

Chapter 5 Risky Bussiness: Smallholder Tobacco Production and Rural Livelihoods in Malawi

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シリーズタイトル(英)	Africa Research Series
シリーズ番号	12
journal or publication title	Current Issues of Rural Development in Malawi
page range	133-174
year	2006
章番号	Chapter5
URL	http://hdl.handle.net/2344/00016631

Chapter 5

Risky Business: Smallholder Tobacco Production and Rural Livelihoods in Malawi^a

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1. INTRODUCTION

The purpose of this paper is to analyze the rural livelihoods of smallholder households in tobacco-growing villages in various parts of Malawi. After the liberalization of the production of burley tobacco in the early 1990s, the number of smallholder tobacco growers increased dramatically (Orr 2000; Harrigan 2003). It is estimated that more than 300,000 smallholders are currently producing burley tobacco (Jaffee 2003, 15). The share of smallholder production in total tobacco production increased from 23% in 1992–96 to 66% in 2000–04.¹ In the introduction of smallholder burley production, policy makers and donors have seen a key opportunity for structural transformation in extremely poor rural areas. This study examines whether this transformation has occurred. It analyzes the role of tobacco production in the overall livelihood strategies adopted by smallholder households in rural Malawi.

The study contributes to the current debates related to rural development in Malawi in two ways. First, it gives information about the recent discussion of reforms in the tobacco sector by providing information about “the reality on the ground.” Despite the importance of smallholder

^a Tsutomu Takane, ed., *Current Issues of Rural Development in Malawi* (Chiba, Japan: Institute of Developing Economies, 2006)

tobacco production in the reduction of poverty, relatively little information is available about the role of tobacco in smallholder households.² With this in mind, Jaffee (2003, 4), in his review of Malawi's tobacco sector, stated that "some work on this [i.e., the effects of tobacco production on smallholders] was undertaken in the mid-1990s, yet there have been little or no household/community studies done in recent years to expressly examine the impacts which the spread of tobacco cultivation (to nearly 20% of rural households) has had." This information gap led another scholar to argue that "much of the policy debate has taken place in a vacuum with little reference to what is happening to poverty" (Harrigan 2003, 858). The lack of information on the effects at the household level of the liberalization of tobacco production remained in the recent debates on the reform of the tobacco sector. Most background papers for policy discussions adopted macro perspectives (Koester et al. 2004, Tsonga 2004, Maleta 2004).³ This study provides a counterbalance to the dominant macro perspectives employed in the policy discussions on the reform of the tobacco sector in Malawi.

The second contribution that this paper makes is to broaden the scope of the existing studies on rural livelihoods in Malawi (Orr and Mwale 2001, Ellis et al. 2003). The study by Orr and Mwale (2001) on the changes in livelihoods under economic liberalization from 1990 to 2000 provided a dynamic picture of adaptive strategies employed by rural households. However, their study site, the Blantyre Shire Highlands, was close to a large urban area, Blantyre-Limbe. Their proximity to large cities enabled some rural households to improve their economic status by selling a wide range of crops and by engaging in micro enterprises. As these activities were linked to urban markets, the livelihood strategies adopted by the households studied by Orr and Mwale (2001) may have limited relevance to most rural households in Malawi. On the other hand, the study by Ellis et al. (2003) included eight villages (two of which were fishing villages) in the Dedza and Zomba districts, reflecting a wide variety of agro-ecological features that were found in central and southern Malawi. However, none of the eight villages is in an area that produces tobacco. Given the importance of tobacco production in rural Malawi, the lack of information on livelihoods in tobacco-producing villages creates a major gap in the existing literature. This study intends to fill these gaps by

providing case studies of villages whose socioeconomic situations differ from those studied in the existing literature.

The paper is organized as follows. The next section describes the study method and the characteristics of the four villages studied. Section 3 provides information on the assets of the households, while section 4 examines the role of tobacco production in rural areas. Section 5 highlights some important differences in households' livelihood strategies across villages and income groups through the analysis of income portfolios. Section 6 examines tobacco marketing institutions. The last section summarizes the main findings.

2. STUDY SITES AND METHODS

The fieldwork for this study was undertaken between May and September 2005 in four tobacco-growing villages in Malawi. The selection of study locations was made by consulting the District Agricultural Development Offices (DADO) and Extension Planning Areas (EPA). Care was taken to choose villages that represent several socioeconomic characteristics, such as location, the predominant ethnic group, the degree of population pressure on the land, variations in access to non-farm activities, and proximity or remoteness from trading centers and auction floors. The aim of this selection procedure was both to include various socioeconomic situations in which smallholder production is taking place, and to provide a location- and context-specific understanding of livelihood circumstances in various areas of rural Malawi. No claim is made, therefore, that the results of this study represent national patterns in a statistical sense.

