# FARM-LEVEL ECONOMICS OF TOBACCO PRODUCTION IN MALAWI

## REVISED REPORT

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## ACRONYMS

| | |
|---|---|
| ACS | American Cancer Society |
| ARET | Agricultural Research and Extension Trust |
| ARISE | Achieving Reduction of Child Labour in Support of Education Project |
| CARD | Centre for Agricultural Research and Development |
| EPA | Extension Planning Area |
| JTI | Japan Tobacco Incorporation |
| GDP | Gross Domestic Product |
| NIH | National Institute for Health |
| ILO | International Labour Organization |
| IPS | Integrated Production System |
| TAMA | Tobacco Association of Malawi |
| TCC | Tobacco Control Commission |

## ACKNOWLEDGEMENTS

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We take responsibility for any omissions, misrepresentation of facts or any other errors in this report.

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# 1. INTRODUCTION

## 1.1 About this Report

The Centre for Agricultural Research and Development (CARD) of the Lilongwe University of Agriculture and Natural Resources (LUANAR) is implementing a National Institutes of Health (NIH)-funded project entitled, *Building Research and Capacity on the Economic Policy – Tobacco Control Nexus in Africa*. The multi-country project is being implemented in Kenya, Malawi and Zambia and involves partnerships among CARD, the University of Zambia, the International Institute for Legislative Affairs (ILA-Kenya), the University of Ottawa (Canada), McGill University (Canada), and the American Cancer Society (USA). The primary objective of this project is to understand the political and economic factors that contribute to tobacco production and control. Tobacco is a unique crop. On the one hand decades of research has confirmed that tobacco consumption is entirely detrimental to human health, while on the other tobacco continues to be a lucrative economic commodity for some. From a policy perspective there is a global movement by governments to control the marketing, sale, price, packaging and other aspects of tobacco products while within the same governments there is often ambivalence to or outright dismissal of the health risk of tobacco consumption as officials privilege policies that support tobacco production.

The policies that support tobacco production are often founded on the belief that tobacco is an important crop for economic development. Malawi is a country that has relied and continues to rely heavily on tobacco production. Malawi's economic ties to tobacco production fall in two broad categories. The first pertains to the relationship between tobacco production and country-level economic factors such as foreign exchange earnings and direct and indirect economic effects of tobacco industry investment. The second category involves the relationship between tobacco production and the economic livelihoods of tobacco growers. It is this second category that is the focus of this report.

There is a common narrative promoted by tobacco interests that tobacco control will result in economic hardship for farmers who rely on this crop. Governments of many tobacco-producing countries also continue to claim that tobacco control hurts farmers' livelihoods. Despite the widely purported claim that tobacco farmers benefit economically from tobacco growing and are detrimentally affected by tobacco control at the national and international level, the empirical research to support this assertion is scarce. Empirical evidence systematically elucidating the nature of tobacco farmers' individual-level livelihoods in Africa is scarce.

This report presents findings of an economically-focused, individual-level farmers' survey undertaken in Malawi. The survey questionnaire was divided into 9 sections: household characteristics; livelihood, income and assets; land ownership and crop production; tobacco production generally; tobacco production under the IPS; tobacco marketing; farmer debt and credit; household food security; and the future of tobacco production. The team administered the survey in November and December 2014 in six major tobacco-growing districts of Malawi with smallholder tobacco farmers. The six districts were purposively sampled as the leading tobacco producing districts, based on nationally representative production data from the 2010 Integrated Household Survey. Production data from the Ministry of Agriculture also confirmed

the selection of the six districts. The second stratum was a purposive sample of two traditional authorities (TAs), the key sub-district distinction in Malawi, within each district where tobacco is the major crop. The third stratum was a random sample of three group villages (communities) from a list of all of the villages growing tobacco as a major crop in each TA. Within each selected group village, a random sample of 20 farmers was drawn from a complete list of tobacco farmers for 2013-14 provided with the assistance of the group village head (the traditional leader) and the local government agricultural extension worker. The sample of 685 farmers comprises a relatively equal distribution of contract (n=307) and independent (n=378) farmers.

## 1.2 Tobacco and the Malawi Economy

The economy of Malawi is heavily agro-based with the agricultural sector contributing over 29 percent of the country's Gross Domestic Product (GDP), accounting for over 82.5 percent of its foreign exchange earnings and supporting the livelihoods of over 90 percent of the population (Malawi Government, 2013). Further, 84.5 percent of the total labour force is employed in the agricultural sector, with the majority working as smallholder farmers. It should be pointed out that the agricultural sector comprises the commercial sub-sector and the smallholder sub-sector. The smallholder sub-sector contributes around 25 percent of the total GDP, employs 95 percent of the total agricultural labour force (Malawi Government, 2004), and almost 70 percent of agricultural produce in Malawi comes from smallholder farmers (World Bank, 2006).

Malawi has been exporting tobacco since 1893 (Wilshaw, 1994) and today Malawi is the world's most tobacco-dependent economy (Otanez *et al*, 2009). The economy of Malawi heavily relies on tobacco as the commodity contributed to 52% of the total export value for the country in 2012 (See Table 1). The country is among the top ten producers of tobacco leaf in the world. It is also the top producer of burley tobacco, alongside Brazil and the United States (Otanez *et al*, 2009). The demand for Malawi's burley remains high as the leaf has a good reputation as a "flavourless and clean filler" (Prowse and Moyer-Lee, 2013). It is against this background that the debate about the effects of the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) continues to take centre stage in the development arena of Malawi.

The WHO FCTC is an international legal framework that was developed in response to the global tobacco epidemic. The treaty came into force in February 2005 (WHO, 2005) and as of April 2016, 180 countries are parties to the FCTC. The WHO FCTC recognizes that "the spread of the tobacco epidemic is a global problem with serious consequences for public health that calls for the widest possible international cooperation and the participation of all countries in an effective, appropriate and comprehensive international response" (WHO, 2005). According to the *Tobacco Atlas*, tobacco use resulted in approximately 6.3 million deaths in 2014 and reported that nearly 80 percent of tobacco users now live in low- and middle-income countries (Eriksen *et al*, 2015). These startling statistics have compelled countries to ratify the WHO FCTC, including some countries that are among the leading producers of tobacco leaf, such as Zambia, China and Brazil. Particularly relevant to this report, Article 17 of the treaty compels parties to help tobacco farmers find viable alternative livelihoods.

Malawi remains one of a small number of countries that have not signed the WHO FCTC and it is clear that tobacco leaf growing continues to shape the politics of tobacco control[1] in the country (Makoka *et al*, 2011). Policy makers often weigh the health benefits of tobacco control measures against the potential economic losses that may be brought about in a country that is largely dependent on tobacco. It is a common challenge for tobacco producing countries to develop tobacco policy that is coherent and consistent across the health and economic sectors. In other words, Malawi is not alone in navigating new trajectories that move beyond entrenched policies that support tobacco production to those that foster longer-term social and economic development.

**Table 1: Malawi's Main Export Commodities in 2012 (US Dollars)**

| Commodity | Value (US$) | % of Exports |
|---|---|---|
| Tobacco | 653,575,636 | 52.1 |
| Ores, slag and ash | 135,058,693 | 10.8 |
| Coffee, tea, spices | 119,957,197 | 10.0 |
| Cotton | 55,931,523 | 4.6 |
| Oil seeds/fruits | 50,687,633 | 4.0 |
| Edible vegetables | 46,143,983 | 3.7 |
| Sugar | 42,984,367 | 3.4 |
| Wood products | 20,646,630 | 1.6 |
| Plastics | 19,796,005 | 1.6 |
| Edible fruits | 12,806,252 | 1.0 |

**Source: Malawi Government (2013)**

[1] According to the WHO FCTC, "tobacco control" refers to a range of supply, demand and harm reduction strategies that aim to improve the health of a population by eliminating or reducing their consumption of tobacco products and exposure to tobacco smoke (WHO, 2005)

**Figure 1: Value of Malawi's Tobacco Exports (US$ '000), 2001-2014**


**Source: Authors' compilation using ITC data (Trade Map) based on data from National Statistical Office**

## 1.3 The Malawi Tobacco Industry

The tobacco industry is one of the most well organized industries particularly in terms of their supply chains. The tobacco sector value chain constitutes production, transportation of tobacco to the auction floor, grading of tobacco and the marketing of tobacco on the domestic, regional and international markets (Chirwa, 2011). Malawi grows six types of tobacco. These are (i). Burley; (ii) Virginia (Flue Cured); (iii) North Division Dark Fire Cured; (iv) Southern Division Fire Cured; (v) Sun-air Cured; and (vi) Oriental. Although the six types are grown in Malawi, Burley accounts for around 95 percent of all tobacco produced in Malawi (Chirwa, 2011).

Prior to the liberalization of tobacco production in 1992, smallholder farmers were only allowed to produce fire cured (Northern Division and Southern Division), sun-air cured, and oriental tobacco. Burley and Virginia were only produced by commercial producers (estate growers). The liberalization of tobacco production in 1992 made it possible for smallholder farmers to cultivate burley and Virginia. It is argued that government liberalized in large part because of pressure from the World Bank and USAID to ensure the redistribution of wealth in the agricultural sector and increase smallholder farmers' ability to procure fertilizers for maize production without government subsidies (e.g., Grean, 2012). It is estimated that around 360,000 smallholder farmers are involved in leaf cultivation (Grean, 2012). In a short period following liberalization the smallholder production of burley tobacco increased from 10,000 metric tons (1994) to over 80,000 tons (1997-1999) (Moyer-Lee and Prowse, 2012).

### 1.3.1 Tobacco Farmers' Associations

There are two main tobacco farmer organisations that represent smallholder tobacco growers in Malawi – the Tobacco Association of Malawi (TAMA) and the National Association of Smallholder Farmers' in Malawi (NASFAM). TAMA was established in 1929, with a founding objective of promoting and developing the tobacco industry in Malawi and to advance the

interests of tobacco growers. It was registered as a Trust in 1983 to protect and promote the welfare of tobacco growers. TAMA is also a founding member of the International Tobacco Growers Association (ITGA)[2].

The NASFAM runs an association of tobacco farmers that grow tobacco under its leadership. It is the largest smallholder-owned membership organization in Malawi, which was set up in 1995. These grower associations support the smallholder growers in promoting good agronomic practices, the transportation of tobacco to the markets and the marketing of tobacco at the auction floors.

### 1.3.2 Leaf Companies in Malawi

The leading leaf merchants in Malawi are Alliance One Tobacco (Malawi) Ltd and Limbe Leaf Tobacco Company, who together buy between 60 percent and 70 percent of all tobacco in Malawi every year (Moyer-Lee and Prowse, 2012). The other leaf companies operational in Malawi include Japan Tobacco Incorporation (JTI) Malawi, Premium TAMA Tobacco Limited and Malawi Leaf Company. Table 2 describes the five leaf companies.

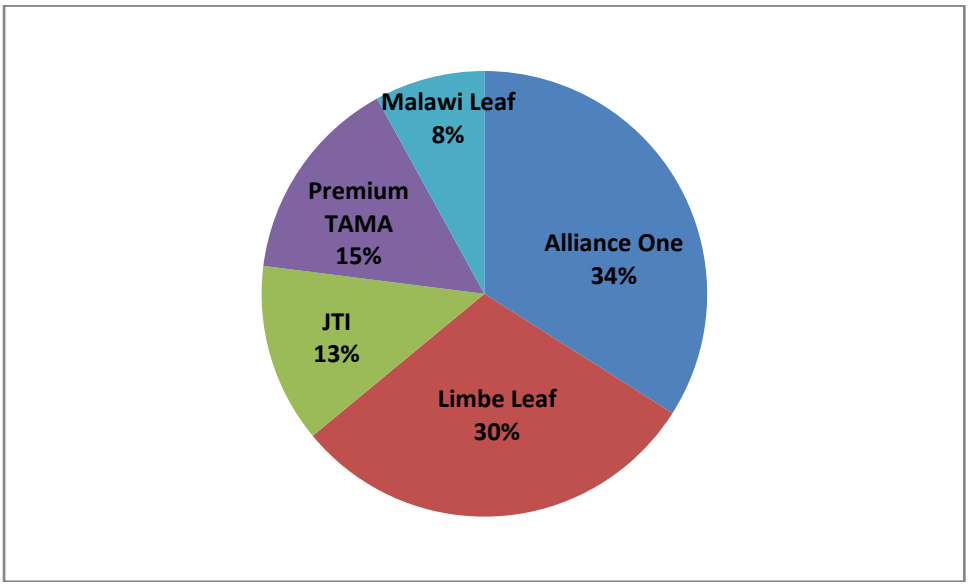
**Table 2: Main Tobacco Leaf Companies in Malawi**

| Leaf Company | Brief Description |
|---|---|
| Alliance One Tobacco (Malawi) Ltd | A subsidiary of Alliance One International. Alliance One International is an outcome a global merger between Stancom and Dimon |
| Limbe Leaf Tobacco Company | A subsidiary of Universal Corporation. It has been operational in Malawi since the 1960s. It is involved in leaf purchasing, leaf processing (mainly involving tipping and threshing) and leaf exporting. |
| JTI Malawi | A subsidiary of Japan Tobacco Inc. It has been operational in Malawi since 2009 |
| Malawi Leaf Co. Ltd | Subsidiary of Auction Holdings Limited (AHL) Group. It is 100 percent locally owned. It has been operational since 2006 |
| Premium TAMA Tobacco Limited | A subsidiary of Premium Tobacco Group in an equity partnership with the Tobacco Association of Malawi (TAMA). |

Similar to the pre-liberalization era, following market liberalization there emerged a cartel of leaf buyers known to have depressed the prices offered to tobacco producers (Prowse, 2011). More recent research has suggested that the two dominant firms (see Figure 2), Limbe Leaf Tobacco Company and Alliance One, have operated a cartel shaping the economics of leaf buying in Malawi (Otanez *et al*. 2007). The leaf companies have an association called Tobacco Exporters Association of Malawi (TEAM).

[2] ITGA is a grouping of tobacco producer association, based in Lisbon, Portugal. Its mandate is to defend the interests of tobacco growers at the global level.

**Figure 2: Market Share of Tobacco Leaf Companies in Malawi**




**Source:** Moyer-Lee and Prowse (2012); Other Secondary sources

### 1.3.3 Regulatory Framework

The Tobacco Control Commission (TCC) is Malawi's regulatory authority for the tobacco industry. The Commission was created by an Act of Parliament (Tobacco Act Chapter 65.02.) to regulate the marketing of tobacco in Malawi. The TCC draws its membership from government institutions, buyers' association and growers[3] (Chirwa, 2011). Specifically, the mandate of TCC is to regulate sales of tobacco on the auction floors.

According to Chirwa (2011), the functions of TCC include:

- Regulating the production, manufacture and marketing of tobacco;
- Advising government on the sale and export of tobacco;
- Promoting and expanding the sale of tobacco;
- Collating statistics relating to tobacco;
- Controlling and regulating the sale of tobacco;
- Registering and licensing tobacco growers and sellers;
- Defining tobacco grades and classes for the purposes of selling and buying.

### 1.3.4 Extension and Research Services

Extension and research services are provided by the Agricultural Research and Extension Trust (ARET), which is concerned with the development and dissemination of tobacco technologies. It was established in 1995 as a trust, with the Government of Malawi and TAMA as the trustees. In line with its set-up, ARET is owned entirely by tobacco farmers, who provide funding to the

[3] The Control of Tobacco Auction Floors Act also stipulates that Board of TCC shall comprise the Chairman appointed by the Minister, two members from the Agricultural Development and Marketing Corporation (ADMARC), two members from TEAM, two members representing tobacco growers and two members representing the Government of Malawi.

trust through the ARET levy that is deducted from the proceeds of tobacco sales. ARET's current mandate is to conduct research on tobacco and provide extension, specialist and technical services to the tobacco farmers.

