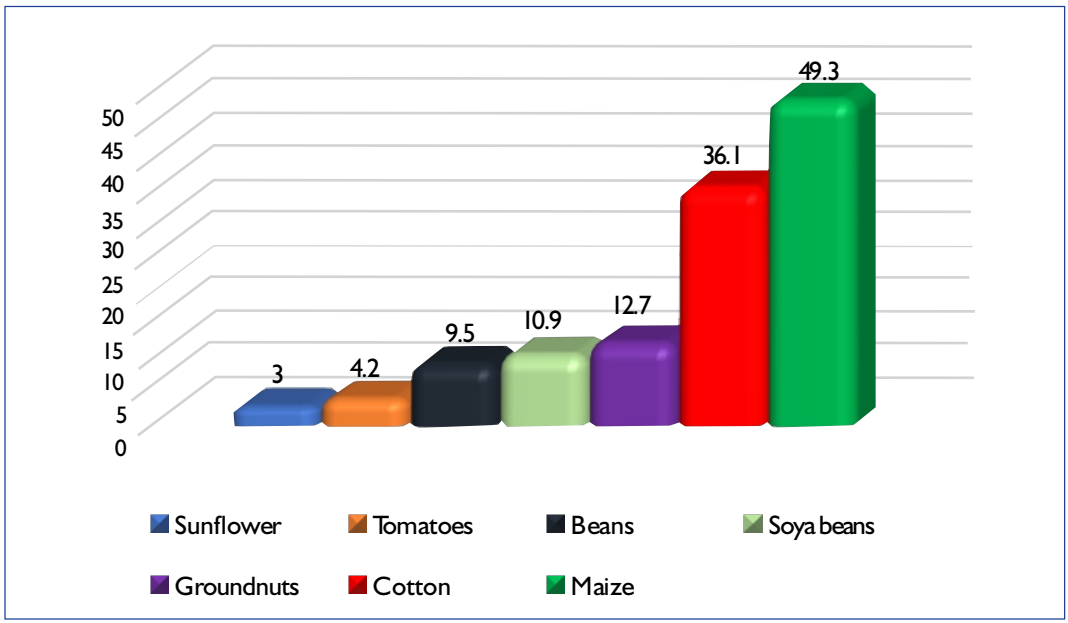
Despite the purported benefits of tobacco growing, there is need to take into account the full costs associated with tobacco production and consumption. Economic literature on the costs and benefits of tobacco production has shown that, by and large, the perceived economic gains of tobacco production are outweighed by the costs (Hussain et al, 2020; Clark et al, 2020; Chingosho, Dare and Walbeek, 2020). Although those not in support are only a minority, there is need for dissemination of evidence-based information on the net costs/benefits of tobacco production and consumption in order to dispel myths and misinformation about the perceived benefits of tobacco.

4. TOBACCO FARMERS' EXPERIENCE IN GROWING OTHER CROPS AND TRANSITION TO OTHER CASH CROPS

The difficulties in switching to alternative crops is expected to be more pronounced for those farmers who have no experience in growing other crops besides tobacco. As a result, the farmers were asked about their experiences in growing other crops besides tobacco. The results show that there were about 24% of tobacco farmers who had not grown any other commercial crop besides tobacco. This is quite a significant number and it will not be expected that such farmers would have an easy transition to other crops. However, among

the crops which the farmers used to grow before tobacco are those that could reflect potential for a transition in future (Figure 13). Although maize is identified as a cash crop, all farmers would generally grow it for subsistence purposes as well. However, about half of the farmers indicated that maize was their main cash crop before they shifted to tobacco. It was also quite apparent that more than a third of the farmers (36%) used to grow cotton as a cash crop before they shifted to tobacco. Since the main reason for shifting to tobacco is the attractive returns that the crop offers, this would also imply that tobacco is now regarded as more attractive than cotton. It would also mean that if cotton becomes more attractive, at least a third of the tobacco farmers would likely go back to growing the crop. However, although groundnuts were identified by about 13% of the farmers as the cash crop they used to grow before tobacco, it is also grown for consumption, such that its cultivation might not necessarily be a substitute to tobacco. However, beans (10%) and soya beans (11%) can be regarded as substitute cash crops, which could still remain a potential choice if farmers were to shift from tobacco. This, therefore, means that there are possibilities for deliberate policy incentives to make soya bean and beans attractive as a way to create incentives for farmers to shift from tobacco.

Figure 13: Previous crops grown by farmers before tobacco (percentage of total farmers)



Source: *Own construction from survey data*

Given that crop production is region specific, it is also critical to assess whether the choices for previous crops grown could be concentrated in some geographic areas. The results (Table 5) show that the proportion of those who indicated that they were not growing any other crop before tobacco is highest in Rusape (Manicaland province) as almost a third of the farmers in the area did not shift from any other commercial crop. Mashonaland West and Mashonaland Central provinces had about 24% each of the tobacco farmers in those areas indicating that they were not growing any other crop before tobacco. However, only 13% of the farmers in Mashonaland East indicated that they were not growing any other crop before tobacco. This generally shows that it could be relatively easier for farmers in Mashonaland East to shift to other crops compared to those in the other areas, as the proportion of farmers who do not have experience in other cash crops is relatively significant.