The first study location, Horo, is a Lomwe village in the Traditional Authority (TA) Mkhumba in Phalombe District in the Southern Region. Horo lies about 20 kilometers from Mozambique. A dirt road, often impassable by an ordinary car, links Horo to the auction floors in Limbe, 70 kilometers away. Tobacco farmers themselves arranged for transport to send tobacco bales to the auction floor through tobacco clubs. The distance to the district capital, Phalombe, where farmers purchase fertilizer, is 15 kilometers. A small-scale weekly market, where food crops and tobacco are traded, was open twice a week in a nearby village. Tobacco traded in the weekly market was either produced in or purchased from the surrounding

villages and Mozambique. Although this private trading of tobacco is officially prohibited in Malawi, it is fairly widespread in Malawi and tolerated by the authorities.

At the time of the survey, there were more than 600 households scattered over a wide area in Horo. For the purpose of this study, we selected a segment of the village whose number of households was 78 and drew samples from them (see below for sampling procedures). The ratio of female-headed households (FHH) was 46% (36 households), which was the highest among the study villages. The main crops cultivated in Horo were maize, groundnuts, and tobacco. Maize was a staple food and by far the most important crop; every household cultivated it. In maize farms, many farmers intercrop minor crops such as pigeon peas, sorghum, millet, and sunflower. This type of intercropping was common in many areas of southern Malawi, but was less common in other study locations in central and northern Malawi. Out of 78 households, tobacco was cultivated by 53 households (74%), among which 16 were female-headed. Due to the scarcity of land in the area, land was not allowed to lie fallow but was used every year.

The second village studied, Bongololo, is in the TA Chikulamayembe in Rumphi District in the Northern Region. The distance from the village to the auction floor in Mzuzu is 78 kilometers. Fertilizers were available in an adjacent town of Bolero, but some farmers traveled to the district capital, Rumphi (16 kilometers from the village), where the prices were lower than those in Bolero. Tobacco bales were transported to the two depots in Bolero and then sent to the auction. The two depots in Bolero were managed by the Tobacco Association of Malawi (TAMA) and National Smallholder Farmers' Association of Malawi (NASFAM), respectively. The cost of storage and transport of bales to the auction floor was deducted when payments were made to the tobacco clubs.

There were 69 households and a population of 360 in Bongololo. Almost all inhabitants of Bongololo were patrilineal Tumbuka. The ratio of FHH was 26% (18 households). The crops produced in Bongololo were maize, tobacco, groundnuts, cassava, soybeans, sweet potato, and millet. Tobacco was cultivated by 63 households (91%), among which 15 households were headed by women. The ratio of tobacco farmers in Bongololo was the highest among the four villages. Another notable feature

of the village was the availability of non-farm income opportunities. Because of the proximity to Bolero (where there were shops, a permanent market, and government offices), there was a wide range of non-farm income opportunities such as trading, carpentry, and waged employment. A very popular non-farm economic activity in the village was the brewing and sale of traditional beer (mostly done by women), in which 18 households (26%) were engaged⁴.

The third study location, Mulawa, is a patrilineal Ngoni village under the TA Mzukuzuku in Mzimba District in the Northern Region. Mulawa lies 20 kilometers away from the major road that links the capital, Lilongwe, to the northern regional capital, Mzuzu. A dirt road links the village to the nearest town, Jenda, 20 kilometers away. Fertilizers are available in Jenda. The distance to the district capital, Mzimba, is 62 kilometers; the auction floor lies 163 kilometers away. As the village is very close (12 kilometers) to the Zambian border, traders from Zambia came to buy tobacco from the areas around Mulawa to sell them on the Zambian side. Most tobacco farmers in Mulawa, however, did not sell their tobacco to the traders, because the price they offered was lower than the price that the farmers could get on the auction floor in Malawi.

The number of households in Mulawa was 29; the population was 151. The ratio of FHH was 34% (10 households). Tobacco was grown by 20 households (69%), among them four FHH. An important feature of the farming system in Mulawa was that many households (69%) owned wetland gardens (*dimba*).⁵ Among the crops grown on *dimba* were maize, Irish potatoes, tomatoes, onions, and local vegetables. Maize grown on *dimba* was harvested a few months earlier than the maize on the ordinary farms. This eased food shortages experienced by households in the “hunger season” of January and February. Other crops on *dimba* were harvested mainly between July and September, generating cash income and improving the diet of the households. Widely practiced *dimba* cultivation in Mulawa thus led both to higher income and better food security for many households.

The fourth study location is Mbila, five kilometers north of the district capital, Kasungu, in the Central Region. The distance from the village to the tobacco auction in Mzuzu is 240 kilometers. As in Mulawa, private traders (said to be from Zambia) purchased tobacco produced in the

village and paid cash on the spot. Unlike in Mulawa, however, many farmers in Mbila chose to sell their tobacco to the private traders, even though the prices the traders offered were lower than the prices the tobacco could have fetched on the auction floors. Among the reasons the farmers gave were the high costs of transportation to, and other services associated with, the auction; the delay of transport to, and payment by, the auction; and the need for instant cash after harvesting the tobacco.