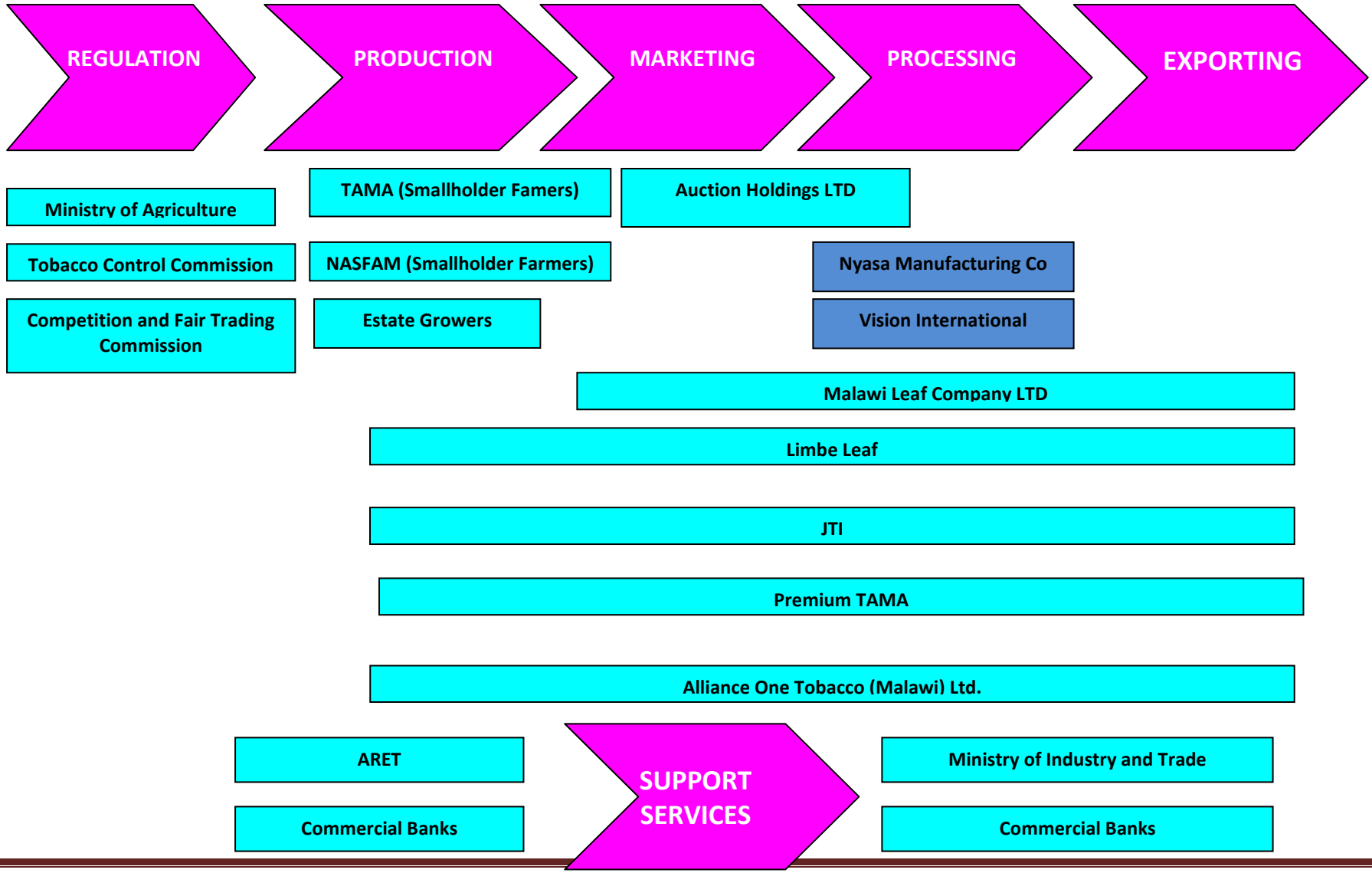
### 1.3.5 Main Actors in the Malawi Tobacco Supply Chain

Figure 3 shows the main players in the tobacco industry's supply chain. As mentioned, tobacco leaf is mostly produced by smallholder farmers who are mostly under TAMA or NASFAM. The estate growers produce around 5 percent of Burley tobacco and 75 percent of Virginia tobacco. TAMA and NASFAM are also involved in the marketing of the tobacco of their members through the provision of transport services to the auction floors. Leaf companies are involved in production given that most smallholder farmers are under contract through the Integrated Production System (IPS). The IPS system was fully implemented in 2012 and since then most smallholder farmers are under contract. Under contract farming, farmers make legal arrangements with tobacco leaf-buying companies to sell their tobacco leaf exclusively to them. In return, the tobacco leaf companies provide the farmers with agricultural inputs such as fertilizers and seeds on credit, and sometimes, cash loans. Despite the fact that IPS was implemented in part as a response to leaf buyers operating as a cartel and depressing the price of leaf, the system still gives tobacco leaf companies extensive control over tobacco leaf grading and pricing. In the districts where data for this report were collected, it was found that most farmers were under contract with Alliance One, Limbe Leaf, Premium TAMA and JTI. Beyond the IPS, the leaf companies are also involved in purchasing leaf from the farmers in auction floors that are operated by Auction Holdings Ltd.

Most of the leaf that is produced in Malawi is exported, mainly to European countries. Before exporting, the leaf undergoes minimum processing that includes tipping and threshing. All the leaf companies undertake this process before exporting. As Figure 3 shows, apart from the leaf companies that undertake some processing, there are two cigarette-manufacturing companies (Nyasa Manufacturing Company and Vision International) that process the leaf into cigarettes. The cigarettes target the domestic market. These two firms are relatively new entrants into Malawi's tobacco economy who have been operational for less than 7 years.

Besides ARET, other organizations provide services to growers. Commercial banks offer support in terms of provision of credit to farmers through the contracts that leaf companies have with farmers under the IPS arrangement. The Ministry of Industry and Trade provides support in facilitating the export of the leaf. The commercial banks are also available to provide credit to the leaf companies to facilitate the export of the commodity to Europe and other destinations.

**Figure 3: Main Actors along the Malawi Tobacco Supply Chain**



# 2. STUDY OBJECTIVES

The main overarching objective of this study was to analyze farm-level economics of tobacco production as it relates to profitability, incomes and household welfare. Specifically, the study was undertaken to answer the following key questions:

- What are the main livelihood sources of tobacco farmers?
- What are the determinants of land allocated to tobacco among tobacco farmers?
- What are the main features of tobacco production under IPS?
- What is the cost of tobacco growing for smallholder farmers?
- What are the differences in farm-level profitability of tobacco cultivation between individual tobacco farmers and farmers under contract to leaf companies (IPS)?
- What is the future of leaf cultivation among independent and contract farmers?

## 2.1 Study Limitations

There are two main limitations to this study that need to be considered:

i. Data were collected from the 6 leading tobacco-producing districts of Malawi. Five of the 6 districts are in the central region, and only one district was from the northern region. However, tobacco is also widely grown in the southern region. The findings are thus not necessarily representative of tobacco production in the southern region.

ii. This paper makes a significant contribution in understanding the economics of tobacco cultivation by incorporating labour in the cost of production. The challenge, however, is that data on the labour cost was based on the ability of the respondents to recall their labour use and sources in 2013/14 season. As is always the case with recall data, the degree of accuracy varies, and some caution needs to be exercised when interpreting the results.

## 2.2 Structure of the Report

This report proceeds as follows: Chapter 3 describes the quantitative and qualitative data that were used in this report. Chapter 4 presents the findings of the study. In this chapter we provide an overview of the socio-demographic characteristics of the tobacco farmers; agricultural practices, including crops grown, and determinants of land allocation to tobacco; production under IPS; tobacco marketing; profitability and incomes; debts and credit demand among tobacco farmers; use of child labour; and the future of tobacco production. Chapter 5 concludes with discussion and provides policy recommendations.

# 3. DATA

## 3.1 Quantitative Data

Quantitative data were collected from six leading tobacco-producing districts of Malawi (see Figure 4). The study used a stratified random sampling that also employed a purposive sampling technique. The first step (stratum) involved a purposive sample of 6 leading tobacco–producing districts of Malawi, based on production data from the Malawi Ministry of Agriculture, and the 2010 Malawi Integrated Household Survey. The second stratum was a

purposive sample of 2 traditional authorities (TAs) (sub-districts) in each of the 6 districts where tobacco production is widely grown, based on production data from the Malawi Ministry of Agriculture. The third step (stratum) was a random sample of 3 group villages (communities) from a list of all the group villages in the selected TAs. In each of the selected group village, a complete list of all farmers that grew tobacco in 2013/14 season was drawn, with the help of the group village head (traditional leader) and the government agricultural extension worker. From the list generated, a random sample of 20 farmers was drawn in each group village. The desired sample from this technique was 120 farmers per district and the overall sample of 720 farmers. However, due to other logistical challenges[4], the study managed to obtain data from 685 farmers (see Table 3).

**Table 3 Distribution of the Sample across the Study Districts**

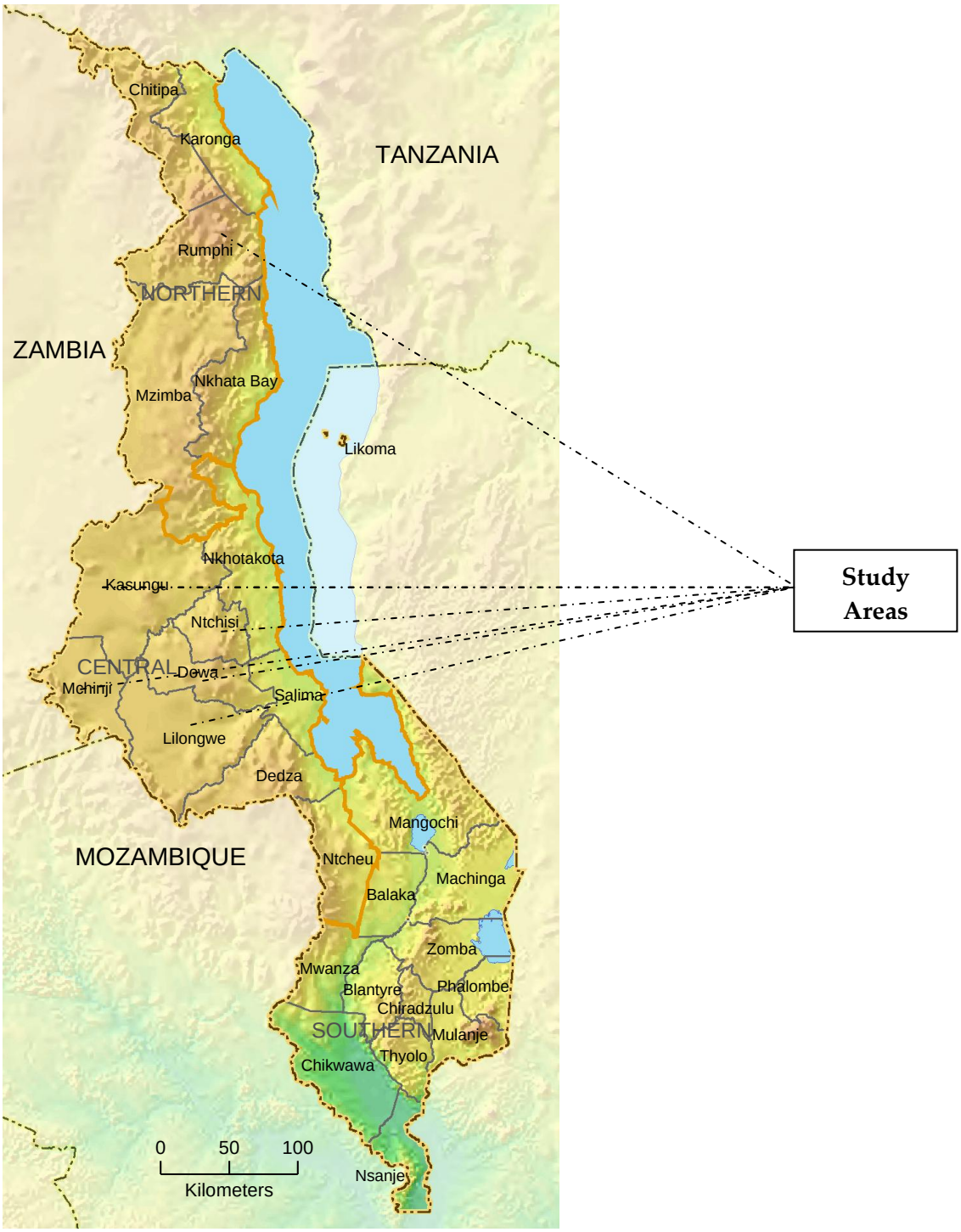
| District | Frequency (N) | Percentage |
|---|---|---|
| Rumphi | 109 | 15.9 |
| Kasungu | 149 | 21.8 |
| Mchinji | 112 | 16.4 |
| Ntchisi | 97 | 14.2 |
| Dowa | 98 | 14.3 |
| Lilongwe | 120 | 17.5 |
| **TOTAL** | **685** | **100.0%** |

## 3.2 Qualitative Data

To complement the quantitative data that were obtained through the farmer survey, focus group discussions (FGDs) were conducted. The FGDs were conducted following the survey data collection phase. Overall, one FGDs was conducted in 4 of the 6 districts (Rumphi, Kasungu, Dowa and Lilongwe). The FGDs were conducted at a randomly sampled TA from the two TAs from where quantitative data had been collected. The FGDs took place at a local Ministry of Agriculture office (called Extension Planning Area (EPA) Office) in the selected TA. Each FGD comprised between 10 and 15 participants that were randomly drawn from villages surrounding the EPA. Apart from FGDs, qualitative data were also obtained through key informant interviews with the Ministry of Agriculture's extension officers. Morehouse School of Medicine (American Cancer Society's IRB of record), and McGill University granted ethics approval for the qualitative portion of the study.

[4] One of the challenges that were encountered is that the research teams found other community activities (e.g. funerals, developmental meetings) taking place during the time that was also earmarked for data collection. As a result, the activity could not take place.

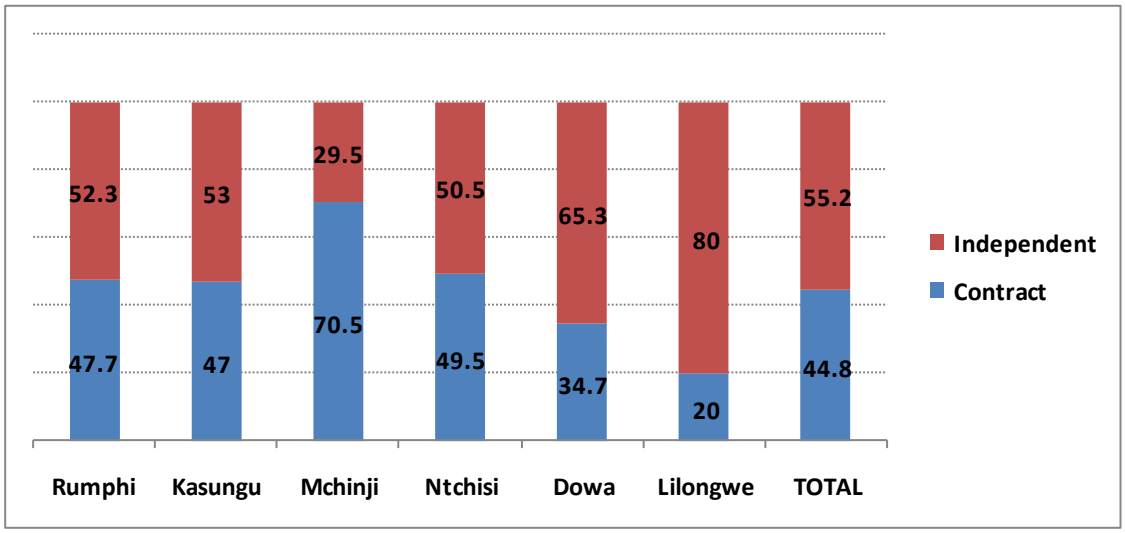
**Figure 4: Map of Malawi Showing Study Districts**



# 4. STUDY FINDINGS

This chapter presents the findings of the study. To begin, approximately 45 percent of all the farmers that were interviewed were farmers that were contracted by the leaf-buying firms under the Integrated Production System (IPS). As shown in Figure 5, the proportion of IPS farmers in the sample was highest in Mchinji (70.5 percent) and lowest in Lilongwe (20.0 percent). The proportions of contract and independent farmers across the districts reflected the penetration of leaf companies in the study areas at the time of the study.