However, out of all the tobacco farmers in Mashonaland East, close to two thirds of them indicated that they used to rely on maize as a cash crop before tobacco. Maize as a cash crop was also popular among farmers in Mashonaland Central and Mashonaland West provinces, as about half of the farmers used to rely on it as a cash crop. However, cotton was mainly popular in Mashonaland West province, although about a third of the farmers in Mashonaland Central province also relied on cotton as a cash crop. For the rest of the cash crops which farmers grew (beans, groundnuts, soya beans and sunflower), there is no distinct emerging pattern to show a predominant preference by the farmers in specific geographic locations, even though about a quarter of the farmers in Mashonaland East used to grow groundnuts as a cash crop before shifting to tobacco. Thus, making cotton attractive is likely to see a shift in Mashonaland West, while maize will remain an alternative crop across all locations, even though less pronounced in Manicaland province.

Table 6: Previous crops grown by farmers before tobacco by province (percentage of farmers)

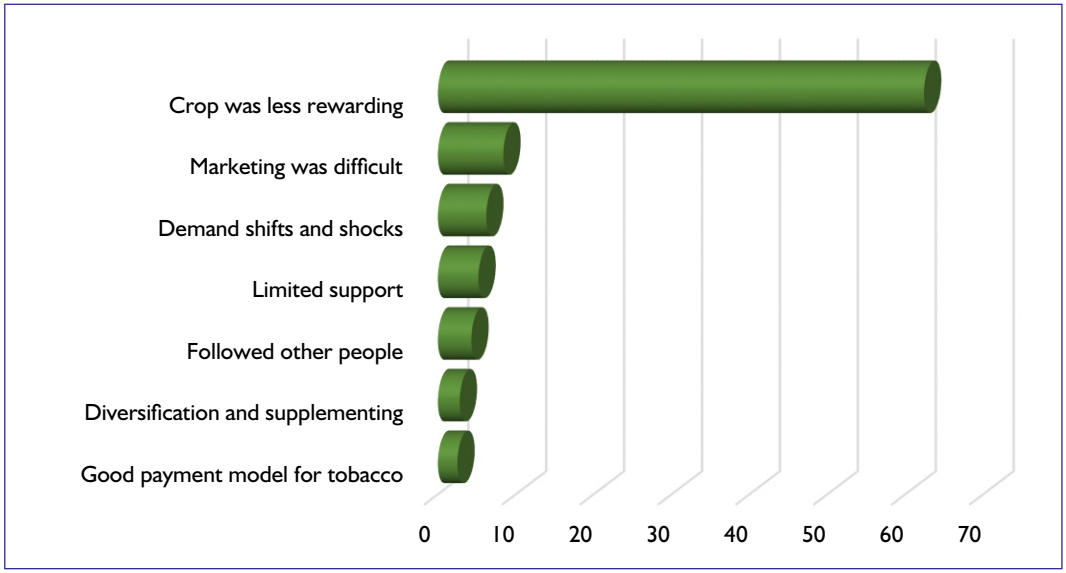
	Beans	Cotton	Groundnuts	Maize	Soya beans	Sunflower	None
Mash Central	10.7	33.5	14.0	50.7	14.9	2.3	24.2
Mash west	6.7	55.6	7.1	46.2	13.3	2.7	24.4
Mash East	19.7	11.8	25.0	65.8	2.6	6.6	13.2
Manicaland	4.9	12.2	13.4	39.0	1.2	2.4	31.7

Source: *Own construction from survey data*

A number of reasons were mentioned for shifting from the identified cash crop, which could be related to the main motivations for opting to grow tobacco. It is quite apparent that farmers shifted to tobacco mainly because it was more rewarding compared to the previous crops they were growing (Figure 14). However, there are also a number of factors identified,

which collectively, could also help inform strategies for motivating farmers to shift. First, the marketing of tobacco is considered more organised than the previous crops, as farmers would struggle to market it, which is easily done with tobacco. Second, tobacco payment model is considered very good, especially since there is quick payment, cash payment, bulk payment as well as foreign currency payment, which helps in hedging against inflation compared to local currency payments which quickly get eroded. Third, there have also been shifts in demand patterns for a number of reasons, which saw some previous crops becoming less marketable. Fourth, although many farmers embraced tobacco farming, they did not necessarily shift altogether from their previous cash crops, but added tobacco to their cash crop basket, even though they are now growing tobacco on a larger scale. Thus, some tobacco farmers still grow cotton as well as maize as cash crops to supplement tobacco earnings. Fifth, some farmers were affected by climate change, resulting in their traditional crops becoming less viable, hence had to shift to tobacco.

Figure 14: Reasons for shifting to tobacco from previous crops (percentage of farmers)



Source: *Own construction from survey data*

Although there are different pull factors to tobacco, it is also important to understand whether addressing the push factors that also helped shape the decision to migrate to tobacco would motivate the farmers to go back to their previous crop and leave tobacco. Only about a third (31.8%) of the farmers who had indicated that they had shifted from other crops will be willing to go back to their previous crop if the push factors are addressed.