In Mbila, there were 76 households (14 of which were FHH) and a population of 348. The majority of residents were matrilineal Chewa, but patrilineal Ngoni and Tumbuka also lived in the village. Tobacco was grown by 36 households (47%), among which five were FHH. Maize was again the major crop. Villagers also cultivated groundnuts, soybeans, cassava, and sweet potato. As in Bongololo, the proximity of Mbila to a major town enabled villagers to engage in a wide range of non-farm economic activities. Such activities included trading, beer brewing, the making of bricks and stones (used as construction materials), and employment for wages in companies and government offices.

The sampling procedures for the present study were as follows. During the first week of the survey in each study site, a census of the village was conducted. Based on the census, the sample frame consisted of all households in each study village. Next, households were divided into two categories: those that grew tobacco in the 2004/05 season and those that did not. Equal numbers of households were then randomly selected from each category. In Mulawa, however, all but one households were interviewed, because the sample frame was small (29 households).⁶ In Bongololo, the number of sample households that grew tobacco exceeded those that did not, because there were only six households that did not. The final sample size was 125 households, which comprised 78 tobacco-growing and 47 non-tobacco-growing households (Table 1).

Interviews with farmers⁷ in the four villages were conducted with the assistance of a village resident and a graduate research assistant who was fluent in Chichewa and Chitumbuka.⁸ A structured questionnaire was used during the interviews, and free discussion was encouraged. This writer attended, recorded, and reviewed all interviews. In addition, farms operated by sample households were measured using global positioning systems to obtain data on the size of the plots.

Table 1. Household demographic data, by village

	Horo	Bongololo	Mulawa	Mbila	Total
VILLAGE TOTAL					
Population	262	360	151	348	1,121
Number of households	78	69	29	76	252
Number of tobacco-growing households	53	63	20	36	172
Percentage of tobacco-growing households	68%	91%	69%	47%	68%
Number of non-tobacco-growing households	25	6	9	40	80
Percentage of non-tobacco-growing households	32%	9%	31%	53%	32%
Number of female-headed households*	36(46%)	18(26%)	10(34%)	14(18%)	78(31%)
Average age of household heads	39.7	42.3	48.4	37.7	40.8
Average household size	3.4	5.2	5.2	4.6	4.5
SAMPLE HOUSEHOLDS					
Number of sample households	32	33	28	32	125
Tobacco-growing**	16(5)	27(8)	19(4)	16(3)	78(20)
Non-tobacco-growing**	16(13)	6(3)	9(6)	16(2)	47(24)

SOURCE: Survey by author, May–September 2005.

* Figures in parentheses are shares in total households.

** Figures in parentheses indicate the number of female-headed households.

The 2004/05 agricultural season on which the survey focused was a difficult one for most smallholders in Malawi. The season started with good rains in December and January. Starting in early February, however, most of the country experienced dry spells. The dry spells persisted into March, resulting in an abrupt end of the rainy season. The prolonged dry spells seriously affected the production of most crops. The dry spells occurred when maize, the staple food of the country, was at that critical stage during which it tassels and forms cobs. The dry spells, therefore, severely hindered production levels. The low yield of maize was evident from our survey, as most of the households interviewed experienced a sharp drop in the maize harvest compared to the previous season. Worst hit by the dry spells were some districts in the Central and Southern regions, and our villages of Horo (in Phalombe District) and Mbila (in Kasungu District) were no exception. In fact, many households in Horo had a very meager, if any, harvest of maize, and their stock had been depleted by May (just after the harvest), when the survey was conducted. The dry spells also affected tobacco production in most parts of the country, resulting both in low yields and inferior quality of the leaves. Production of burley tobacco dropped from 151,453 tons in 2004 to 119,520 tons in 2005. The average price of burley was 99 cents in 2005, the lowest since 1994. The low quality of the leaves had much to do with the low price.⁹

3. HOUSEHOLD ASSET STATUS

Ownership of and access to productive assets such as farmland, family labor, agricultural equipment, and livestock are essential for rural households. This section examines the household assets in the four villages. Reference is made both to types of assets and to asset holding across income quartiles.

All 125 sample households in the villages had access to farmland. Most used their own land for farming. Only two households (2%) had no land (they rented land). The average farm size of the sample households was 0.86 hectares, but farm size varied considerably across villages, from 0.58 hectares in Horo to 1.18 hectares in Mulawa (table 2). It is noteworthy that 68% of households cultivated less than a hectare, and 32% less than 0.5 hectares (table 3). The size distribution of farmland also varied across the villages; half the sample households in Horo farmed less than 0.5 hectares, while more than half of those in Mulawa farmed more than a hectare. In all the villages, more than half the land was allocated to maize, signifying the importance of that crop in various locations¹⁰.