**Figure 5: Type of Tobacco Farmer Interviewed by District**




## 4.1 Household Demographic and Socio-economic Characteristics

### 4.1.1 Sex of Tobacco Farmers

Tobacco production in Malawi is dominated by men. As in many parts of Africa, men dominate the production and control of high-value cash crops. In our data, only 9.9 percent of all the tobacco farmers that were interviewed were female (see Table 4). The proportion of women in the sample was highest in Rumphi (24.8 percent) and lowest in Ntchisi (2.1 percent). The FGDs revealed that women, in contrast to the survey results, are involved in all of the labour associated with tobacco production but are not identified as responsible for tobacco production. Despite the qualitative findings that suggest that women are as involved in tobacco product as men, the difference appears to lie in the control of finances and decision-making. The implication of this finding is that since production and control is dominated by men, it is difficult for women to participate in decision-making regarding the use of tobacco proceeds in the household. This was confirmed through the FGDs that were conducted with the tobacco farmers. For example, one male tobacco farmer in Rumphi reported that *"Everything to do with tobacco is in the hands of the man. In many families women are not consulted on any decision regarding tobacco production. It's the man that decides how much tobacco to grow and what to do*

*with the revenue he receives after selling his tobacco."* [FGD participant, Mhuju EPA, Rumphi District].

### 4.1.2 Age of Tobacco Farmers

The average age of the sampled tobacco farmers was 40.7 years (see Table 4), with the minimum age being 17 and the oldest farmer was 93 years. The average age of contract farmers was 41.4 years, while that of the independent farmers was 40.1. The small difference between the average age of independent farmers and contract farmers was not statistically significant[5]. In a country with a high rate of youth unemployment[6], one would expect that participation amongst youth in leaf cultivation, which anecdotally is regarded by many farmers as a lucrative enterprise would be high. In our sample, however, only 5 percent of all the sampled farmers were below the age of 25[7]. While the youth are involved in leaf cultivation, the majority of them do not work on their own farms. Instead they work on their parents' farms or on other people's farms as farm workers. This was echoed by one key informant interview: "*the youth are involved in leaf cultivation. Since many of them do not have what it takes to produce their own tobacco, they assist their parents and are given a share of the proceeds. We also have a lot of young people that work as tenants in tobacco farms here. Many of them come from the southern region*", [Government Extension Worker, Kasungu District]. The implication of this finding is that if tobacco production was indeed lucrative, it would be attractive for the youth to work as individual farmers in their own right or as contract farmers under IPS.

The sampled farmers were quite experienced in tobacco farming, with an average experience of 12 years as a tobacco farmer (see Table 4). The farmers were most experienced in Mchinji (14 years) and least experienced in Rumphi (8 years).

**Table 4: Average Age, Sex and Household Size of Sampled Tobacco Farmers.**

| District | Average Age | Proportion of Female Farmers | Average Household Size | No of Years as a Tobacco Farmer |
|---|---|---|---|---|
| Rumphi | 38.3 | 24.8 | 5.8 | 8.8 |
| Kasungu | 40.7 | 12.8 | 7.2 | 13.1 |
| Mchinji | 42.3 | 2.7 | 8.0 | 14.1 |
| Ntchisi | 40.2 | 2.1 | 6.4 | 11.4 |
| Dowa | 41.1 | 9.2 | 6.4 | 13.9 |
| Lilongwe | 41.1 | 6.7 | 5.9 | 10.9 |
| **ALL** | **40.7** | **9.9** | **6.6** | **12.1** |

[5] A t-test for equality of means of age between individual and contract farmers yielded the following result: t(683) = -1.450, p = 0.148

[6] According to the World Bank, youth unemployment in Malawi was at 13.5% in 2013.

[7] We follow the United Nations' definition of the youth as individuals between 15 and 24 years of age.

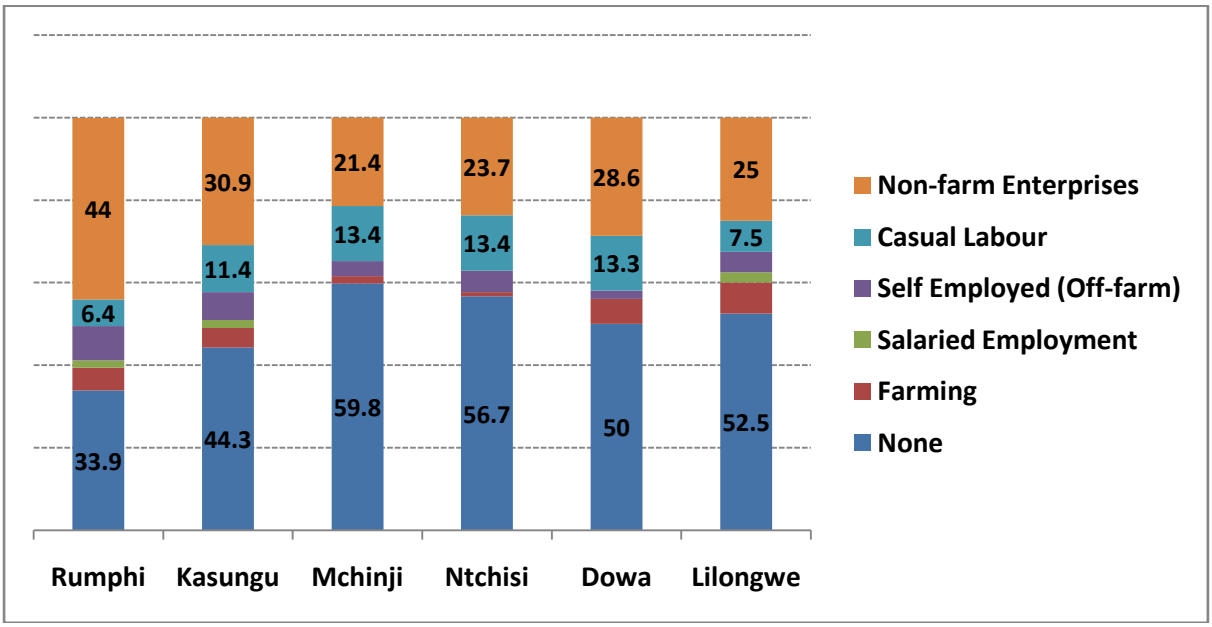
### 4.1.3 Household Size

As Table 3 shows, the average household size for the sampled farmers was 6.6, which is higher than the national average of 4.6 (according to 2008 Malawi Population and Housing Census)[8]. The average household size for contract farmers (7.2) was higher than the household size of independent farmers (6.3), and the difference was statistically significant[9]. Our interpretation of this finding is that since tobacco is a highly labour-intensive crop, its production is more attractive to households that have higher number of members, as they often imply increased availability of family labour than in households with few members. Alternatively, this could mean that tobacco farmers tend to have more kids to provide the much-needed household labour for leaf cultivation.

### 4.1.4 Secondary Occupation

Although the respondents were primarily smallholder farmers, some of them had a secondary occupation, as is often the case with smallholder farming in Africa. As Figure 6 shows, about 66 percent of all the farmers had a secondary occupation, which mostly include running non-farm income generating enterprises (44 percent), and sale of household labour (commonly known as '*ganyu'* in Malawi). However, in some districts, such as Mchinji, Ntchisi, Dowa and Lilongwe, the majority of the sampled farmers solely depend on farming.

**Figure 6: Secondary Occupations of Sampled Farmers (%)**




As farmers continue to face challenges in tobacco production and marketing, it may be easier for those with secondary occupations to make a switch to other occupations (outside agriculture) than for the farmers who solely depend on smallholder farming because they have other direct

[8] In all the sampled districts, the average household sizes were higher than those reported in 2008 Malawi Population and Housing Census Report

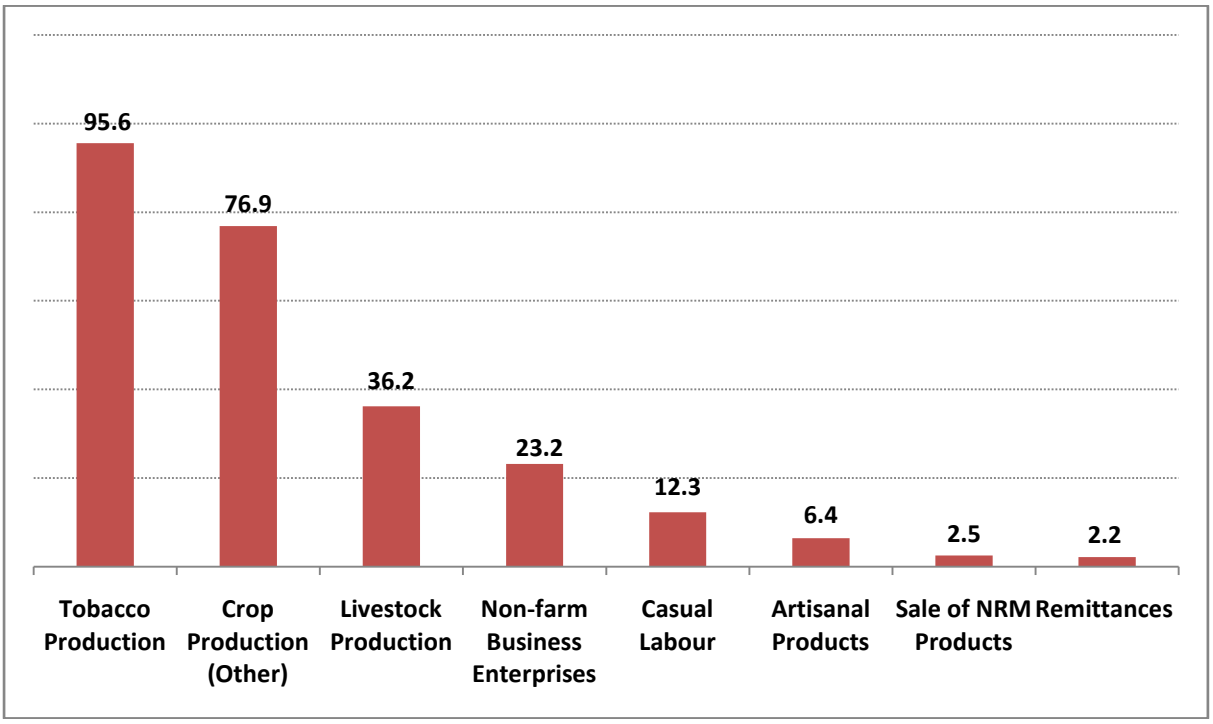
[9] Test of equality of means yielded this result: t(683) = -4.117, p = 0.000

employment experiences and because opportunities in other sectors appear to exist for these individuals.

### 4.1.5 Main Livelihood Sources of the Sampled Tobacco Farmers

As expected, the majority of the sampled farmers (96 percent) depend on tobacco production as their main source of livelihood (Figure 7). The second most common source of livelihood was the production of other crops (reported by 77 percent of the sampled farmers). A small proportion (23 percent) reported depending on non-farm business enterprises as their main livelihood sources.

**Figure 7: Main Livelihood Sources of the Sampled Tobacco Farmers (%)**




**Note:** Data generated from a multiple response question allowing the frequency to vary beyond 100%

## 4.2 Agricultural Practices

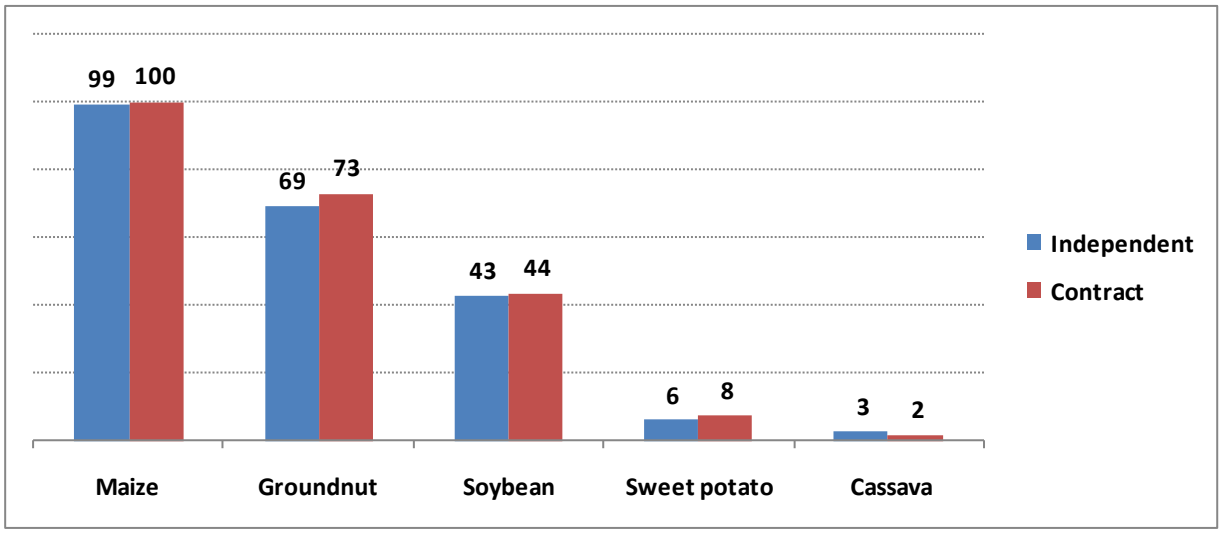
This study also explored the various farming practices of the sample of tobacco farmers in the six districts. The main concern was to analyse the various types of crops that the farmers grow in addition to tobacco, their landholding size and how they allocated their cultivated land to the various crops.

### 4.2.1 Types of Crops Grown

The main crops grown by both contract and independent farmers include maize and groundnuts (see Figure 8). Indeed almost every farmer that we visited reported growing maize in the 2013/14 season, since the commodity is the main staple crop across all six districts where the study was conducted. Groundnuts and soybean are also important crops among the tobacco

farmers (both independent and contract). Crops including groundnuts and soybean have been identified by policy makers as having high potential to replace tobacco in Malawi in future. It is important to note, therefore, that a significant proportion of the sampled farmers are already growing these two crops.

**Figure 8: Percentage of Farmers that Reported Growing Various Crops in 2013/14 Season, by Type of Farmer**




**Note:** Data generated from a multiple response question allowing the frequency to vary beyond 100%

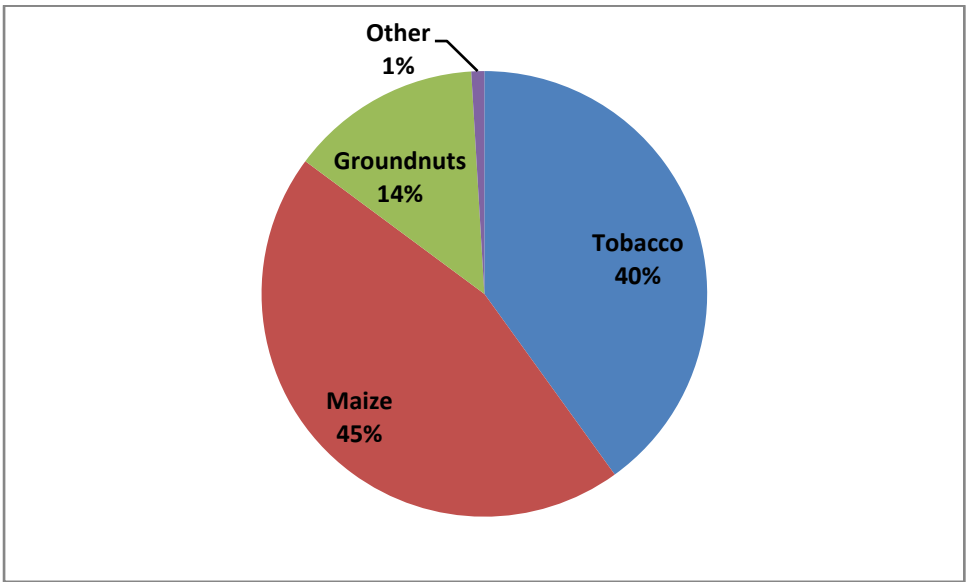
### 4.2.2 Land Allocated to Tobacco Production

Tobacco farmers tend to have relatively large land size. In our study, the average landholding size was 7.7 Acres, compared to the rural national average of 2.0 Acres[10]. It was higher for contract farmers (9.5 Acres) than for independent farmers (6.2 Acres). As expected, tobacco farmers that are under contract tend to have more land, as a contract farmer needs at least 1 Ha to be allocated to tobacco.

In terms of the utilization of the land, it was found that most farmers allocate more land to maize than tobacco. Tobacco and maize together take up almost 85% of the total land under cultivation (Figure 9). Apart from maize, the other crop that is allocated some significant portion of the cultivated land is groundnuts (around 14 percent). Table 5 assesses whether there is a significant difference between the proportion of land allocated to maize and tobacco in the six districts. Overall, farmers allocate a higher proportion of their land to maize (45 percent) than to tobacco (40 percent), and the difference is statistically significant. Although tobacco was allocated more land in Rumphi and Mchinji, the difference was not statistically significant. In Dowa and Lilongwe, however, more land was allocated to maize than tobacco and the differences were statistically significant.