The remaining are now very content with the crop and will not easily abandon tobacco to go back to the previous crop. The ease at which farmers can shift to other crops also depends on whether they have binding contract farming arrangements, especially when they have developed their relationships with the contractors to such an extent that they feel obliged to continue. Out of the farmers interviewed, more than two thirds (68.7%) had binding contract farming arrangements. The results show that about 73% of those that indicated that they will not go back to their previous crops have contract farming arrangements. Thus, the ease at which they get support through such arrangements as well as the relationships they have built with the contractors make them prefer to continue with tobacco farming. In this regard developing viable contract farming and marketing arrangements for other crops i.e. cotton and horticultural crops, can go a long way in attracting tobacco farmers into these crops.

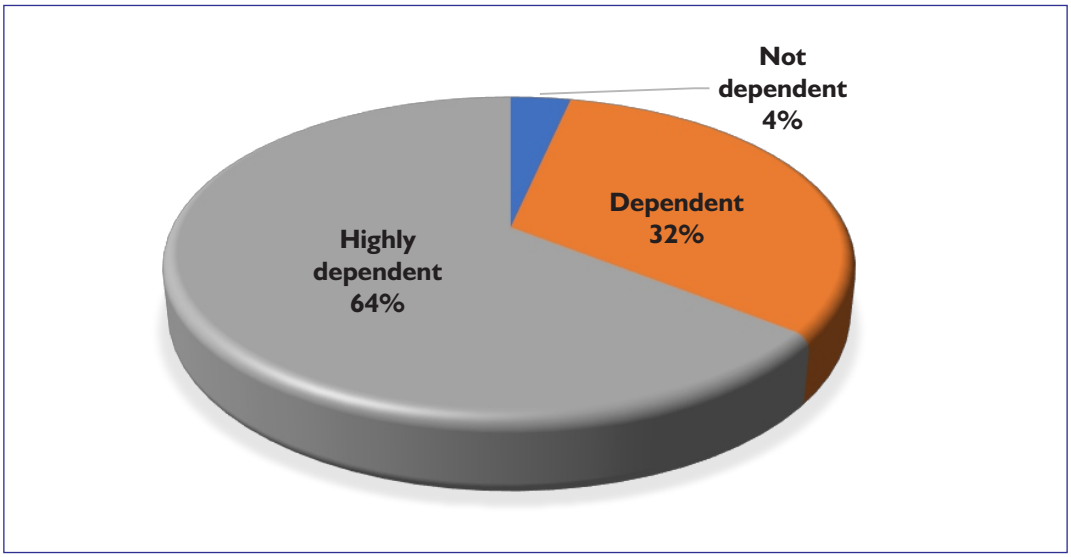
However, the farmers were also asked to identify the reasons for their choices. As expected, it was mainly because they regard the rewards that they are getting from tobacco to be more than what they could from the previous crops, even if the push factors are addressed. There are also a number of issues raised by the farmers which would need to be taken heed of if incentives are to be prepared to have farmers shifting from tobacco. Firstly, a number of farmers are now very experienced in tobacco farming, and they would not be prepared to discard such experience for another crop. This would explain why some farmers also indicated that if the previous concerns with the previous crops are addressed, they would grow the crop together with tobacco rather than abandon tobacco altogether. Second, some farmers have also taken time to learn more about tobacco growing as a way of maximising returns; for example, acquiring a diploma in agriculture to learn more about tobacco farming. Third, some farmers point to the level of investment, especially permanent structures that they have already built at the farms, for example tobacco curing barns, which would be a waste if they were to abandon the crop for another. Fourth, there are some outstanding contractual obligations, as some farmers owe contractors some debts, which the contractors hope to recover in future deliveries of the crops. Fifth, farmers also compare the manner in which tobacco farming is now structured after a long period of perfecting, which will take time for the previous crops, especially cotton, to reach that level. Thus, there are issues which have created a sentimental attachment to tobacco farming among farmers, and these would need to be overcome if they have to shift to alternative crops.

However, farmers who indicated that they would go back if their previous challenges are addressed also raised a number of issues which would be critical in informing transition strategies. They pointed out that the over reliance on wood, which is difficult to legally access is a challenge, as they are conscious that they are causing deforestation. Second, the farmers are also aware of the health implications of their tobacco growing activities, and some are prepared to shift if alternatives can be equally rewarding. Third, farmers also

complained about the labour intensiveness of tobacco compared to alternative (previous) crops. A number of farmers are struggling to meet the labour requirements without recourse to hiring, which was not the case with previous cash crops. Thus, there are also some indicators that the transition from tobacco growing is possible. However, it is also likely that the different reactions among the farmers can also be explained by their level of dependence on tobacco farming.

Farmers were asked to give an estimate about the level of income that they get from tobacco as a percentage of their total annual income. In this study, the distribution of farmer dependence on tobacco was split into three categories; not dependent, dependent and highly dependent on tobacco[19]. If the estimated proportion of tobacco income to total income for the farmer is less than 25%, the farmer is classified as not dependent on tobacco. However, if the income from tobacco constitutes between 25% and 49%, the farmer is classified as dependent on tobacco. Only those farmers where tobacco income constitutes at least 50% of their total income are classified as highly dependent. A distribution of the respondents into these three categories (Figure 15) confirms that indeed tobacco is considered to be very rewarding by the farmers. The majority are now highly dependent on tobacco, constituting at least half of their total income. As a result, it is not easy to shift easily into alternative crops.