Table 2. Average farm size of sample households, by village (ha)

	Horo		Bongololo		Mulawa		Mbila		Total	
	N	Area	N	Area	N	Area	N	Area	N	Area
Tobacco	16	0.189	27	0.347	19	0.365	16	0.439	78	0.338
Maize	32	0.444	33	0.489	28	0.611	32	0.563	125	0.524
Groundnuts	3	0.279	5	0.084	15	0.311	23	0.158	46	0.208
Other crops	2	0.243	3	0.150	14	0.308	6	0.234	25	0.266
Total	32	0.580	33	0.798	28	1.179	32	0.939	125	0.864

SOURCE: Survey by author, May–September 2005.

NOTE: Figures are averages of those cultivating specified crops, not averages of all samples in the villages.

Table 3. Size distribution of area farmed by households, by crop and village (%)

All crops

	Horo N = 32 (%)	Bongololo N = 33 (%)	Mulawa N = 28 (%)	Mbila N = 32 (%)	Total N = 125 (%)
Area farmed					
None	0	0	0	0	0
Less than 0.5 ha	50	27	29	22	32
0.5–1 ha	38	48	14	41	36
1–1.5 ha	6	15	29	25	18
1.5–2.0 ha	6	6	18	6	9
More than 2 ha	0	3	11	6	5
Total	100	100	100	100	100

Tobacco

	Horo N = 32 (%)	Bongololo N = 33 (%)	Mulawa N = 28 (%)	Mbila N = 32 (%)	Total N = 125 (%)
Area farmed					
None	50	18	32	50	38
Less than 0.5 ha	47	73	50	31	50
0.5–1 ha	3	6	18	16	10
1–1.5 ha	0	3	0	3	2
1.5–2.0 ha	0	0	0	0	0
More than 2 ha	0	0	0	0	0
Total	100	100	100	100	100

Table 3 (continued)**Maize**

	Horo N = 32 (%)	Bongololo N = 33 (%)	Mulawa N = 28 (%)	Mbila N = 32 (%)	Total N = 125 (%)
Area farmed					
None	0	0	0	0	0
Less than 0.5 ha	59	67	54	50	58
0.5–1 ha	38	27	25	38	32
1–1.5 ha	0	6	21	9	9
1.5–2.0 ha	3	0	0	3	2
More than 2 ha	0	0	0	0	0
Total	100	100	100	100	100

Groundnuts

	Horo N = 32 (%)	Bongololo N = 33 (%)	Mulawa N = 28 (%)	Mbila N = 32 (%)	Total N = 125 (%)
Area farmed					
None	91	85	46	28	63
Less than 0.5 ha	9	15	43	69	34
0.5–1 ha	0	0	7	3	2
1–1.5 ha	0	0	4	0	1
1.5–2.0 ha	0	0	0	0	0
More than 2 ha	0	0	0	0	0
Total	100	100	100	100	100

Table 3 (continued)**Other crops**

	Horo N = 32 (%)	Bongololo N = 33 (%)	Mulawa N = 28 (%)	Mbila N = 32 (%)	Total N = 125 (%)
Area farmed					
None	94	91	50	81	80
Less than 0.5 ha	6	9	36	16	16
0.5–1 ha	0	0	14	3	4
1–1.5 ha	0	0	0	0	0
1.5–2.0 ha	0	0	0	0	0
More than 2 ha	0	0	0	0	0
Total	100	100	100	100	100

SOURCE: Survey by author, May–September 2005.

Availability of family labor is critical for farm production in rural Malawi, because virtually all farm tasks are done without machinery. Among the households sampled, there were, on average, 2.4 household members aged 15 years or more (table 4). The relatively small number in Horo (1.8) was mainly because of the high proportion of female-headed households in the village (table 1). The average number of years of education of household heads was less than eight in all four villages. Again, the figures were lowest in Horo¹¹.

Most households owned simple farm implements such as hoes, knives, and sickles. Ownership of larger equipment, such as an oxcart, was much less common, and only a few households owned plows. The majority of households owned bicycles, which were frequently used for transporting farm inputs such as fertilizer.