[10] According to 2010/11 Integrated Household Survey (IHS3), the national average landholding size is 1.9 Acres. It is higher in the rural areas (2.0 Acres) than in the urban areas (1.0 Acre).

**Figure 9: Proportion of Land Allocated to Various Crops in 2013/14 Season**




N=685

**Table 5: Proportion of Land Allocated to Tobacco and Maize by District**

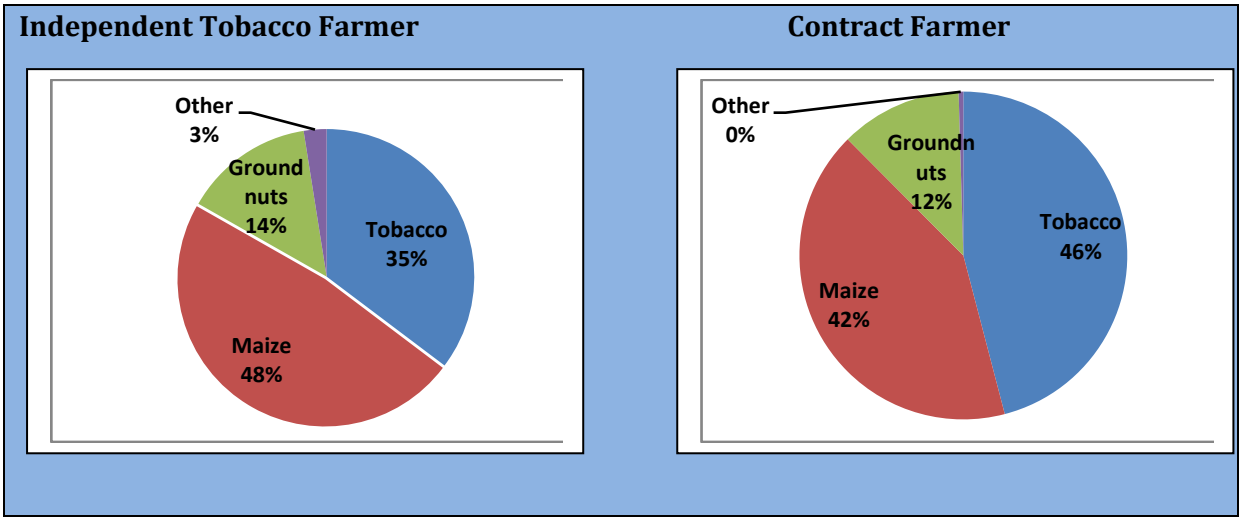
| District | Proportion of Land Allocated to Tobacco in 2013/14 | Proportion of Land Allocated to Maize in 2013/14 | Paired Samples Test of Significance |
|---|---|---|---|
| Rumphi | 0.496 | 0.475 | 0.621 |
| Kasungu | 0.420 | 0.443 | 0.454 |
| Mchinji | 0.432 | 0.405 | 0.362 |
| Ntchisi | 0.374 | 0.417 | 0.097 |
| Dowa | 0.374 | 0.486 | 0.000 |
| Lilongwe | 0.302 | 0.481 | 0.000 |
| **ALL** | **0.400** | **0.451** | **0.000** |

Table 6 and Figure 10 extend the same analysis to look at the differences between independent and contract farmers. The results show that independent farmers allocate a higher proportion of their land to maize (48 percent) than to tobacco (35 percent) and the difference is statistically significant. For contract farmers, on the other hand, they allocate more land to tobacco (46 percent) than to maize (42 percent). However, the difference between land allocated to tobacco and maize among the contract farmers is not statistically significant. The main reason for allocating more land to tobacco production is that for the farmers to be recruited under IPS they need to have at least 1 Ha of land. They therefore have to meet this minimum requirement for them to qualify for the contract with the leaf companies.

**Table 6: Proportion of Land Allocated to Tobacco and Maize by Type of Farmer**

| Type of Farmer | Proportion of Land Allocated to Tobacco in 2013/14 | Proportion of Land Allocated to Maize | Paired Samples Test of Significance |
|---|---|---|---|
| Independent | 0.353 | 0.479 | 0.000 |
| Contract | 0.459 | 0.416 | 0.013 |
| **ALL** | **0.400** | **0.451** | **0.000** |

**Figure 10: Proportion of Land Allocated to Various Crops in 2013/14 Season by Type of Farmer**




### 4.2.3 Determinants of Land Allocated to Tobacco Cultivation

The study sought to understand what determines the size of the land farmers allocate to tobacco. To estimate the determinants of the size of land allocated to tobacco production we take a log transformation of the dependent variable in order to obtain constant variance and normality of residuals. We used the log-transformed dependent variable for the estimation and calculated the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) for model selection. Both the AIC and the BIC were in favour of the model with the log-transformed dependent variable. Table 7 shows the results of the analysis.

**Table 7: Determinants of Size of Land Allocated to Tobacco**

| Variable | Coefficient (SE) | P-Value |
|---|---|---|
| Constant | -0.740*** (0.112) | 0.000 |
| Total Household Size | 0.042*** (0.009) | 0.000 |
| Land Size | 0.007** (0.003) | 0.033 |
| Cultivated Land Size | 0.079*** (0.006) | 0.000 |
| Number of years growing tobacco | 0.002 (0.003) | 0.532 |
| Cash Advance Amount | -5.83e-07 (1.05e-06) | 0.580 |
| Contract Farmer | 0.477*** (0.050) | 0.000 |

| | | |
|---|---|---|
| Main Livelihood | 0.254*** (0.076) | 0.001 |
| Age of Head of Household | -0.002 (0.002) | 0.370 |
| R-squared | 0.49 | |

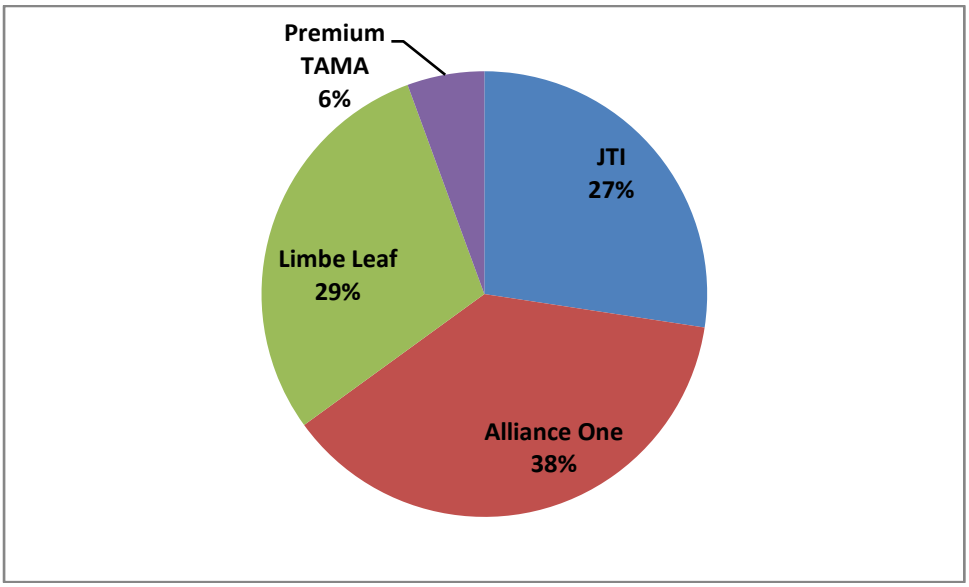
Total household size has a positive and statistically significant coefficient. A unit increase in household size increases land allocated to tobacco farming by 0.04 percent, all other variables held constant. Similarly, the land size a farmer has and the proportion of land cultivated have positive and statistically significant coefficients. A unit increase in land size and land cultivated increases land allocated to tobacco cultivation by 0.007 and 0.079 percent respectively. The number of years that a farmer has been growing tobacco has a positive but insignificant coefficient. The amount of cash advance received by the farmer has a negative but statistically insignificant coefficient. Being a contract farmer has the strongest positive relationship with land allocated to farming. Also we control for the main livelihood of the farmer. To do this we include a dummy variable for main livelihood. If the tobacco farmer's main livelihood is tobacco farming, this increases the land allocated to tobacco farming by 0.25 percent. The age of the head of household has a negative but statistically insignificant coefficient. This model explains 49 percent of the variation in the land allocated to tobacco farming. It is important to note that even though being a contract farmer has the largest impact on the land allocated to tobacco farming, the size of land cultivated explains a larger part of the variation. There is a low positive correlation (r=0.203) between being a contract farmer and the size of land cultivated.

## 4.3 Tobacco Production under the Integrated Production System

The Integrated Production System (IPS) is a system of tobacco production and marketing that was introduced in 2011. The IPS is a marketing arrangement that commits tobacco companies to buying predetermined volumes of leaf from a grower. The leaf company and farmer enter into a legal contract. This arrangement ensures that oversupply of tobacco is mitigated, while maintaining the required quality of the leaf. Producers who contract with the leaf buyers are provided with all the available inputs on loan, though notably, the loan is denoted in US Dollars. At the time of its introduction, the aim was to have at least 80 percent of all tobacco produced in Malawi under the IPS, and the remaining 20 percent to be produced by independent farmers who sell through auctioning at the tobacco auction floors.

This study sought to find out about the processes involved in the recruitment of tobacco farmers into IPS. Of the sampled farmers, 44.8% reported growing tobacco in 2013/14 season under IPS. As Figure 11 shows, Alliance One Tobacco Company had the highest share of the IPS farmers (38%), followed by Limbe Leaf Tobacco Company (29%) and Japanese Tobacco International (JTI) (27%). The majority of IPS farmers (87.3%) reported being recruited into IPS by the leaf companies' extension workers who are resident in the communities where the farmers live. Apart from the extension workers, farmers are also recruited into IPS by their fellow farmers. This was reported by 10.7% of all IPS farmers. The majority of all sampled contract farmers (88.9%) reported that they signed contracts with the leaf companies.

**Figure 11: Proportion of Sampled Farmers Contracted to Various Leaf Companies in 2013/14 Season.**




All sampled IPS farmers were asked whether they were adequately informed of the whole process involved in their contracts before making a decision to join the leaf companies. The results show that 74.4% were adequately informed. The remaining 25.6% reported joining IPS without adequate information, and the majority of the individuals who joined without adequate information regretted their decision to join IPS. Data from focus group discussions substantiate this fact: "*We are usually encouraged to form a group of ten farmers and register with the leaf companies to obtain inputs on loan. They do not explain properly how the process works and the costs of the input. As farmers, we just accept anything because we have no alternative*" (Male JTI Contracted Farmer, FGD, Mhuju EPA). Another finding from the FGDs suggests that most of the contract farmers were unaware of the total cost of inputs received from the leaf companies and in particular were unaware of the cost of inputs received relative to the market value of each input.

### 4.3.1 IPS Loan Package

Table 8 shows a loan package for a contract with Limbe Leaf Tobacco Company to cater for 1 Ha of burley in 2013/14 season. The package included fertilizer for tobacco, some of which is meant to be used at the nursery stage. Tobacco seed, pesticides, plastic sheets, and strings were all part of the package (see Figure 12). Apart from providing inputs related to tobacco production, IPS farmers are also provided with 12 Kg of maize seed and three 50 Kg bags of fertilizer for the maize. The rationale behind these items, according to the leaf companies, is to ensure that their farmers are also food secure.

Part of the loan package is the provision of tree seedlings to ensure that farmers are also planting trees to address the ongoing deforestation that has been brought about by leaf cultivation in Malawi (Figure 12). The total value of the loan was US$953.16 per Ha. It is interesting to note that the loan comes as a package and the farmers are required to accept all

the items, regardless of whether they require the specific inputs or not. For example, if an IPS farmer planned not to cultivate maize in a particular year, they will still be forced to receive the maize seed and fertilizer under the loan package.

**Table 8: Limbe Leaf Tobacco Company, Burley Loan Package per Ha in 2013/14 Season**

| | ITEM | UNITS | COST/UNIT | QTY/HA | TOTAL US$ PER HA |
|---|---|---|---|---|---|
| Tobacco | Fertilizer (15:18:18) | Bags | 48.33 | 7 | **338.28** |
| | Fertilizer (Urea) | Bags | 40.90 | 2 | **81.81** |
| Maize | Fertilizer (23:21:0+4S) | Bags | 41.97 | 2 | **83.95** |
| | Fertilizer (Urea) | Bags | 40.78 | 1 | **40.78** |
| | **Sub-total (Fertilizers)** | | | **12** | **544.81** |
| | | | | | |
| | OTHER ITEMS | | | | |
| Tobacco | Nyonga Pack Chemicals (Nursery) | Packs | 29.49 | 1 | **29.49** |
| | Nyonga Pack Chemicals (Field) | Packs | 106.07 | 1 | **106.07** |
| | Plastic Sheets | Rolls | 28.44 | 2 | **56.89** |
| | Fertilizer transfer to the farmer | | 11.34 | 1 | **11.34** |
| | Tobacco Seed | Grams | 2.38 | 8 | **19.06** |
| | Bean/Soya/Groundnut Seed | Kgs/Packs | 2.50 | 10 | **24.96** |
| | MT 2 String | 2Kg/Roll | 19.74 | 1 | **19.74** |
| | Fertilizer cups | 4c/Ha | $0.04 | 4 | **0.16** |
| | TCC Registration | | 8.10 | 1 | **8.10** |
| Maize | Maize seed DK 8073 | Kgs/Pack | 1.59 | 12 | **19.06** |
| Forestry | Forestry Pack Bu (180 Trees/Ha) | Trees/Ha | 9.44 | 1 | **9.44** |
| | Forestry Labour Bu (180 Trees/Ha) | Trees/Ha | 21.35 | 1 | **21.35** |
| | **Sub-total (Other)** | | | | **326.66** |
| | | | | | |
| | Total Funding/Ha Before Interest | | | | **870.47** |
| | Interest for 8 months | | | | **69.64** |
| | Loan processing fee (1.5%) | | | | **13.60** |
| | **TOTAL LOAN AFTER INTEREST** | | | | **953.16** |

It is also vital to note that the cost of each item is higher than the price that prevails on the market. Unfortunately, for the majority of the farmers, they are more interested in obtaining the inputs and care less about the cost. Indeed, it is likely that the low levels of education[11] limit the ability of the farmers to make informed choices about whether the loans are cost-effective. Interestingly, when the majority of the farmers obtain the loans, they are often not aware of how much they owe the leaf companies. As one farmer reported during a focus group discussion "*most of us do not know how much the items that we receive are charged by the companies. We are given sheets that have figures but they are in US Dollars. This is difficult for us to understand. How much they will deduct for their loans is something that we don't even know. We only care when we have sold our tobacco and see how much money the company deducts from us to recover the loans*" (Female FGD Participant, Mhuju EPA, Rumphi District).

[11] The average number of years of schooling for the contract farmers was 8 years. The independent farmers had an average of 7 years of schooling.

These sentiments were shared by some of the key informants that were interviewed. For example, as one government extension worker reported "*The problem with IPS is that the items are charged in US Dollars and our farmers are not able to comprehend the cost of the items in Malawi Kwacha. The same items that they get from the leaf companies are available at the market at almost half the price. For our farmers, unfortunately, they do not even know the cost of the items and the interest that is charged on the loan*" [Government Extension Worker, Chivala EPA, Dowa District].

**Figure 12: Items that are Part of the IPS Loan Package**


**Source**: Picture taken by Author

### 4.3.2 Cash Advance under IPS

In a bid to control the side-selling (i.e., selling out of the contract) of tobacco among IPS farmers during the period when farmers are in desperate need of cash, most leaf companies provide cash advances to their farmers. January to March are critical months for Malawian farmers, as most of them tend to have their food stocks depleted, and harvest tends to still be a few months ahead. During this time, leaf producers also often need a lot of cash to get extra labour to complement the available household labour in harvesting, drying and sorting of the leaf. Many of the farmers, therefore end up selling some of their leaf to informal traders.

In our study, 37.1 percent of all the contract farmers reported that their companies offered them a cash advance. The average cash advance received was MK46,133 (around US$ 117). It is interesting to note that the cash advance has not been successful in prohibiting/discouraging farmers from side selling (i.e. selling outside the terms of the contract). 33.9 percent of all the farmers who sold their tobacco to other farmers or local traders (i.e. not at the tobacco auction floors) were IPS farmers. Further, 25.4 percent of all the farmers who received a cash advance still sold part of their tobacco outside the formal marketing system.