Figure 15: Farmers' dependence on tobacco for total income



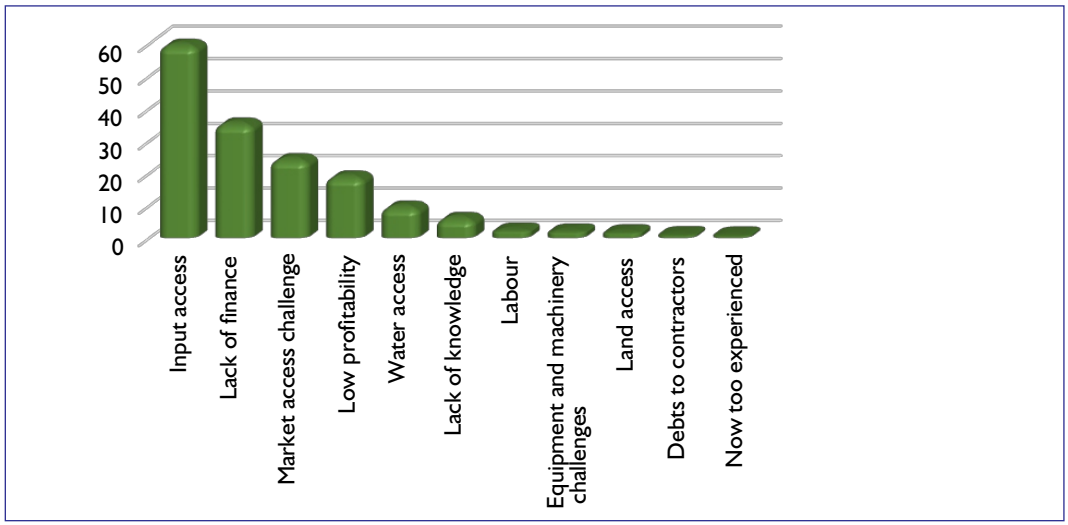
Source: *Own construction from survey data*

[19]It is important to note that this classification is arbitrary and was done based on the authors' judgement rather than any scientific basis

5. FARMERS' ATTITUDES AND PERSPECTIVES WITH RESPECT TO MITIGATORY STRATEGIES AND SUPPORT TO GUARANTEE SUSTAINABLE LIVELIHOODS

In general, shifting from one cash crop to another is not easy, especially if a farmer has become attached to the crop and has invested heavily in it. Thus, the policy strategies to encourage the farmers to shift have to be carefully crafted to ensure that they respond to the specific challenges that the farmers are facing. As a result, farmers were asked to identify some of the challenges that they would face if they were to shift from tobacco. The results (Figure 16) show that farmers consider access to inputs as the main bottleneck towards successfully shifting from tobacco, as about 60% of the farmers identify this as the main problem with alternative crops. Access to finance, access to markets and low returns are also some of the challenges that would need to be addressed for the alternative crops if the farmers are to smoothly shift to other alternative crops besides tobacco.

Figure 16: Challenges in shifting from tobacco to alternative cash crops (percentage of total farmers)



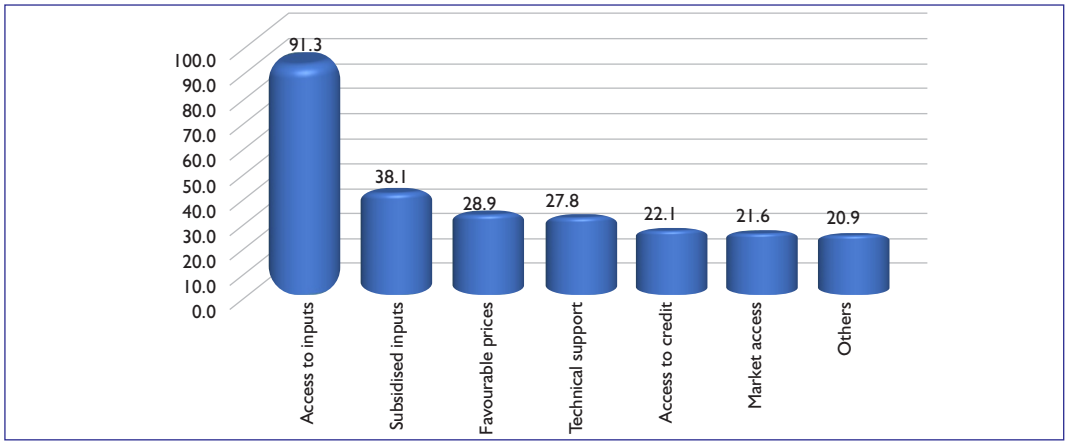
Source: *Own construction from survey data*

Among the crops that farmers would consider as alternatives cash crops are horticulture crops which require more water than tobacco. Thus, access to water was also identified as important by about 10% of the farmers. Farmers also admitted that extension services would be critical if they are to shift to alternative crops, as they have limited knowledge on how they are produced to a larger scale. Other issues also identified include labour

challenges, access to land, debts to contractors as well as availability of machinery and equipment needed to produce the alternative crops. Some farmers also indicated that they are now too experienced with tobacco farming such that any new crop would be difficult to embrace.