Table 4. Mean ownership of household assets, by village

		Horo (N = 32)	Bongololo (N = 33)	Mulawa (N = 28)	Mbila (N = 32)	Total (N = 125)
Livestock (number)	Cattle	0.19	1.18	0.75	0.19	0.58
	Goats	0.66	0.42	0.32	0.28	0.42
	Pigs	0.09	0.94	1.89	0.31	0.77
	Chickens	1.63	8.42	9.07	6.09	6.23
	Other	0.69	2.48	1.82	3.13	2.04
	Estimated total value (MK)	5,443	28,756	24,039	8,091	16,441
Farm tools and transport (number)	Oxcarts	0.00	0.15	0.14	0.03	0.08
	Bicycles	0.72	0.36	0.57	0.78	0.61
	Tools	5.28	8.70	8.64	8.22	7.69
Number of household members (15 years or older)		1.8	2.7	2.4	2.7	2.4
Education of household heads (years)		4.3	7.7	5.7	5.0	5.7

SOURCE: Survey by author, May–September 2005.

NOTE: The exchange rate at the time of the survey was MK115–121 per U.S. dollar.

Livestock ownership varied considerably across the villages (table 4). The estimated values of livestock owned by households in Bongololo and Mulawa were much higher than those in Horo and Mbila. The difference probably stems from the social importance of livestock in northern Malawi. In the patrilineal societies of Tumbuka and Ngoni (to which residents of Bongololo and Mulawa, respectively, belong), payments of bride wealth (called *lobola*) at marriage in the form of cattle or cash equivalents were common. Ownership of cattle in these societies, therefore, has both economic and social significance.

Table 5 shows asset holdings of households across income quartiles (measured by per capita income¹²). The data in the table indicate no clear differences in asset holdings across income quartiles.¹³ A possible explanation of this would be that variations in per capita income arise not from differences in the size of assets (especially land areas) but from differences in the productivity of them. To examine this, we compare the productivity of the land of households across income quartiles (table 6). The comparisons are made in terms of net agricultural income (crops plus livestock) and net crop incomes of tobacco and maize per hectare of land.

The results are mixed and inconclusive. The table does not show any clear differences in productivity in net agricultural income across income quartiles, except that the income of households in the lowest quartile is substantially lower than the income in other quartiles. The data on maize production and net maize income show no clear differences, either. In fact, unexpectedly, the data on maize show that households in the highest quartile achieved the lowest net maize income per hectare. This may be because households in the highest quartile spent a relatively large amount of money on fertilizer and hired labor (table 7), resulting in a low net maize income. The data on maize contrast sharply with the data on net income from tobacco, which substantially increases across income ranges (table 6). This also stems from the differences in production cost structure, as will be discussed in the next section.

Table 5. Asset ownership, by income quartile

	Horo N = 32	Bongololo N = 33	Mulawa N = 28	Mbila N = 32	Total N = 125
Area farmed (ha)					
Income quartile 1 (highest)	0.829	0.422	1.266	1.292	0.942
Income quartile 2	0.492	0.644	0.702	0.824	0.664
Income quartile 3	0.326	0.724	0.630	1.093	0.695
Income quartile 4 (lowest)	0.495	0.989	1.318	0.920	0.920
Value of livestock owned (MK)					
Income quartile 1 (highest)	3,121	30,413	26,521	5,663	16,104
Income quartile 2	1,795	35,094	44,486	3,913	20,575
Income quartile 3	924	18,675	4,929	2,319	6,769
Income quartile 4 (lowest)	15,931	30,611	20,221	20,471	22,133
Number of cattle owned					
Income quartile 1 (highest)	0.0	1.0	0.7	0.0	0.4
Income quartile 2	0.0	1.5	1.4	0.0	0.7
Income quartile 3	0.0	0.5	0.1	0.0	0.2
Income quartile 4 (lowest)	0.8	1.7	0.7	0.9	1.0
Number of oxcarts owned					
Income quartile 1 (highest)	0.0	0.0	0.3	0.0	0.1
Income quartile 2	0.0	0.3	0.0	0.0	0.1
Income quartile 3	0.0	0.1	0.1	0.0	0.1
Income quartile 4 (lowest)	0.0	0.2	0.1	0.1	0.1

Table 5 (continued)

	Horo N = 32	Bongololo N = 33	Mulawa N = 28	Mbila N = 32	Total N = 125
Number of bicycles owned					
Income quartile 1 (highest)	0.3	0.3	1.3	0.9	0.6
Income quartile 2	0.3	0.3	0.3	1.0	0.5
Income quartile 3	0.0	0.6	0.3	0.8	0.4
Income quartile 4 (lowest)	0.1	0.3	0.4	0.5	0.3
Number of farm tools owned					
Income quartile 1 (highest)	7.3	6.9	11.0	9.8	8.6
Income quartile 2	6.4	11.0	6.0	7.1	7.7
Income quartile 3	2.8	8.1	6.4	7.1	6.1
Income quartile 4 (lowest)	4.8	8.8	11.1	8.9	8.3
Number of household members (15 years or older)					
Income quartile 1 (highest)	1.6	2.1	1.9	3.0	2.2
Income quartile 2	2.1	2.1	1.9	2.3	2.1
Income quartile 3	1.8	2.1	2.0	2.8	2.2
Income quartile 4 (lowest)	1.9	3.3	3.7	2.9	2.9
Education of household heads (years)					
Income quartile 1 (highest)	3.6	8.8	7.6	5.1	6.2
Income quartile 2	3.8	7.4	5.4	6.4	5.7
Income quartile 3	5.0	7.4	3.7	4.3	5.1
Income quartile 4 (lowest)	4.4	5.8	4.3	4.1	4.7

SOURCE: Survey by author, May–September 2005.