**KEY FINDINGS**

- Many of the contract farmers were unaware of the loan amount they were receiving from the leaf companies.
- The offer of cash advances to contract farmers has not been effective in stopping side selling of tobacco.
- 33.9% of all the farmers who sold part of their tobacco to local traders or fellow farmers were IPS farmers.
- 25.4% of all the farmers who received cash advances in 2013/14 season still sold part of their tobacco outside the formal system.

## 4.4 Labour Costs

Tobacco production is a highly labour intensive activity (Leppan *et al*. 2014). From our data, the tobacco season lasts approximately nine months from nursery preparation to the day of sale of the tobacco. In Malawi, just like in many tobacco leaf-producing countries, production is highly dependent on family labour, whose cost is often not included in the farmers' decision to cultivate tobacco. Farm workers are often family members, including women and children (Hu and Lee, 2015). Since family labour is often not included in the calculation of profitability of tobacco production, the economics of tobacco farming as promoted by the tobacco industry is not accurate. The tobacco industry argues that tobacco cultivation improves farmers' employment and income and contributes towards poverty reduction (Hu and Lee, 2015; Jacobs *et al*. 2013). In the absence of accurate labour costs the assertion by the tobacco industry has never been tested rigorously. This study seeks to fill this gap by assessing the total cost of tobacco cultivation by incorporating comprehensive labour costs. As far as we are aware, there

has not been research that has attempted to accurately calculate the contribution of family labour to leaf production among smallholder farmers in Malawi.

To estimate the cost of family labour used in leaf production, the study identified the various activities in leaf production. For each activity, respondents were asked how many people from the household were involved; the total number of days that each household member worked on the activity; how many hours per day each member of the household worked on the activity (see Questionnaire in Annex 1). From these questions, the total number of hours for all household members for each particular activity was calculated. Finally, the national rural minimum wage rate for 2013/14 season (MWK 69/Hour) (US$0.18/Hour) was used to calculate the cost of the household labour. For each activity, respondents were also asked if they used any hired labour and the cost of the hired labour was then included in the calculation of total labour cost (see Table 9.

**Figure 13 Tobacco Nursery in Mchinji District**

**Source**: Picture taken by Author in Mchinji District

For all the activities, the sampled farmers reported using more family labour than hired labour. This finding is similar for both independent and contract farmer. Indeed, 90 percent of the total labour cost is covered by family labour for independent farmers, while for contract farmers, family labour contributes 89 percent of the total labour cost (see Table 9). As Table 9 shows, the labour costs for most of the activities are quite high. For example, the total labour costs associated with tobacco nurseries (Figure 13) was around 16.4 percent of the total labour costs

for independent farmers and 12.9 percent for the contract farmers. Further, activities that are done from time the leaf is ready for harvest up to the final marketing are highly labour intensive. In particular, harvesting, drying, grading (see Figure 14) and bailing consume 56 percent of all the labour that is used in leaf production among the independent farmers.

**Table 9: Labour Costs between Sampled Independent and Contract Farmers in 2013/14**

| Activity | INDEPENDENT FARMER | | | CONTRACT FARMER | | |
|---|---|---|---|---|---|---|
| | Cost of Family Labour/ Acre | Cost of Hired Labour/ Acre | Total Cost of Labour/ Acre (MWK) | Cost of Family Labour/ Acre | Cost of Hired Labour/ Acre (MWK) | Total Cost of Labour/ Acre (MWK) |
| Nursery preparation | 2,739 | 355 | **3,094** | 1,928 | 203 | **2,131** |
| Nursery Sowing | 340 | 69 | **409** | 284 | 28 | **312** |
| Nursery fertilizer application | 359 | 48 | **407** | 229 | 26 | **255** |
| Watering of nursery | 25,014 | 217 | **25,231** | 17,543 | 135 | **17,678** |
| Nursery chemical application | 174 | 39 | **213** | 182 | 3 | **185** |
| Land preparation | 14,537 | 1,610 | **16,147** | 12,443 | 1,812 | **14,255** |
| Planting | 2,995 | 872 | **3,867** | 2,320 | 1,210 | **3,530** |
| Chemical application 1 | 545 | 178 | **723** | 1,138 | 109 | **1,247** |
| Fertilizer application 1 | 1,435 | 592 | **2,027** | 1,351 | 485 | **1,836** |
| Weeding | 7,576 | 1,206 | **8,782** | 6,144 | 1,208 | **7,352** |
| Drying shed preparation | 2,096 | 836 | **2,932** | 1,832 | 890 | **2,722** |
| Fertilizer application 2 | 1,885 | 474 | **2,359** | 1,879 | 469 | **2,348** |
| Banding | 7,298 | 1,687 | **8,985** | 6,224 | 1,213 | **7,437** |
| Chemical application 2 | 442 | 187 | **629** | 1,554 | 243 | **1,797** |
| Harvesting | 40,332 | 0 | **40,332** | 36,749 | 0 | **36,749** |
| Drying | 37,232 | 2,051 | **39,283** | 31,061 | 2,905 | **33,966** |
| Grading | 13,807 | 2,287 | **16,094** | 16,502 | 2,085 | **18,587** |
| Baling/Packaging | 1,893 | 1,763 | **3,656** | 2,292 | 1,377 | **3,669** |
| **TOTAL** | **160,570** | **18,420** | **178,990** | **141,650** | **18,230** | **159,880** |
| **Total (US$)[12]** | | | **454.29** | | | **405.79** |

**KEY FINDINGS**

- For independent farmers, 89.7% of all the total value of labour used in production per acre is supplied by family members.
- For contract farmers, household labour contributes 88.6% of the total labour costs in leaf production.
- To accurately estimate the profitability of leaf production, the cost of family labour therefore needs to be included in the calculation of the cost of production.

[12] At the time of the study, US$1=MWK394

Tobacco production is highly labour intensive. Based on previous studies conducted by the author(s), labour cost per acre for tobacco production is 21 times more than soybean production[13].

**Figure 14: Tobacco Drying and Grading**

**Source:** Picture taken by Author in Dowa District.

## 4.5 Other Input Costs

Tobacco production requires a lot of inputs, apart from labour. This study analyzed the costs of all the other inputs that were required in the production of tobacco in 2013/14 season.

[13] Based on a study of 185 smallholder soybean producers undertaken in 4 districts (Mzimba, Kasungu, Ntchisi, and Dedza) by Makoka and Kalengamaliro in 2013, total labour cost for soybean production was MWK13,478/Acre. For this tobacco study, total labour cost was MWK287,610/Acre.

**Table 10: Input Costs for Leaf Production/Per Acre in 2013/14 Season by Type of Farmer**

| Input | INDEPENDENT | CONTRACT |
|---|---|---|
| | Total Cost (MWK)/Acre | Total Cost (MWK)/Acre |
| Seed | 3,429 | 3,616 |
| Watering cans | 4,427 | 3,067 |
| Herbicides | 534 | 836 |
| Pesticides | 2,252 | 6,087 |
| Hoes | 6,124 | 4,985 |
| Fertilizer | 59,022 | 83,339 |
| Hessian sacks | 5,978 | 9,163 |
| Shedding material (grass, poles, etc | 14,172 | 11,877 |
| Plastic material | 4,371 | 4,513 |
| Other costs | 629 | 1,086 |
| **TOTAL INPUT COST (MWK)** | **100,939** | **128,569** |
| **TOTAL INPUT COST (US$)** | **256.19** | **326.32** |

As Table 10 shows, fertilizer costs make up about 58 percent of non-labour production costs for individual farmers and around 65 percent of total non-labour costs for contract farmers. Indeed the high cost of fertilizer, an input without which leaf production in Malawi's poor soils is hardly possible, is one of the key factors that attracts farmers to enter into contracts with leaf companies. Discussions with farmers during the FGDs confirmed this fact. For example, in Rumphi one of the farmers indicated that "*contracts are attractive to us because we know that it is usually difficult to buy fertilizer on our own because it is so expensive these days. We are forced to join the contracts so that we can access fertilizer for our tobacco and maize, as well*", [FGD Participant, Mhuju EPA, Rumphi.

## 4.6 Total Costs of Production

Figure 14 shows the total costs of production per acre between independent and contract farmers. It is interesting to note that labour costs alone contribute to 60.5 percent of the total cost of production for independent farmers and 51.7 percent for contract farmers. Even though the total cost of labour is lower for contract farmers, the total production cost is higher for contract farmers than for independent farmers. This is attributed to the fact that the contract farmers get the other inputs at higher costs (under their contracts) than for independent farmers. At the time of the study, the prevailing prices of almost all inputs were lower for independent farmers than for contract farmers (see Table 11).

**Figure 14 Costs of Production/Acre (US$) between Independent and Contract Farmers**

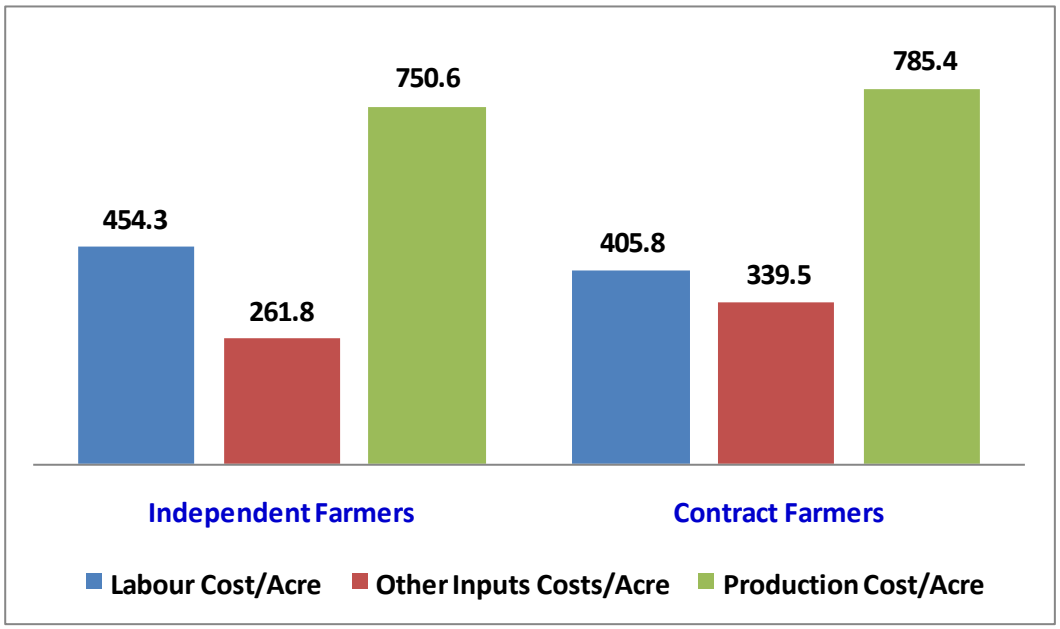



**Table 11 Input Costs (US$) in 2013/14 Season by Type of Farmer**

| Input in 2013/14 season | Independent Farmers | Contract Farmers |
|---|---|---|
| Tobacco fertilizer (50 Kg bag) | $42.86 | $47.62 |
| Maize fertilizer (50 kg bag) | $35.70 | $39.47 |
| Maize seed (10 Kg bag) | $11.90 | $14.29 |

## 4.7 Tobacco Marketing

Tobacco marketing is well developed in Malawi. Auction Holdings Limited owns tobacco auction floors in four locations of Malawi. In the central region there are two: (Kanengo Auction Floors (in Lilongwe) (see Figure 15 and Chinkhoma Auction Floors (in Kasungu). In the northern region, there is Mzuzu Auction Floors, while in the southern region, farmers sell their tobacco at Limbe Auction Floors in Blantyre. Tobacco marketing at the auction floors can be sold through the contract arrangements, under IPS, or through auctioning[14]. Trading through auctioning is based on the American auction in which the start price, based on the quality of the leaf and other factors, is announced and the leaf buyers bid to purchase the bale of tobacco (Chirwa, 2011). The highest bidder is the one who gets the bale. However, the growers have the option to reject the final price if they are not satisfied. It is estimated that around 80 percent of all tobacco is sold under IPS, and the remaining 20 percent is auctioned. It is not surprising, therefore, that IPS farmers get preferential access to sell their leaf at the Auction Floors.

[14] It is important to note that all tobacco (regardless of whether it was produced under IPS or by independent farmers) is sold through the Auction Holdings Tobacco Auction Floors. The only difference is that for the independent farmers, their tobacco is actually auctioned at the auction floors. For the IPS farmers, its the leaf company to which the farmer is contracted that buys the tobacco at the Auction Floor.

### 4.7. 1 Tobacco Side Selling

Although the normal channel of marketing of tobacco for both independent and contract farmers is through the auction floors, it is well known in Malawi that there are many farmers that do not sell their tobacco through the auction floors. Most of these sell to intermediate buyers, who often include their fellow farmers. The study therefore sought to assess the extent of side-selling of tobacco among the sampled tobacco farmers. The results show that 48.9 percent of independent farmers and 30.9 percent of contract farmers were involved in side-selling in 2013/14 season. While side selling for independent farmers means selling their tobacco to traders or other farmers outside the formal auction process (at the auction floors), for the IPS farmers, side selling means that they are selling out of their contract.

**Table 12 Reasons for Side-Selling of Tobacco in 2013/14 Season by Type of Farmer (%)**

| Reason for Side Selling | Independent Farmers | Contract Farmers | All Farmers |
|---|---|---|---|
| Urgent need for cash for household use | 63.8 | 59.3 | 62.0 |
| Urgent need for cash for critical inputs | 16.6 | 35.2 | 24.0 |
| Buyer offered attractive prices | 8.0 | 1.9 | 5.5 |
| No licence to sell at the auction floors | 5.5 | 0.0 | 3.3 |
| No resources to transport the tobacco to the auction floors | 6.1 | 3.7 | 5.2 |
| **N** | **163** | **108** | **271** |

The main reasons for side-selling included the urgent need for cash for household use and need for cash to buy critical inputs that are required in the agricultural production (see Table 12. While it is widely believed that the majority of independent farmers sell their tobacco to intermediate buyers because they do not have a licence, our data show that only 6 percent of the independent farmers sold their tobacco outside the formal marketing channel due to a lack of licence to sell at the auction floors.

Access to cash is central to the lives of most Malawian smallholder farmers. It is also interesting to note that 31.2 percent of all the contract farmers who reported that they were involved in side-selling as they required cash for household use, also indicated that they received a cash advance from their leaf company. Further, 26.3 percent of the contract farmers who indicated that they sold their tobacco outside the formal system because they needed cash for critical inputs had also received a cash advance from their leaf company. These results may suggest that the cash advances provided to IPS farmers may not be adequate to meet household needs and prevent farmers from selling their tobacco outside the formal system. The average cash advance received in 2013/14 was only MK46,133 (around US$ 117).

Informal cross-border trade in tobacco leaf among the sampled farmers was low, with only 1.9 percent of the independent farmers and 1.3 percent of the contract farmers reporting selling their tobacco outside Malawi (Mozambique and Zambia).

**Figure 15: Auction Floors in Lilongwe.**

**Source:** Picture taken by Author at Kanengo Auction Floors, Lilongwe District.

### 4.7.2 Farmers' Perceptions on Tobacco Classification/Grading System

We analysed whether the sampled farmers were satisfied with the tobacco classification/grading system that was used in 2014 marketing season. The results show that levels of satisfaction were similar between independent and contract farmers. In particular, only 36.2 percent of independent farmers and 38.1 percent of contract farmers expressed satisfaction with the classification system used in the 2014 marketing season. The difference in the percentage between contract and independent farmers was not statistically significant[15]. Data from focus group discussions suggest that buyers often do not adhere to the grades/classification system. They often take advantage of the fact that the farmers are not aware of the specific classifications and grades, and they end up offering very low prices for tobacco that was supposed to have a higher grade. One male FGD participant had this to say: "*When it comes to tobacco marketing, the major problem is grades. Since minimum prices were introduced in tobacco marketing, we are able to know when minimum prices have been released that this grade is being sold at such a price. But the major problem is that when tobacco buyers want to buy the tobacco at a low price, they don't follow the minimum prices for the grades that are given by TCC. Instead of buying the tobacco at the recommended price, you just hear that there is an increase in the number of bails at auction floors written 'No Sale' [rejection]. They simply do*

[15] Results of the Chi Square Test was $\chi^2(1)=0.253$, p=0.615.