This generally implies that farmers would require some support to ensure that their transition to other crops is smooth. The farmers were therefore, asked about the kind of support that they would require if they are to shift from tobacco to the growing of their previous crops or any other alternatives. Their responses generally are consistent with what they expect as the key challenges, since more than 90% of the farmers included access to inputs in their responses (Figure 17). The contract farming arrangements that the farmers have been exposed through tobacco farming, which resulted in ease of access to inputs means that any alternative has to bring the same convenience in order to be preferred. However, since the farmers are already happy with tobacco farming, it was also indicated by more than a third of the farmers that could shift if they get access to subsidised inputs; which they are currently not getting in tobacco farming. Subsidies would be considered a compensation for shifting. Other issues which have to be mainstreamed in strategies to motivate farmers to shift to other crops include the issue of favourable pricing, market access, as well as access to credit. Farmers also raised the importance of technical support, especially since they would need to acquire knowledge in growing alternative crops. Other reasons mentioned by farmers as support areas to make them shift include access to water, availability of land as well as the necessary machinery and equipment given the shortage of labour. This generally underlines that a shift from tobacco is not necessarily easy, given the advantages that tobacco farming has availed to the farmers.

Figure 17: Support required by the farmers if they are to shift from tobacco (percentage)



Source: *Own construction from survey data*

6. AVAILABLE ALTERNATIVE CROPS

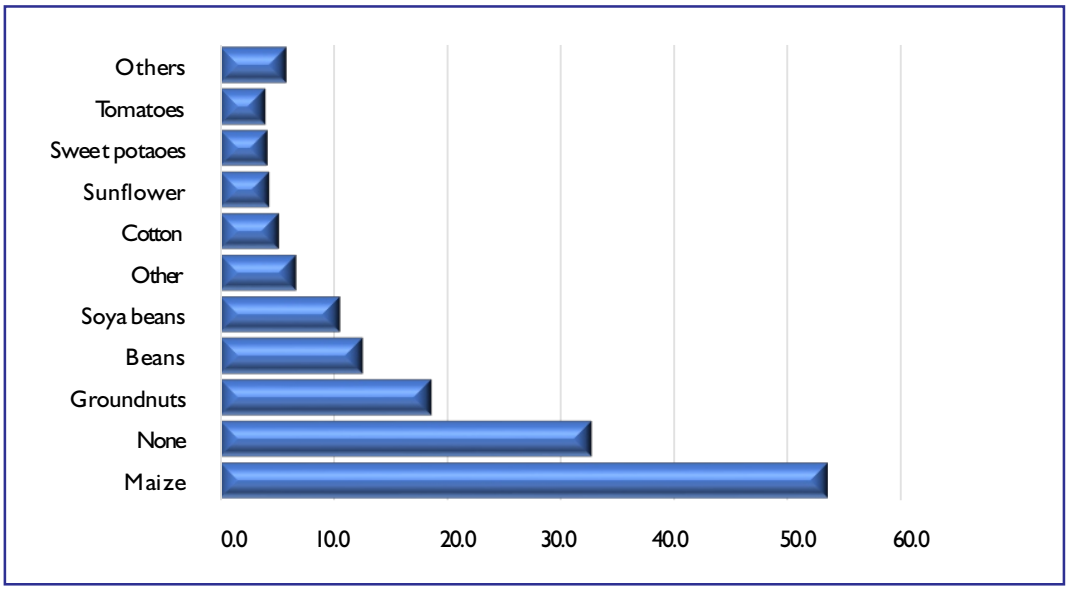
The availability of alternative crops to substitute tobacco is an important determinant of the potential success of tobacco control measures. Article 17 of the World Health organisation FCTC requires that support be given to farmers to embark on economically viable alternatives to tobacco production. During key informant interviews, it was pointed out that tobacco is one of the most profitable enterprises in commercial agriculture and the primary reason many commercial farms exist in Zimbabwe. Although other cash crops, including cotton and even maize, are more important for most communal and resettlement farmers, tobacco is still important and offers smallholder growers a unique opportunity for exceptionally high producer profits and excellent rates of return. Tobacco has the added advantage of being resilient and drought tolerant and can grow well on soils that are inherently low in fertility (sandy and sandy loam soils. It is also non-perishable in nature. The crop has ready markets that guaranteed growers that they would dispose of their produce. Without an equally profitable and resilient and readily marketable crop, growers' livelihoods will indeed be affected.

In this section the study assesses the availability of alternative crops that can be used to substitute tobacco. This is done through assessing farmers' perceptions on the availability and choice of alternative crops, and the existence of other crops in their current production mix.