NOTE: Income quartiles are based on per capita income of households.

Per capita income = net total household income/adult equivalent units (AEUs).

AEUs: male 15 years or older = 1; female 15 years or older = 0.8; male/female 14 years or under = 0.5 (Mims and Mathieu 2002).

Table 6. Farm productivity by income quartiles, by village

	Horo N = 32	Bongololo N = 33	Mulawa N = 28	Mbila N = 32	Total N = 125
Net agricultural income per ha (MK/ha)					
Income quartile 1 (highest)	-7,941	29,353	22,010	2,956	10,454
Income quartile 2	2,050	10,786	27,429	6,114	12,206
Income quartile 3	-1,503	26,596	8,165	-3,809	8,394
Income quartile 4 (lowest)	-6,445	-731	5,531	-7,102	-818
Net tobacco income per ha (MK/ha)					
Income quartile 1 (highest)	-15,666	80,074	43,459	-11,884	29,265
Income quartile 2	5,537	448	75,001	-4,112	12,501
Income quartile 3	2,511	32,421	2,851	-20,437	8,192
Income quartile 4 (lowest)	-12,571	-7,389	6,405	-4,516	-2,857
Net maize income per ha (MK/ha)					
Income quartile 1 (highest)	-8,172	-165	4,002	3,797	80
Income quartile 2	-77	8,213	12,269	4,753	6,914
Income quartile 3	-1,451	15,800	5,837	-513	5,568
Income quartile 4 (lowest)	-5,552	2,954	5,000	-193	1,006
Maize production per ha (kg/ha)					
Income quartile 1 (highest)	580	1,581	1,362	708	973
Income quartile 2	454	1,863	1,543	1,085	1,322
Income quartile 3	49	1,855	1,103	635	986
Income quartile 4 (lowest)	116	986	1,339	579	805
Fertilizer application on maize farm (kg/ha)					
Income quartile 1 (highest)	118	160	143	119	131
Income quartile 2	95	90	85	130	100
Income quartile 3	24	15	83	105	58
Income quartile 4 (lowest)	93	67	153	68	96

SOURCE: Survey by author, May–September 2005.

Table 7. Production cost structure of maize, by income quartiles (totals for the four villages, MK/ha)

	Quartile 1 (highest)		Quartile 2		Quartile 3		Quartile 4 (lowest)	
Number of samples	31		31		31		32	
Average area of maize farm (ha/household)	0.646		0.411		0.430		0.605	
Production per ha (kg/ha)	973		1,322		986		806	
	%	MK	%	MK	%	MK	%	MK
Gross revenue from maize		12,713		16,191		12,876		9,751
Input costs	100%	12,633	100%	9,278	100%	6,308	100%	8,745
Seeds	5%	626	13%	1,209	19%	1,172	10%	859
Fertilizer	61%	7,679	53%	4,927	48%	3,057	57%	4,983
Manure	0%	0	1%	57	0%	11	6%	508
Hired labor	24%	3,014	15%	1,400	19%	1,226	12%	1,060
Hired transport/machinery	3%	336	2%	145	0%	17	2%	174
Land rent	1%	150	3%	236	0%	0	2%	155
Interest payment	2%	205	0%	0	0%	0	1%	126
Annual depreciation and maintenance of tools, oxcarts, and oxen	5%	623	14%	1,304	13%	825	10%	880
Net crop income		80		6,914		5,568		1,006

SOURCE: Survey by author, May–September 2005.

Table 8. Production cost structure of tobacco, by village (MK/ha)