*this because they don't want to buy the tobacco at the recommended price. So that's what happens at the markets*" [Male FGD Participant, Mhuju EPA, Rumphi].

For the farmers who reported that they were not satisfied with the grading system, they were further asked about their views on what should be done. The results, presented in Table 13, show that 36.5 percent of independent farmers and 34.3 percent of contract farmers want the prices for some grades to be revised. Further, around 22 percent of independent farmers and 32 percent of contract farmers reported that farmers should fully participate in the classification exercise. Around 14 percent of all the farmers who were not satisfied with the grading system want the government to monitor the grading/classification exercise.

**Table 13: Suggestions to Address the Problem of Grading/Classification, by Type of Farmer (%)**

| What should be done? | Independent | Contract | ALL |
|---|---|---|---|
| Farmers should fully participate fully in the classification | 21.8 | 32.2 | 26.8 |
| Reduce number of grades | 4.8 | 2.2 | 3.5 |
| Train farmers on proper grading | 15.1 | 11.7 | 13.5 |
| Government should monitor the exercise | 13.9 | 14.3 | 14.1 |
| Revise the prices of some grades | 36.5 | 34.3 | 35.5 |
| Use a third party to classify | 6.7 | 3.9 | 5.4 |
| Other | 1.2 | 1.3 | 1.2 |

### 4.7.3 Farmers' Satisfaction with Tobacco Selling Prices

The study also analyzed the perceptions of tobacco prices regarding the price that they received for their tobacco in the 2014 marketing season. The results show that overall, only 25.2 percent of all the sampled farmers were satisfied with the prices that they received in 2014. In particular, only 25.1 percent of independent farmers and 26.1 percent of contract farmers were satisfied with the prices offered in 2014 season. Discussions with farmers in focus groups revealed the extent of their dissatisfaction with prices. One FGD participant in Dowa reported that "*tobacco farmers are exploited by the leaf buyers because their prices are very low. The problem with low prices has been persistent since the 1990s. Tobacco cultivation is a highly demanding enterprise, we expect the buyers to offer good prices for our tobacco. We are in perpetual poverty because of the low prices*" [Male FGD Participant, Chivala EPA, Dowa District]. Another farmer offered, "*Tobacco prices have always been very low. The only year when tobacco farmers were happy with the prices was in 2008. That year the price went as high as $11/Kg. On average, tobacco was sold at $2/Kg. It was the only year when a tobacco farmer has been happy because of good prices*" [Male FGD Participant, Chivala EPA, Dowa District].

Another participant in an FGD in Rumphi District reported that "*tobacco prices are very low, especially among independent farmers. They will offer you very low prices for the same grade that attracts a good price for contract farmers. They do so because they want you to become a contract farmer next year. When they are able to do so, they know they will make money from you by giving you inputs at a very high cost*" [Male FGD Participant, Mhuju EPA, Rumphi District].

## 4.8 Tobacco Income and Profitability

The study further assessed income from tobacco and other sources for the sampled farmers in 2013/14 season. For the whole sample, the share of tobacco income to total household income in 2013/14 season was 0.68, and it was higher for contract farmers (0.78) than individual farmers (0.61). The results show that tobacco contributes significantly to total household income. It is worth noting that the sampled contract farmers registered higher tobacco incomes and total household incomes than their counterparts.

**Figure 16: Tobacco Income and Household Income (MWK) in 2013/14 Season by Type of Farmer**

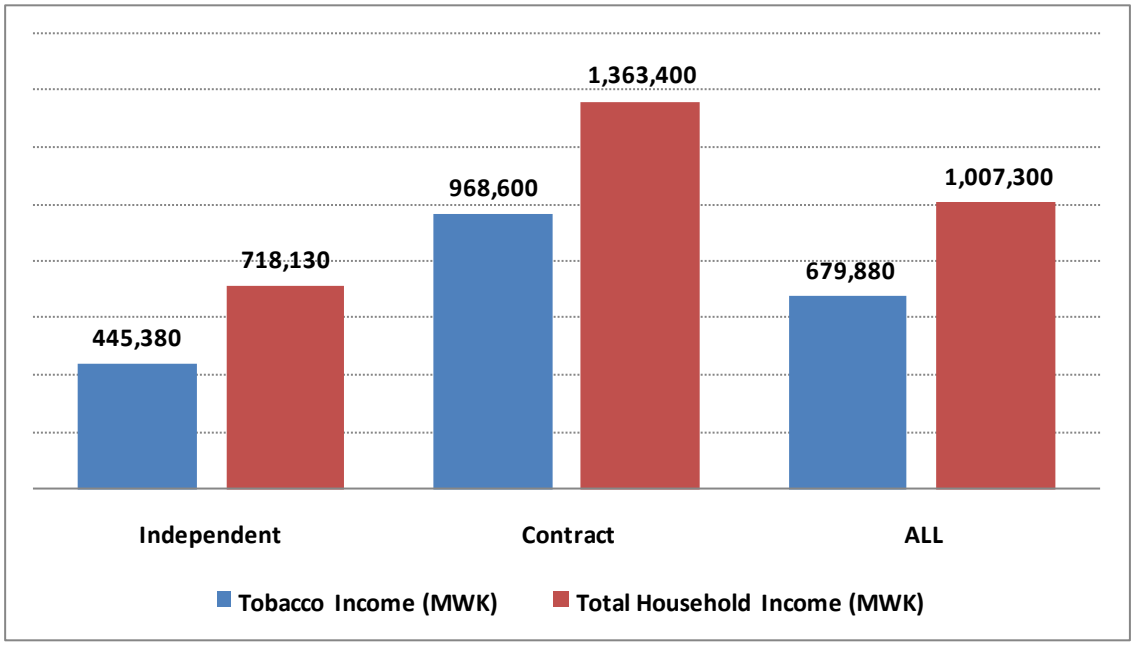



**Figure 17 Proportion of Tobacco Income to Total Household Income by District in 2013/14**

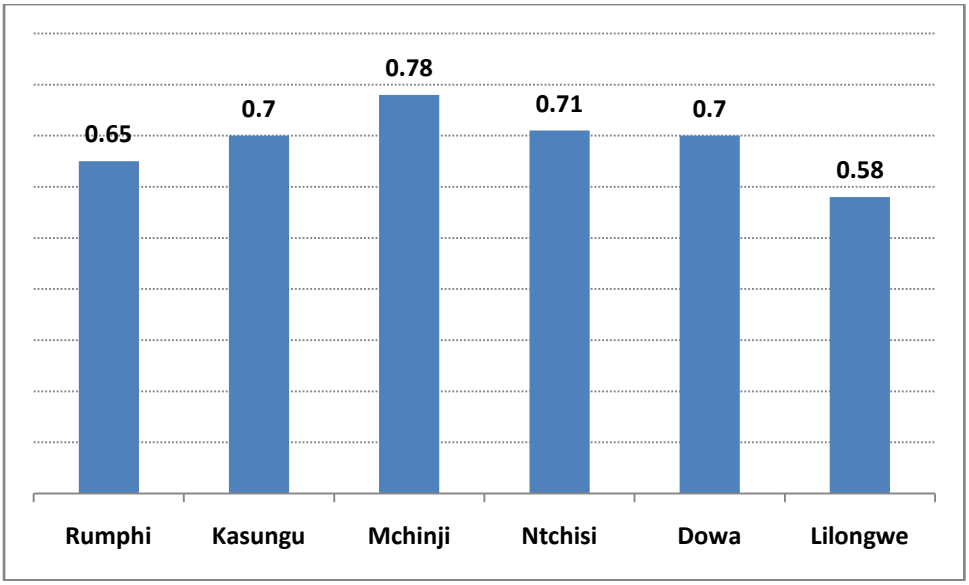
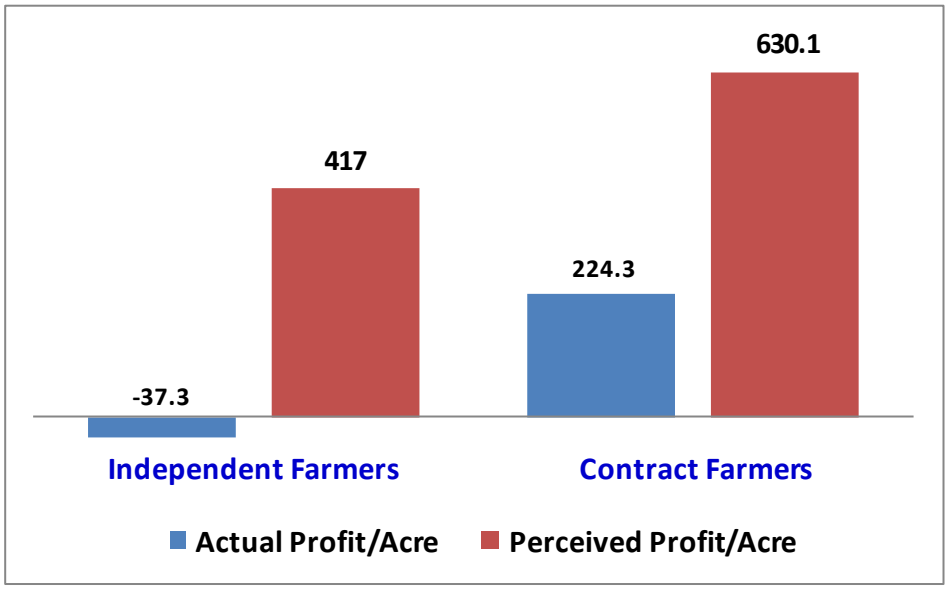


Figure 17 shows the share of tobacco income to total household income by district. The share is highest in Mchinji (78 percent) and lowest in Lilongwe (58 percent). The significance of this result is that, as tobacco farmers continue to face significant challenges in terms of prices and profitability in Malawi, farmers in districts, such as Mchinji and Ntchisi where tobacco income contributes over 70 percent of total household income will continue to be affected more than their counterparts in other districts, such as Lilongwe.

In terms of profitability, we analyze levels of profit per acre for the farmers using two scenarios: (i) with labour costs excluded in the costs of production, which we call perceived profits; and (ii) with labour costs included in the costs of production, which we call actual profits. Figure 18 shows perceived and actual profits for the sampled independent and contract farmers. The results show that when labour is taken into consideration, the independent farmers made a loss equivalent to US$37.3/Acre (i.e. MK 14,692/Acre). However, their perceived profits were US$ 417/Acre (MK 164,298/Acre). Similarly, for the contract farmers, their perceived profits were US$630.10/Acre (MK 248,259/Acre). However, if we account for the labour, the actual profits are much lower at US$ 224.3/Acre (MK 88,374/Acre).

**Figure 18 Perceived and Actual Profitability (US$/Acre) for Independent and Contract Farmers in 2013/14.**




Notably, although contract farmers face higher costs of production (as shown in Figure 14), their levels of profits are higher. The results from this survey suggest that this dynamic exists because they receive higher prices at the auction floors. In 2013/14, the sampled contract farmers received an average price of **US$2.43/Kg**, while the independent farmers sold their tobacco at an average price **of US$1.78/Kg**. It was noted during the study that tobacco of a similar grade fetched a higher price under IPS than under the auction marketing arrangement. This is an important finding to highlight since it is likely argued that contract farmers receive higher prices simply because their leaf is of better quality. It is believed that leaf buyers offer higher prices under IPS to entice independent farmers to join IPS in the subsequent season. One key informant reported that "*what we have seen over the years with regards to IPS is that farmers*

*who are on contract get better prices than independent farmers. For some of our farmers, they are surprised that independent farmers' tobacco fetches lower prices at the auction floors even though the quality is the same as that of a contract farmer.*" [Government Extension Worker, Kalulu EPA, Mchinji].

## 4.9. Farmers' Debts and Credit Demand

Respondents were asked whether they had any outstanding debts at the time of the study. It is important to note that the data collection for this study was done in November 2014, after the tobacco marketing season had just finished. In many cases, farmers are able to settle their debts after they sell their tobacco. The outstanding debts therefore seem to suggest the degree of persistent indebtedness of tobacco farmers. The results show that the majority of the farmers did not have any outstanding debts. Only 6.3 percent of the independent farmers and 15.3 percent of contract farmers had outstanding debts. The average debt for independent farmers was MWK 2,338, while for the contract farmers, it was MWK 18,137. Additionally, contract farmers interviewed during the FGDs pointed out that they often handled their debts within a group. As noted earlier, the contract farmers are typically required to form groups in order to enter into contract with leaf companies. The farmers indicated that if one member of the group was faced with debt at the end of the season, the others would contribute to this debt payment. In other words, there is an important intra-group dynamic that accounts for the low proportion of total debt among farmers.

The study also assessed the extent of the need for credit for tobacco production in the 2013/14 season. In brief, 22.2 percent of independent farmers and 63.5 percent of contract farmers indicated that they needed credit for tobacco production. For the independent farmers, 21.7 percent required credit to buy tobacco farm inputs, while 1.3 percent needed credit to pay for labour, and only 0.3 percent required credit to facilitate tobacco marketing. Of the independent farmers that required credit to buy inputs, only 32.9 percent were able to obtain the credit (see Table 14).

**Table 14: Credit Demand for Independent Farmers (%)**

| Purpose of the Credit | Percentage of Independent Farmers that Needed the Credit | Percentage of Independent Farmers that Were Able to Obtain the Credit |
|---|---|---|
| Buying tobacco inputs | 21.7 | 32.9 |
| To pay for labour in tobacco production | 1.3 | 80.0 |
| To facilitate tobacco marketing | 0.3 | 100.0 |

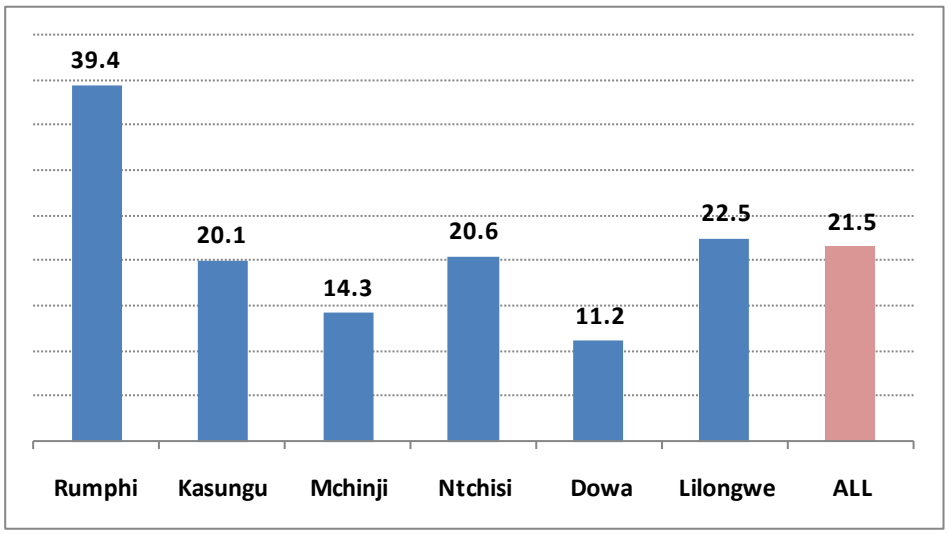
## 4.10 Child Labour in Tobacco Production

Child labour in tobacco farms has been a child protection issue as well as a public health issue in Malawi for a long time. Many Malawian children work on tobacco farms to support their parents in the production process, or as a form of cheap labour. It is well understood that allowing children to work on tobacco farms is not only detrimental as it affects their education, but it is

also potentially hazardous to their health. Children working on tobacco farms who handle the leaf are susceptible to illnesses from nicotine absorption, including green tobacco sickness (McBride *et al*, 1998).

This study therefore assessed the extent of children involved in tobacco production activities. Respondents were asked whether children (of school-going age) participated in any tobacco production activities in 2013/14 season. The results show that overall 21.5 percent of the respondents reported that children participated in tobacco production in 2013/14. Children participation was highest in Rumphi (39.4 percent) and lowest in Dowa District (11.2 percent) (see Figure 18).