6.1. Other crops besides tobacco that are currently being grown

In addition to the previous crops before growing tobacco, the ease with which farmers can shift to other alternative crops is also hinged on their current experience with the alternative crops. Although tobacco is very organised and its production is now popular among farmers, diversification is already embraced by the farmers. Most farmers grow maize alongside with tobacco (Figure 18). They also grow groundnuts and beans. This suggests that the farmers have capacity to practice multi-cropping and therefore could potentially substitute tobacco with other crops. However, a large portion of farmers (32.6%) do not grow other crops alongside tobacco. These farmers are highly dependent on tobacco farming, although there could be other activities which are not growing of crops. Nevertheless, this suggests that their tobacco farming compromises their food security and nutrition. It also suggests that there could be resource constraints which result in tobacco crowding out other crops.

Figure 18: Crops that farmers are currently growing together with tobacco (percentage of farmers)



Source: *Own construction from survey data*

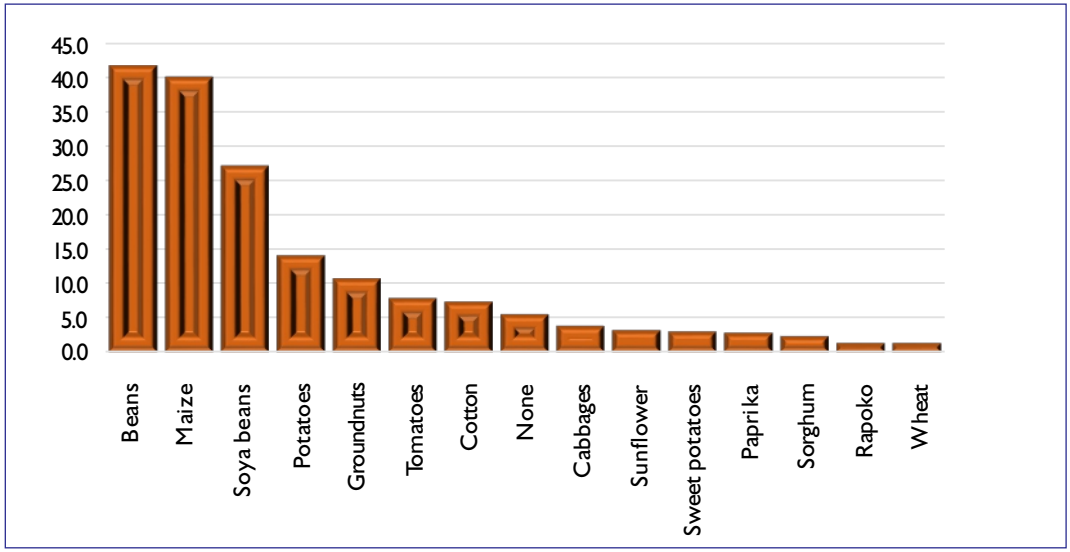
6.2. Choice of crop if farmer had to shift from tobacco production

Farmers were asked to indicate their choice of cash crop if they had to shift from tobacco production. Figure 19 summarizes the top cash crops which were selected by the farmers as their choice if they had to shift from tobacco production. Beans was the most cited crop with about 42% of the farmers interviewed selecting it as an alternative if they have to shift from tobacco. It is also not surprising that maize was the second highest cited crop, with 40% of the farmers selecting it, given that they are already used to the growing of the crop for subsistence purposes, hence it would not be difficult to rely on maize as a cash crop if tobacco becomes unviable. Soya beans was the third most cited crop, with potatoes, groundnuts, tomatoes and cotton respectively making it into the top 7. There is also a portion of the farmers (about 6%) who indicated that they do not have any other alternative crop to opt for if they are asked to shift from tobacco. This also underlines that the shift from tobacco will not be smooth. This implies that there is a small segment of farmers that would need greater assistance to be able to recognise potentially viable alternatives to tobacco production.

However, the farmers' choices underline that there are alternative crops which policy can seek to promote as alternatives to tobacco. Thus, they have a fall-back position if tobacco

production were to be banned. It is important therefore that these crops should be considered for promotion as alternative crops to tobacco. Ideally, these crops should be promoted in the same way as tobacco has been promoted if they are to be economically viable to the levels perceived by the farmers about tobacco.

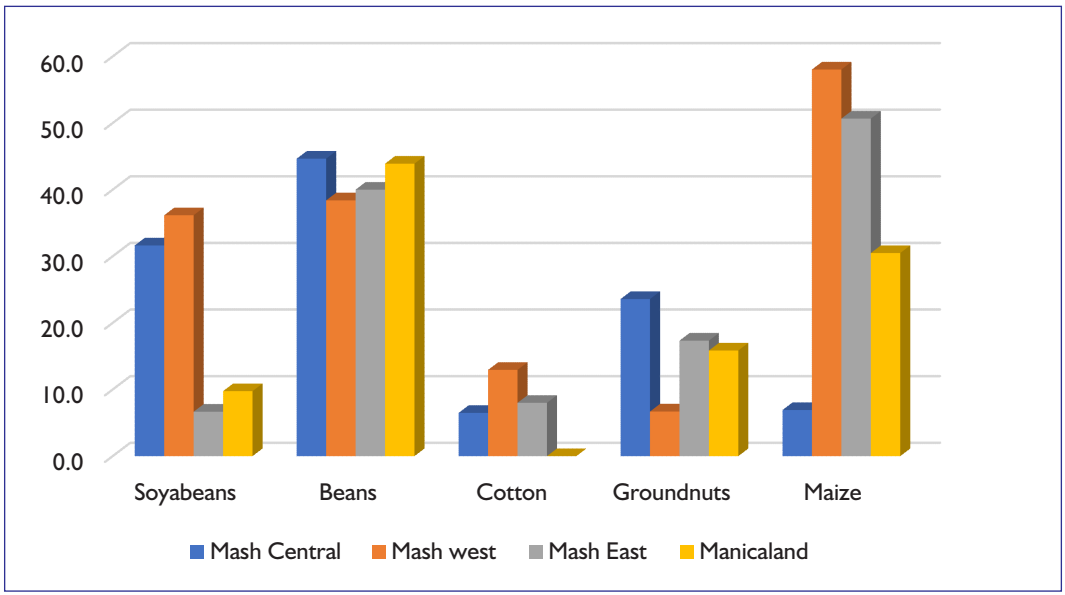
Figure 19: Top most cited responses on the choice of crop to substitute tobacco (percentage of farmers)