	Horo		Bongololo		Mulawa		Mbila		Total	
Number of samples	16		27		19		16		78	
Average area of tobacco farm (ha/household)	0.189		0.347		0.365		0.439		0.338	
Production per ha (kg/ha)	281		1,178		853		319		760	
	%	MK	%	MK	%	MK	%	MK	%	MK
Gross revenue from tobacco		17,596		88,033		76,430		20,004		58,766
Input costs	100%	21,853	100%	70,443	100%	45,704	100%	29,685	100%	47,492
Seeds	4%	978	1%	737	0%	192	1%	263	1%	495
Fertilizer	45%	9,863	43%	29,732	59%	26,288	57%	16,857	49%	23,115
Other chemicals	3%	751	1%	425	0%	36	0%	0	1%	247
Manure	3%	630	0%	0	0%	0	0%	0	0%	72
Materials for barn and sacks	8%	1,652	7%	5,074	11%	5,015	11%	3,174	9%	4,160
Hired labor	23%	5,058	33%	23,280	19%	8,837	22%	6,485	27%	12,910
Hired transport/machinery	3%	700	3%	2,046	3%	1,313	6%	1,750	3%	1,620
Land rent	1%	149	1%	374	0%	0	1%	214	0%	207
Interest payment	7%	1,492	9%	6,169	5%	2,238	1%	157	6%	2,995
Annual depreciation and maintenance of tools, oxcarts, and oxen	2%	514	2%	1,675	2%	821	2%	592	2%	1,028
Other expenses	0%	66	1%	930	2%	965	1%	192	1%	643
Net crop income		-4,257		17,590		30,725		-9,680		11,274

SOURCE: Survey by author, May–September 2005.

Table 9. Production cost structure of maize, by village (MK/ha)

	Horo		Bongololo		Mulawa		Mbila		Total	
Number of samples	32		33		28		32		125	
Average area of maize farm (ha/household)	0.444		0.489		0.611		0.563		0.524	
Production per ha (kg/ha)	331		1,503		1,326		732		990	
	%	MK	%	MK	%	MK	%	MK	%	MK
Gross revenue from maize		5,292		18,040		16,106		9,234		12,343
Input costs	100%	10,204	100%	11,395	100%	9,805	100%	7,110	100%	9,542
Seeds	6%	591	11%	1,294	12%	1,146	9%	628	10%	919
Fertilizer	62%	6,296	38%	4,357	62%	6,112	70%	4,968	57%	5,405
Manure	4%	395	0%	0	0%	0	4%	283	2%	164
Hired labor	21%	2,177	29%	3,311	12%	1,222	8%	544	18%	1,758
Hired transport/machinery	1%	113	1%	100	5%	468	1%	54	2%	186
Land rent	2%	211	3%	372	0%	0	0%	0	1%	138
Interest payment	0%	38	3%	317	0%	0	1%	50	1%	100
Annual depreciation and maintenance of tools, oxcarts, and oxen	4%	384	14%	1,645	9%	856	8%	582	9%	872
Net crop income		-4,912		6,645		6,301		2,124		2,800

SOURCE: Survey by author, May–September 2005.

4. TOBACCO AND SMALLHOLDERS

Our earlier study (Takane 2005) revealed that tobacco production requires more labor and working capital than other crops. The high demand for labor often forces farmers to employ hired labor to complement family labor. In addition, tobacco production requires other purchased inputs such as chemical fertilizer and materials for barns. The result is much higher production costs than those of other crops, such as maize (tables 8 and 9). As table 8 shows, hired labor (27%) and fertilizer (49%) are the most expensive components of the production cost of tobacco.

In a normal year with good rains, the high production cost of tobacco is compensated by high gross revenue and high net income per hectare from the crop (Takane 2005). But high production costs entail high risks. If the crop fails, farmers cannot cover the cost of production. This was exactly what happened in Horo and Mbila in the 2004/05 season. Prolonged dry spells in the Central and Southern regions led to gross revenues from tobacco production in those villages that were considerably lower than those in the other two villages (Bongololo and Mulawa) in the north (table 8). As a result, net crop income from tobacco in Horo and Mbila was negative. This clearly shows that tobacco is a risky business. High returns are possible, but there is always a high risk of large losses if the crop fails.

Table 10 presents the production cost structure of tobacco by income groups. The table clearly indicates that the productivity of tobacco (in net crop income per hectare) substantially increases across income quartiles. Also of note is the difference in hired labor costs between the lowest quartiles and other income quartiles. Households in the lowest income quartile spent much more on hired labor, resulting in a higher overall production cost and, subsequently, a negative net crop income¹⁴. On the other hand, households in the highest income quartile received higher gross revenue per kilogram of tobacco (because of the better quality of leaves produced) than those in other income quartiles.¹⁵ These data suggest that reducing labor costs and increasing gross revenue by producing better leaves could lead to improved productivity for smallholder tobacco farmers.