**Figure 18: Children Participation in Tobacco Activities in 2013/14 by District (% of Respondents)**




Results from this study seem to suggest that child participation is lower than is often believed. There are several factors that can contribute to these results. First, the data are derived from self-reporting, which is sometimes unreliable, especially since there is stigma associated with child labour in tobacco production. Second, there have been a number of initiatives to eliminate child labour in tobacco farms in Malawi since 2010. For example, in 2010 there was a national campaign against child labour on Malawi tobacco farms that was spearheaded by Plan International, a child-centred international NGO that operates in Malawi. According to Plan International, the campaign was so successful that more than 2,000 children were removed from the tobacco farms. Third, JTI in partnership with the International Labour Organization (ILO) and Winrock International, have been running a program to eliminate child labour on tobacco estates called Achieving Reduction of Child Labour in Support of Education (ARISE) Program. The ARISE Program has been implemented in Malawi, Zambia, Brazil and Tanzania, where JTI buys its tobacco leaf. The program has been praised by many stakeholders and the government in Malawi for making significant contributions in reducing child labour in tobacco farms since its introduction in 2011. The low child participation could therefore be a result of these initiatives.

The analysis further shows that there was no difference in the use of children in tobacco production between independent and contract farmers. In particular, while 23.3 percent of

independent famers and 19.2 percent of contract farmers reported involving children in leaf production in 2013/14, the difference is not statistically significant[16].

## 4.11 Household Food Security

Malawi has been struggling with food security challenges for the past few years. The main staple food is maize, which is mostly produced under rain-fed agriculture. As a result, the persistent rainfall variability due to climate change is leading to continuous food shortages. This study assessed the levels of food security among the sampled tobacco farmers.

**Table 15 Food Availability, Maize Harvested and Consumed in 2013/14 by type of Farmer.**

| Variable | Independent Farmers | Contract Farmers | ALL |
|---|---|---|---|
| Proportion who reported that their food last the whole consumption year | 69.6% | 83.1% | 75.6% |
| Maize harvested in 2013/14 (Kg) | 2,295 Kg | 3,881 Kg | 3,007 Kg |
| Maize harvested in 2013/14 (per capita) | 398 Kg/person | 604 Kg/ Person | 490 Kg/ Person |
| Maize sold in 2013/14 (Kg) | | | |
| Maize used for household consumption (Kg) | 2,050 Kg | 3,543 Kg | 2,720 Kg |
| Maize yield in 2013/14 (Kg/Ha) | 2,882 Kg/Ha | 3,898 Kg/Ha | 3,339 Kg/Ha |

As Table 15 shows, the average maize yield among the sampled farmers in 2013/14 season was 3,339 Kg/Ha. It was significantly higher[17] for contract farmers than for independent farmers, even though the yields were significantly lower than the potential maize yield of 6,000Kg/Ha for Malawi[18]. It is likely that the contract farmers have significantly higher yields due to the use of high quality seed and fertilizers that they obtain from the leaf companies under the terms of their contract.

Among the sampled farmers, maize is produced predominantly for household consumption. In our data, only 10.8 percent of all the maize that was produced by independent farmers, and 11.2 percent of the maize produced by the contract farmers was sold. For all the sampled farmers, an average of 2,720 Kg of the maize produced in 2013/14 was used for home consumption.

The study also asked respondents about the perceptions of their own household food security situation compared to other farmers within their communities who do not grow tobacco. The results, presented in Figure 20, show that around 67 percent of all the sampled farmers

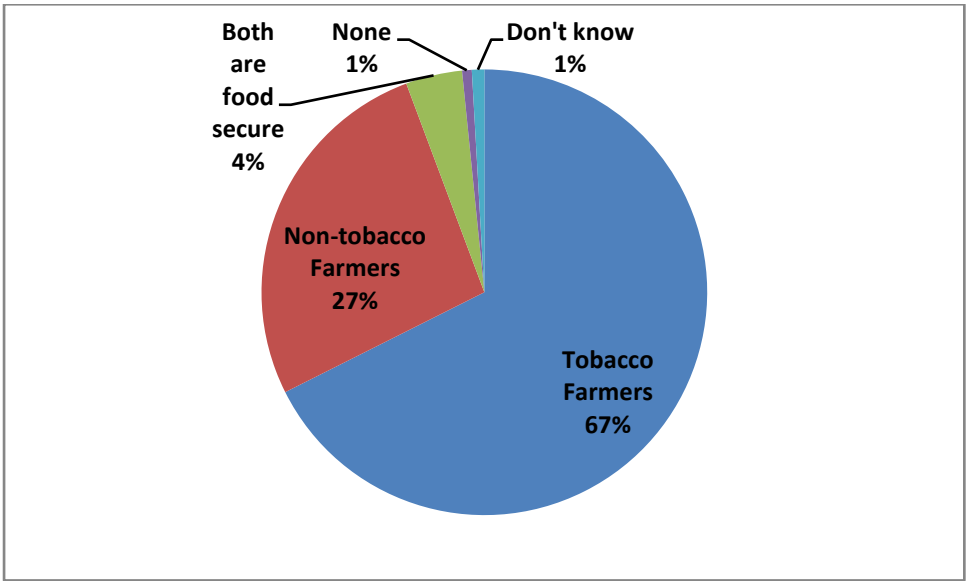
[16] Results of the Chi Square Test was $\chi^2(1)=1.659$, p=0.198.

[17] A t-test for equality of means show that the average maize yields for independent and contract farmers are statistically different, i.e. t(680) = -2.930, p = 0.004.

[18] Potential yield figures were obtained from Ministry of Agriculture (2004) **Guide to Agricultural Production and Natural Resource Management in Malawi**, Agricultural Communication Branch, Ministry of Agriculture, Lilongwe.

indicated that tobacco farmers are more food secure than non-tobacco farmers. 27 percent of the farmers reported that non-tobacco farmers are more food secure.

**Figure 20 Perceptions of Sampled Tobacco farmers Regarding Own Household Food Security Compared to Non-Tobacco Farmers**




For the respondents that indicated that tobacco farmers are more food secure than the other farmers, they cited the reasons as (i) tobacco farmers having sufficient income to buy maize (reported by 57 percent); (ii) tobacco farmers have adequate inputs to produce maize (15.1 percent); (iii) tobacco farmers are able to obtain higher yields from their maize production than the other farmers (11.9 percent).

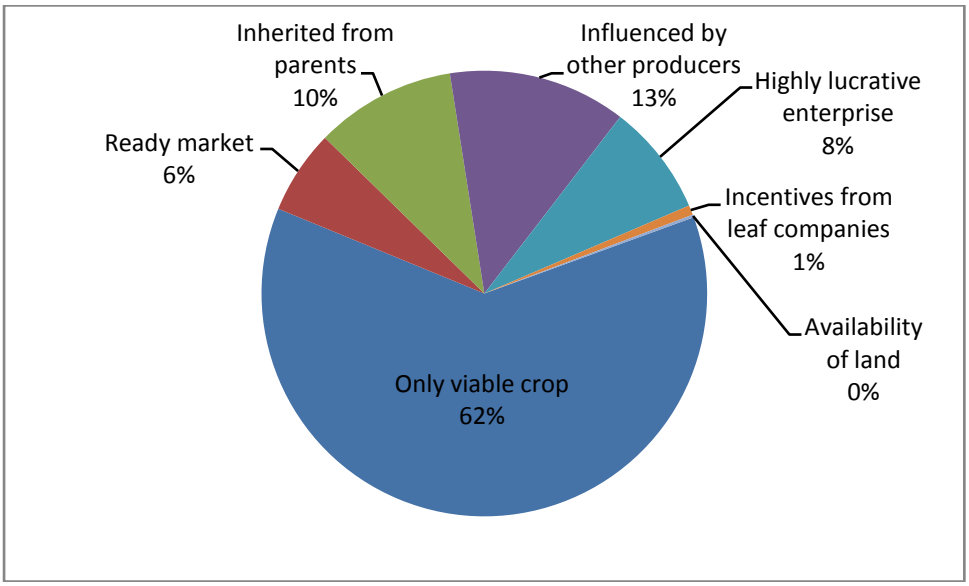
On the other hand, for the respondents who indicated that non-tobacco farmers are more food secure, they indicated that (i) they devote more land for food crops (36.1 percent); (ii) they devote more household labour to food production (33.9 percent).

Qualitative data from the focus group discussions and key informant interviews support the notion that in the sampled communities tobacco farmers are more food secure than the non-tobacco farmers. As one key informant reported, "*During periods of food insecurity, its mostly non-tobacco farmers that are mostly affected. Tobacco farmers are able to buy maize from the market immediately after they sell their tobacco. During that period, maize prices are very low because maize is widely available. They are therefore able to stock the maize for use during hunger period, between December and February. For the other farmers, they only rely on the maize that they have produced. They are often not able to supplement it with maize from the market to ensure that they have enough stock to last the whole year. To make matters worse, they often also sell part of their maize that they have produced even when they know that the harvest is not enough to take them through the whole season*", [Ministry of Agriculture Extension Worker, Mhuju EPA, Rumphi District].

## 4.12 Future of Tobacco Production

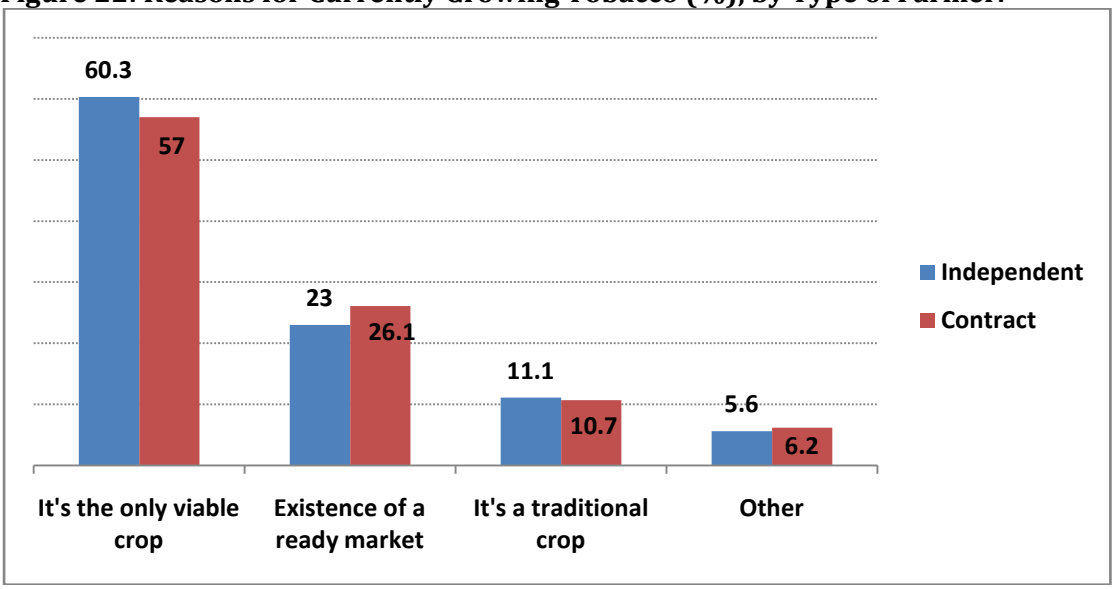
The economics of tobacco production, as the results from this study have demonstrated, shows that leaf cultivation is a challenging investment for smallholder farmers. This study therefore sought to find out factors that attract farmers to engage in tobacco farming. Respondents were therefore asked of the factors that influenced them to start tobacco cultivation. The results, presented in Figure 21 show that the majority of the farmers started growing tobacco because they believed it was the only viable cash crop, 13 percent growing tobacco because they were influenced by other tobacco farmers, and roughly 10 percent were engaged in tobacco farming because it is their traditional cash crop that they inherited from their parents.

**Figure 21: Reasons for Engaging in Tobacco Farming (%)**




Respondents were also asked why they still grow tobacco. The results, presented in Figure 21, show that both independent and contract farmers still grow tobacco because they perceive that it is either the only viable cash crop, or that there is a ready market to sell the crop. A small proportion of the farmers still grow tobacco because it is their traditional cash crop inherited from their parents (see Figure 22).

**Figure 22: Reasons for Currently Growing Tobacco (%), by Type of Farmer.**




Respondents were also asked whether they have ever considered switching from tobacco to another crop or livelihood source. The results show overall, 41.3 percent of all the sampled farmers have ever considered switching. An analysis by type of farmer shows that 39.7 percent of independent farmers and 43.3 percent of contract farmers have ever considered switching. The Chi-square test shows that these proportions (between independent and contract farmers) are not statistically different[19]. The main reasons for considering switching include poor market prices of the leaf, huge demand for labour in the production process and huge demand for inputs (see Table 16). The reasons were similar for both independent and contract farmers.

**Table 16: Reasons for Ever Considering Switching from Tobacco Production (%), by Type of Farmer**

| Reasons for Considering Switching | Independent | Contract | ALL |
|---|---|---|---|
| Poor market prices | 43.1 | 46.5 | 44.7 |
| Huge labour demand | 20.4 | 21.0 | 20.7 |
| Huge demand for inputs | 23.7 | 13.5 | 18.8 |
| Unpredictable prices | 2.8 | 5.5 | 4.1 |
| High interest rates | 1.9 | 6.0 | 3.8 |
| Other | 8.1 | 7.5 | 7.9 |

[19] Results of the Chi Square Test was $\chi^2(1)=0.926$, p=0.350.

**KEY FINDINGS**

- 82.3% of independent farmers and 83.1% of the contract farmers still grow tobacco because they believe that it is either the only viable cash crop or because of the existence of a ready market.
- 43.1% of all the sampled farmers have considered switching from tobacco production to other crops or means of livelihood.
- Poor market prices, huge demand for labour and other inputs, as well as highly fluctuating market prices are factors that have led farmers to contemplate switching from tobacco production.
- These findings suggest, not surprisingly, that economic viability and market access are critical factors that lead farmers to grow a crop.
- Any intervention to move farmers to other economic livelihoods or crops must address these two factors, an important starting point for policymakers.

### 4.12.1 Factors that Lead Farmers to Switch from Tobacco

Respondents were asked what it would take for them to switch from tobacco to other crops or livelihood sources. Overall, 55.8 percent reported that they would switch if there were stable and reliable markets for alternative crops, while the mere existence of a viable alternative cash crop is enough to make around 20.5 percent of all the sampled tobacco farmers to switch from tobacco (Table 17). The significance of this result is that farmers would be willing to switch to another crop if the alternative is well established and has a reliable marketing system in place.

**Table 17: Factors that will Make Sampled to Switch from Tobacco (%), by Type of Farmer**

| Factor | Independent | Contract | ALL |
|---|---|---|---|
| Existence of viable alternative cash crop | 18.7 | 22.6 | 20.5 |
| Stable and reliable market for alternative crops | 56.8 | 54.7 | 55.8 |
| Adequate capital | 7.8 | 9.0 | 8.4 |
| Adequate access to inputs | 6.6 | 6.3 | 6.5 |
| Other | 10.1 | 7.4 | 8.8 |

Further, respondents were asked whether they see themselves still growing tobacco in the next five years. The results show that overall, 42.2 percent did not see themselves still growing tobacco in the next five years. The analysis by type of farmer demonstrated that 40.7 percent of independent farmers and 44.0 percent of contract farmers did not see themselves still producing tobacco in the next five years.

### 4.12.2 How Tobacco Profitability Compares to Other Crops

We compare the levels of profitability of tobacco (both independent and contract) with other major crops grown in Malawi. To do this, we use secondary data from similar studies that were undertaken in the past few years by some of the authors. In particular, we compare the

profitability of tobacco (independent and contract farmers) to soybean, paprika, and bird's eye chillies. The results, presented in Table 18 show that birds' eye chillies, paprika and soybean are all more profitable than growing tobacco as an independent farmer. While the profitability of tobacco under IPS is higher than for the other crops, soybean and bird's eye chillies remain very competitive and offer excellent opportunities as alternatives. These alternatives are particularly noteworthy given that many of our sample of tobacco farmers do not see themselves growing tobacco in the next 5 years and the global movement to control tobacco consumption for health reasons is likely to eventually affect demand for tobacco leaf. Therefore the information provided below is of particular relevance to policy makers in Malawi and can inform decision-making to move away from tobacco production to more sustainable – and healthier – agricultural crops. If the supply chains for these alternative products were developed – in part through government investment – to the level of the tobacco supply chains, the prices and profitability of these products would also grow and eclipse those of contract tobacco farmers.