Source: *Own construction from survey data*

A look at the distribution across farming regions shows that the proportion of farmers that will shift to maize, soyabean and cotton is highest in Mashonaland West province, while beans and groundnuts will be more popular with farmers in Mashonaland Central province (Figure 20). The differences in shifting choices is mainly influenced by the heterogeneity in their soils/ climatic conditions across provinces.

Figure 20: Choice of crop to substitute tobacco by province (percentage of farmers)



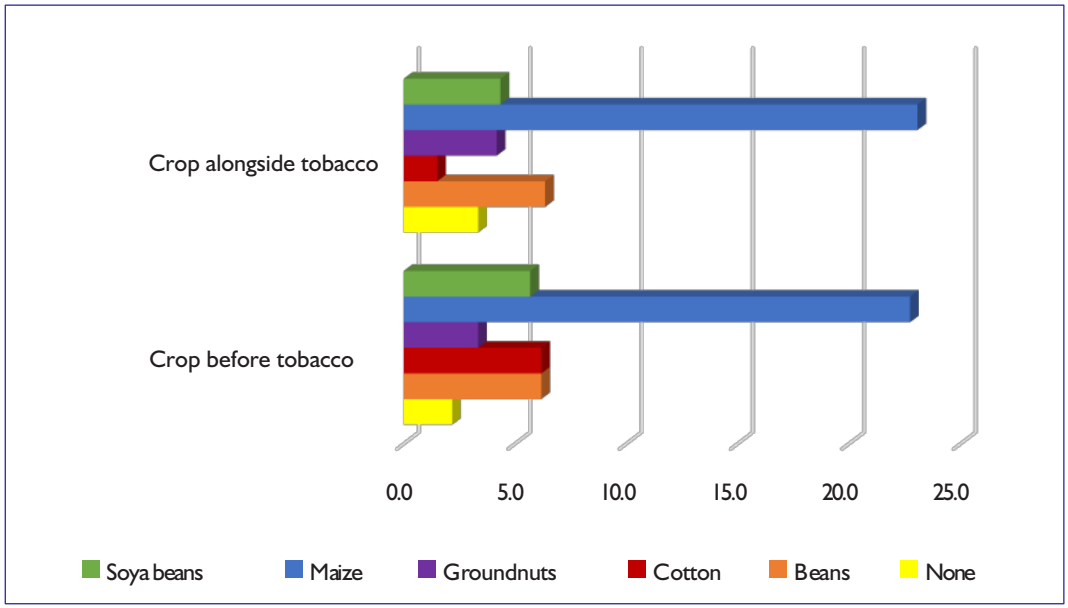
Source: *Own construction from survey data*

The choice of the crops suggested by farmers is consistent with some crops identified in literature as relatively more profitable than tobacco. For instance, Clark et al (2020) notes that in Kenya crops such as tomatoes, groundnuts and maize generate relatively more profit than tobacco. The crops suggested by farmers are also cheaper to produce in Zimbabwe compared to tobacco (Keyser, 2002). Groundnuts are also a good choice in Zimbabwe because they are suited to soils where tobacco does well, while soya beans are the least labour intensive (Keyser, 2002).

However, it is expected that the choice of the preferred alternative is influenced by experience in growing it. There are main two main sources of experience. First, tobacco farmers could prefer the previous crops that they were growing before tobacco. Secondly, the farmers could just upscale the current crops that they are growing alongside tobacco as they also have some experience in growing them. However, the results from the interview demonstrate that it is only maize where previous experience or current experience can be said to play an influencing role (Figure 21). Although, beans was considered an alternative crop by the majority of farmers if they have to shift, only 6% of the farmers indicated that they shifted from beans to tobacco, with the same proportion also indicating that they are already growing it alongside tobacco. Only 6% of the farmers that identified soya beans as an

alternative used to grow the crop before shifting to tobacco, while only 4% are growing it alongside tobacco. The same trend is also true with respect to groundnuts and cotton. The farmers who indicated that they do not have any other alternative crops to fall on besides tobacco are also not necessarily those that are not growing any other crop besides tobacco, neither are they necessarily those that did not shift from any other crop before tobacco. Thus, the level of experience in growing the preferred alternative crop is not the main motivating factor for selecting the crop. This also supports the earlier finding that it is mainly the attractiveness of the crop in terms of returns that is the main motivating factor; farmers are prepared to learn the basics of the crop from scratch as long it is seen as rewarding.

Figure 21: Influence of experience with the crop in selection as an alternative



Source: *Own construction from survey data*

The results show that, generally farmers are flexible when it comes to choices for crops. Some farmers also highlighted some non-traditional crops such as chia, caster beans, and sesame as alternatives they would consider. The disadvantage with non-traditional crops, however, is that they will be relatively new and therefore require more investment in terms of knowledge, infrastructure and extension support services.

7. CONCLUSION:

Strategies and policy options to reduce barriers towards a smooth transition towards other alternative cash crops

The study has generally revealed that farmers are more concerned with high returns from a crop which influences their decision to grow it. The attractiveness of tobacco is mainly because there are perceived good returns from the crop, hence farmers are now dependent on income from tobacco. However, there are also a number of alternative cash crops that farmers are either growing concurrently with tobacco or shifted from in order to grow tobacco, which include soya bean, cotton, sunflower, groundnuts and horticulture. The study has also established that farmers appreciate the negative implications of tobacco on health and generally indicate that they are in support of the tobacco control measures that are in place at the moment. Based on the main findings of the study, there are a number of strategies and policy options that can be pursued towards a smooth transition from tobacco to other crops, which include the following:

a) There is need for policy incentives to make alternative cash crops as attractive as tobacco. The study has revealed that although there is an attachment to tobacco by farmers, it can be easily be broken as long as the alternative crops are seen as rewarding as tobacco. However, key informant interviews also highlighted that the alternative cropping adoption by growers will have some challenges at first due to the high initial costs in establishing the required infrastructure, lack of established and readily available markets and lack of suitable genetics of the alternative crops.

b) Tobacco has a strong appeal on farmers because the production and marketing of the crop is well organised (an industry and marketing board, a research board, the trade and grower associations, extension agents, training institutions etc) that may not be readily available for all the other alternative crops. The contract farming strategies on tobacco are more organised and transparent compared to the contract farming arrangements for alternative cash crops, such as cotton and soya beans. The transparency in pricing through an auction for tobacco also makes it unparalleled with other cash crops currently. Thus, ensuring that there are legislations that promote transparency in marketing and pricing of the alternative crops would allow a smooth transition from tobacco growing. It also means that tobacco control initiatives would require a long-term horizon in terms of planning, implementing and expecting positive results, given the investments that have already gone into tobacco

and the need for other crops to reach or exceed such levels so as to be equally attractive.

c) Zimbabwe has gone a long way in embracing some of the existing tobacco control measures, especially taxation as well as advertising controls. The farmers are generally happy with the existing tobacco control measures, even if there is a threat that by reducing smoking, the measures could affect demand in the long run. The farmers put health considerations ahead of income generation, which is good for the effectiveness of tobacco control measures. It is therefore important for government to continue with the current tobacco control measures, including tightening them up to extract more revenue from tobacco smoking. However, it is also important to note that since most of the tobacco grown in Zimbabwe is exported, other innovative measures are needed to compliment taxes and advertising controls so as to deal with demand from importing countries which may not be part of FCTC.

d) Farmers are also prepared to pursue any alternative cash crops if they are considered attractive enough. Government has legalised production of industrial hemp[20]. The prospects of hemp production in replacing tobacco as an alternative lucrative crop are yet to be explored. Introduction of new crops like hemp would also require capacitation of farmers with new skills and knowledge as their, their experience and knowledge in tobacco might not fit in well with the requirements of the production of the alternative cash crops. Thus, as pointed out by the farmers, it is also important to ensure that the level of extension services for the alternative cash crops be intensified now so as to promote their production. This is also largely due to the fact that research into the other crops of choice is still in its infancy. Cotton production is an exception as research facilities and institutions already exist to promote cotton growing even though they need to be capacitated. There is strong government support and contract farming and marketing for cotton growing in place which have potential to revival tobacco growing if sustainable funding mechanisms are put in place. Cotton like tobacco grows well and thrives in dry areas where horticultural crops may not thrive. Farmers have already embraced diversification such that with increased knowledge and support, transition can be smoother.

e) The transition to other alternative crops from tobacco is not smooth and will take time, such that the tobacco control measures are not likely to have an immediate

[20] https://www.ebusinessweekly.co.zw/can-zimbabwe-replace-tobacco-with-industrial-hemp-2/

impact. It is also critical to ensure that the development of alternative tobacco use industries is promoted. Interviews with key informants revealed that in Zimbabwe, there are already some alternative tobacco use initiatives being promoted, especially with the Tobacco Research Board facilitating the research. An example is the edible oil expression from tobacco seeds. The development of such industries will keep tobacco as a useful crop in other uses apart from smoking, which is a public health concern. Enhanced research, in partnership with the Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development could also facilitate the development of these alternative tobacco use industries. The Tobacco Value Chain Strategy that the Ministry of Agriculture has just implemented can be exploited on to develop alternative industries.

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