**Table 18 Profitability of Various Crops in Malawi**

| | Soybean | Paprika | Birds' Eye Chillies | Tobacco (Independent Farmers), | Tobacco (Contract Farmers) |
|---|---|---|---|---|---|
| **Production Year** | 2011/12 | 2009/10 | 2009/10 | 2013/14 | 2013/14 |
| **Sample Size** | 185 | 118 | 91 | 378 | 307 |
| **Labour Cost (US$/Acre)** | 96.00 | 61.84 | 64.86 | 454.30 | 405.80 |
| **Output price (US$/Kg)** | 0.74 | 1.03 | 2.48 | 1.78 | 2.43 |
| **Profit (US$/Acre)** | 123.00 | 30.57 | 209.19 | -37.30 | 224.30 |

## 4.13 Tobacco Production and Asset Accumulation

An agricultural enterprise is worthwhile for smallholder farmers if it enables them to accumulate both household and productive assets. Ownership of assets is very important for smallholder farmers because they can be used as a form of insurance against livelihood shocks (Makoka, 2008). The study therefore assessed the levels of asset ownership among the smallholder farmers and the value of those assets. To be able to estimate the current value of the assets, respondents were asked how much money they would be willing to receive if they were to sell each particular asset today.

**Table 19: Household Asset Ownership (%) by Type of Farmer and by Malawian Rural Population**

| Household Asset | Independent Farmers | Contract Farmer | All (Independent + Contract) | Chi-square | Malawi (Rural) (2010/11) |
|---|---|---|---|---|---|
| Radio | 79.4 | 89.3 | 83.8 | $X^2(1)=12.193$, p=0.001 | 42.8 |
| Cell-phone | 72.2 | 86.6 | 78.7 | $X^2(1)=21.012$, p=0.000 | 36.3 |
| TV set | 14.8 | 30.3 | 78.2 | $X^2(1)=23.846$, p=0.000 | 4.4 |
| Chairs | 60.8 | 73.6 | 66.2 | $X^2(1)=12.412$, p=0.000 | 33.8 |
| Bed | 53.7 | 74.6 | 63.1 | $X^2(1)=31.736$, p=0.000 | 28.0 |
| Mattress | 52.4 | 74.3 | 62.2 | $X^2(1)=34.510$, p=0.000 | n.d |
| Table | 60.8 | 74.6 | 67 | $X^2(1)=14.480$, p=0.000 | 27.1 |
| Bicycle | 77 | 83.7 | 80 | $X^2(1)=4.795$, p=0.034 | 40.6 |
| Refrigerator | 1.9 | 3.6 | 2 | $X^2(1)=1.924$, p=0.229 | n.d |
| Motor Cycle | 8.7 | 12.4 | 10.4 | $X^2(1)=2.426$, p=0.131 | n.d |
| Motor vehicle | 3.2 | 5.9 | 4.4 | $X^2(1)=924$, p=0.87 | n.d |
| Shop/Hawker | 5 | 8.1 | 6.4 | $X^2(1)=2.738$, p=0.117 | n.d |
| Other | 9 | 13.7 | 11.1 | $X^2(1)=3.771$, p=0.066 | n.d |

NOTE: The Chi-square test shows whether asset ownership is statistically different between independent and contract farmers
n.d = no data

The proportion of the farmers that own most household assets is higher for contract farmers than independent farmers. As Table 19 shows, ownership of assets, such as radio, cell phone, TV sets, and bed is higher for contract farmers than for independent farmers. For other assets, such as bicycles, refrigerator, motorcycles and motor vehicles, although the proportions are higher for contract farmers, the differences are not statistically significant.

Table 19 compares the proportions of ownership of household assets among tobacco farmers and the general rural Malawian population. The proportions of ownership of household assets among the rural population are derived from the 2010/11 Integrated Household Survey (IHS3) data. For all the household assets where we were able to get data for rural Malawi, it is apparent that the proportions of both independent and contract farmers that have household assets are significantly higher than the proportions of the rural population (see Table 19). For example, while ownership of TV sets among the rural population was only 4.4 percent in 2011, for the independent tobacco farmers, the proportion was 14.8 percent. For contract tobacco farmers,

the proportion was 30.3 percent. It is important to note that the comparisons would likely be closer if tobacco farmers were compared to other cash crop farmers rather than the whole rural population which would include many subsistence farmers.

Table 20 shows extent of ownership of agricultural assets among independent farmers and contract farmers. Ownership of cattle, goats and ox-carts is significantly higher among contract farmers than among independent farmers. For some agricultural assets, while contract farmers registered higher proportions, the differences are not statistically significant.

**Table 20: Ownership of Agricultural asset (%)**

| Agricultural Asset | Independent Farmers | Contract Farmer | All | Chi-square |
|---|---|---|---|---|
| Cattle | 21.3 | 35.8 | 27.7 | $X^2$ (1)=18.181, p=0.000 |
| Goats | 65.6 | 74.9 | 69.8 | $X^2$ (1)=6.964, p=0.000 |
| Pigs | 35.2 | 42.0 | 38.2 | $X^2$ (1)=3.350, p=0.070 |
| Sheep | 2.9 | 2.3 | 2.6 | $X^2$ (1)=0.263, p=0.641 |
| Chicken | 87.7 | 84.4 | 82.6 | $X^2$ (1)=0.820, p=0.414 |
| Ox-Plough | 2.6 | 4.2 | 3.4 | $X^2$ (1)=1.318, p=0.289 |
| Tractor | 0.5 | 1.0 | 0.7 | $X^2$ (1)=0.469, p=0.661 |
| Wagon/Ox-cart | 16.9 | 26.7 | 21.3 | $X^2$ (1)=9.660, p=0.002 |
| Jake | 7.4 | 10.7 | 8.9 | $X^2$ (1)=2.332, p=0.139 |
| Other (specify) | 5.3 | 3.9 | 4.7 | $X^2$ (1)=0.727, p=0.468 |

Table 21 shows the self-reported values of household assets for independent and contract farmers. It is important to note that contract farmers have an average household asset value of MWK 515,057 ($1,307), while for the independent farmers the average asset value was MWK 403,789 ($1,025). Table 22 shows the values of agricultural assets for independent and contract farmers. The total agricultural asset value was MWK 525,268 ($1,333) among independent farmers, while for contract farmers the average agricultural asset value was MWK 793,020 ($2,013).

**Table 21: Value of Household Assets (MWK) for Independent and Contract Farmers, 2013/14**

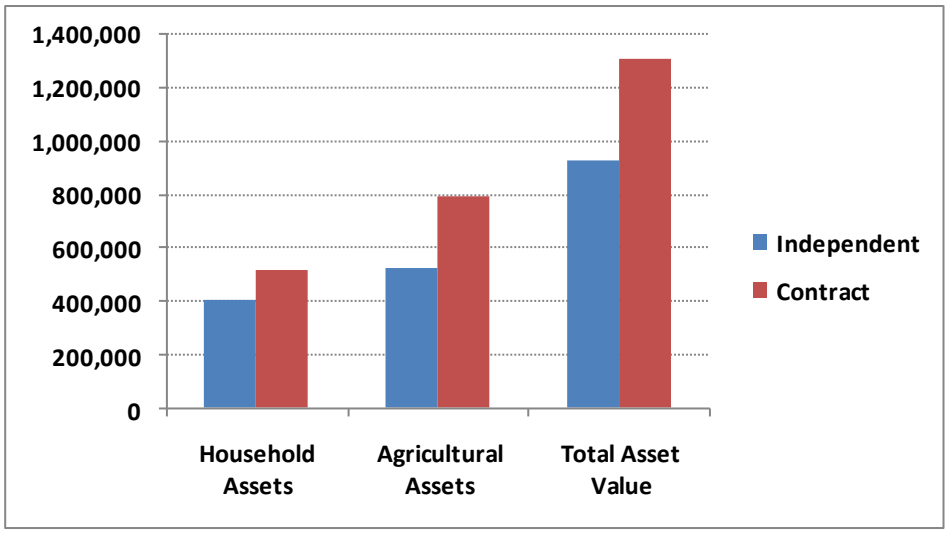
| Household Asset | Independent Farmer | Contract Farmer | All (Independent + Contract) |
|---|---|---|---|
| Radio | 13,246.95 | 24,390.23 | 18,241.09 |
| Cell-phone | 13,473.55 | 15,814.01 | 14,522.48 |
| TV set | 5,972.222 | 12,012.05 | 8,679.124 |
| Chairs | 36,339.21 | 71,742.67 | 52,206.16 |
| Bed | 12,909.52 | 19,865.15 | 16,026.86 |
| Mattress | 11,590.48 | 24,605.21 | 17,423.36 |
| Table | 4,709.23 | 8,345.147 | 6,338.756 |

| | | | |
|---|---|---|---|
| Bicycle | 26,774.47 | 38,673.29 | 32,107.23 |
| Refrigerator | 685.1852 | 5,890.88 | 3,018.248 |
| Motor Cycle | 45,825.4 | 61,179.67 | 52,706.80 |
| Motor vehicle | 181,915.3 | 139,690.6 | 162,991.20 |
| Kiosk/shop | 14,007.94 | 21,469.06 | 17,351.82 |
| Other | 36,339.95 | 71,379.48 | 52,043.8 |
| **Total** | **403,789.4** | **515,057.4** | **453,657.00** |

**Table 22: Value of Agricultural Assets (MWK) for Independent and Contract Farmers, 2013/14**

| Agricultural Asset | Independent Farmer | Contract Farmer | All |
|---|---|---|---|
| Cattle | 233,900 | 267,808 | 249,096 |
| Goats | 78,697 | 225,333 | 144,416 |
| Pigs | 46,475 | 129,997 | 83,907 |
| Sheep | 4,660 | 2,941 | 3,890 |
| Chicken | 35,490 | 79,260 | 55,107 |
| Ox-Plough | 1,089 | 3,248 | 2,056 |
| Tractor | 952 | 2,010 | 1,426 |
| Wagon/Ox-cart | 100,161 | 59,765 | 82,057 |
| Jake | 12,086 | 20,391 | 15,808 |
| Other (specify) | 11,758 | 2,266 | 7,504 |
| **Total** | **525,268** | **793,020** | **645,268** |

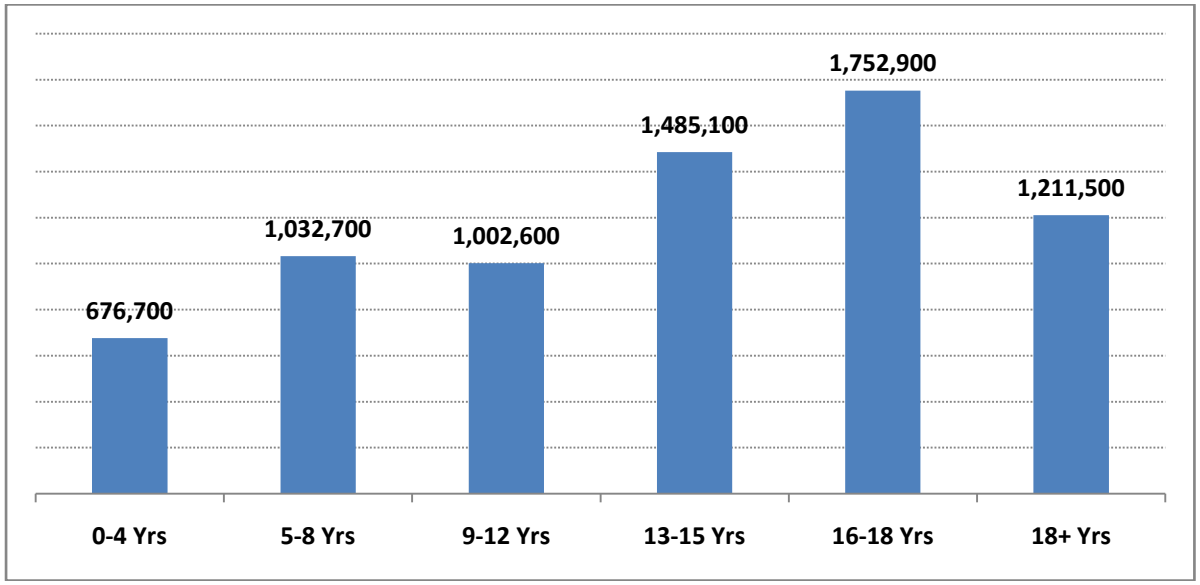
**Figure 23: Household Asset Value, Agricultural Asset Value and Total Asset Value (MWK)**



As Figure 23 shows, the total asset value was higher for contract farmers (MWK1,308,077) ($3,320) than for independent farmers (MWK 929,058) ($2,358). We further analysed how asset accumulation varies with the experience of the tobacco farmer. As Figure 24 shows, experience in tobacco farming is associated with higher total asset value (MWK). For example, farmers whose experience was between 0 and 4 years had an average asset value of MWK 676,700 (US$1,718), compared to those whose experience was between 16 and 18 years whose assets were valued at MWK 1,752,900 (US$4,449).

It is important to note that since this study is a snapshot in time (i.e. does not use time series data), it is not possible to conclude on the direction of causality between contract farming and asset accumulation. In particular, we do not have adequate data to answer the question of whether it is the contract farmers who accumulate more assets, or whether farmers with more assets get contracted under IPS.

**Figure 24: Total Asset Value (MWK) by Years of Experience in Tobacco Farming**




# 5. CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Conclusions

The study has analyzed the livelihoods of tobacco farmers in six districts of Malawi. It has described the tobacco industry in Malawi, and assessed the various crops that farmers cultivate, and the factors that determine the allocation of their land to leaf cultivation. It has also analysed the nature of leaf cultivation under the contract-based IPS arrangement, including the challenges associated with growing under IPS. A significant contribution of this study is the calculation of total labour, including family labour that is used in leaf production. It has demonstrated that both contract and independent farmers largely depend on family labour in leaf production. In particular, around 90 percent of all labour that is used in leaf production

among independent farmers is family labour, while for contract farmers, the family contributes 89 percent of the total labour used in leaf production.

Importantly, the research has also shown that when labour cost is incorporated in the production costs, many independent farmers generated a loss (amounting to US$37.30/Acre). When labour is not taken into account, however, independent farmers perceive that they make a profit (US$417/Acre). Similarly, for contract farmers, their levels of profit are much lower (US$224.30) when labour costs are take into account than when labour is not incorporated (US$ 630.10). Therefore, without accounting for family labour in the calculation of profits, tobacco farmers think that tobacco farming is a lucrative enterprise. The reality, however, is that the costs of production are so high because of the high intensity of labour that is required in the production process.

Our findings demonstrate that relative to other crops, particularly many contract tobacco farmers are on average making more than many other growers. It is important to note that when independent and contract farmer profits are averaged, the amount of profit accumulated by tobacco farmers is equivalent or even slightly less than soy and chilli farmers. Given that there is a relatively small difference between the profits of these crops, there is reason to believe that policy interventions could support crop transition for tobacco farmers while moving towards more sustainable and less socially problematic crops. The levels of profitability for the other cash crops, such as soybean and chillies can significantly improve is their supply chains get well developed to ensure timely and lucrative markets for the smallholder farmers. These would then offer excellent alternatives for tobacco producers, who are at risk of losing their main source of livelihood due to the global tobacco control movement.

The paper has also shown that a significant proportion of tobacco farmers are growing tobacco because it is the only viable crop but they have considered switching to another livelihood. The majority of the farmers reported not being satisfied with the prices that they received at the auction floors. They would be willing to switch to other crops if there are stable and reliable markets for the alternative crops. In fact, 42.2 percent of all the sampled farmers reported that they do not see themselves growing tobacco in the next 5 years. There is a daunting task for policymakers to support tobacco farmers, some of whom are making some profits to other more viable, and healthier cash crops. The supply chains for the alternative crops need to be well established to allow the farmers produce at relatively low cost, with high rates of productivity and allow them to sell at profitable prices.

## 5.2 Recommendations

In line with the findings of this study, the following recommendations are provided:

i. There is enormous need to develop the supply chains of crops that have high potential to provide alternative livelihoods for tobacco farmers, such as soybean and birds' eye chillies. These crops have the genuine potential to support the livelihoods of thousands of farmers who presently depend on tobacco as their livelihood. Strong supply chains are likely to enhance profitability for these crops making switching even more attractive to and lucrative for farmers. As the industry continues to face pressure from the global tobacco control movement and its effect on overall declines in global tobacco consumption, these alternatives need to be identified quickly to support the livelihoods

of the farmers who are at risk of being meaningfully excluded from the economic system.

ii. Contract tobacco farmers under the integrated production system (IPS) need to be trained on how to understand the contracts that they sign with the leaf companies, including the actual costs of inputs, the interest on the loans and other requirements under the contract. This will assist them in making informed choices on whether to take up the contract or not.

iii. The government of Malawi needs to ensure that independent tobacco farmers are treated in the auction system and are not facing any discrimination on grading.

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