Table 10. Production cost structure of tobacco, by income quartiles (totals for the four villages, MK/ha)

	Quartile 1 (highest)		Quartile 2		Quartile 3		Quartile 4 (lowest)	
Number of samples	21		19		16		22	
Average area of tobacco farm (ha/household)	0.320		0.358		0.291		0.370	
Production per ha (kg/ha)	805		747		581		838	
Gross revenue per kg of tobacco (MK/kg)	92		78		84		61	
	%	MK	%	MK	%	MK	%	MK
Gross revenue from tobacco		74,451		57,950		50,475		51,225
Input costs	100%	45,186	100%	45,448	100%	42,284	100%	54,082
Seeds	1%	301	1%	447	1%	457	1%	717
Fertilizer	52%	23,619	46%	21,010	57%	24,099	44%	23,896
Other chemicals	1%	377	1%	284	0%	140	0%	169
Manure	0%	89	0%	29	0%	0	0%	135
Materials for barn and sacks	11%	4,992	9%	4,131	10%	4,298	6%	3,417
Hired labor	26%	11,575	23%	10,626	18%	7,596	35%	18,960
Hired transport/machinery	3%	1,399	4%	1,897	2%	968	4%	1,943
Land rent	0%	223	1%	581	0%	0	0%	0
Interest payment	3%	1,158	10%	4,599	8%	3,327	6%	2,982
Annual depreciation and maintenance of tools, oxcarts, and oxen	1%	666	3%	1,243	2%	808	2%	1,273
Other expenses	2%	786	1%	602	1%	591	1%	589
Net crop income		29,265		12,501		8,192		-2,857

SOURCE: Survey by author, May–September 2005.

Table 11. Income portfolios of tobacco-growing and non-tobacco-growing households

Horo						
	Tobacco-growing households (N = 16)		Non-tobacco-growing households (N = 16)		Total (N = 32)	
	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income
Per capita income	3,938		2,012		2,975	
Total household income	8,070	100%	4,994	100%	6,532	100%
Tobacco	-802	-10%	0	0%	-401	-6%
Maize	-2,584	-32%	-1,783	-36%	-2,183	-33%
Other crops	282	3%	-127	-3%	77	1%
Livestock	-79	-1%	-49	-1%	-64	-1%
Total agricultural income	-3,183	-39%	-1,959	-39%	-2,571	-39%
Agricultural wages	627	8%	345	7%	486	7%
Nonagricultural wages	124	2%	0	0%	62	1%
Non-farm self-employment	8,746	108%	5,209	104%	6,977	107%
Transfers	1,756	22%	1,399	28%	1,577	24%
Total non-farm income	11,253	139%	6,953	139%	9,103	139%

Table 11 (continued)

Bongololo						
	Tobacco-growing households (N = 27)		Non-tobacco-growing households (N = 6)		Total (N = 33)	
	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income
Per capita income	12,775		18,878		13,885	
Total household income	39,729	100%	48,074	100%	41,246	100%
Tobacco	6,096	15%	0	0%	4,988	12%
Maize	3,705	9%	1,184	2%	3,247	8%
Other crops	534	1%	1,440	3%	698	2%
Livestock	2,322	6%	-300	-1%	1,845	4%
Total agricultural income	12,657	32%	2,324	5%	10,778	26%
Agricultural wages	254	1%	2,883	6%	732	2%
Nonagricultural wages	6,537	16%	863	2%	5,505	13%
Non-farm self-employment	18,825	47%	38,704	81%	22,439	54%
Transfers	1,456	4%	3,300	7%	1,791	4%
Total non-farm income	27,072	68%	45,750	95%	30,468	74%

Table 11 (continued)

Mulawa						
	Tobacco-growing households (N = 19)		Non-tobacco-growing households (N = 9)		Total (N = 28)	
	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income
Per capita income	9,595		7,445		8,904	
Total household income	32,815	100%	15,775	100%	27,338	100%
Tobacco	11,212	34%	0	0%	7,608	28%
Maize	4,510	14%	2,453	16%	3,849	14%
Other crops	3,927	12%	3,255	21%	3,711	14%
Livestock	3,417	10%	1,383	9%	2,763	10%
Total agricultural income	23,065	70%	7,091	45%	17,930	66%
Agricultural wages	245	1%	903	6%	456	2%
Nonagricultural wages	286	1%	0	0%	194	1%
Non-farm self-employment	4,033	12%	2,970	19%	3,691	14%
Transfers	5,187	16%	4,811	30%	5,066	19%
Total non-farm income	9,751	30%	8,684	55%	9,408	34%

Table 11 (continued)

Mbila						
	Tobacco-growing households (N = 16)		Non-tobacco-growing households (N = 16)		Total (N = 32)	
	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income
Per capita income	4,774		6,934		5,854	
Total household income	19,223	100%	21,801	100%	20,512	100%
Tobacco	-4,248	-22%	0	0%	-2,082	-10%
Maize	549	3%	1,841	8%	1,195	6%
Other crops	1,459	8%	2,334	11%	1,897	9%
Livestock	-1,404	-7%	-1,209	-6%	-1,306	-6%
Total agricultural income	-3,644	-19%	2,967	14%	-339	-2%
Agricultural wages	1,919	10%	950	4%	1,434	7%
Nonagricultural wages	10,441	54%	7,866	36%	9,153	45%
Non-farm self-employment	7,469	39%	4,059	19%	5,764	28%
Transfers	3,038	16%	5,959	27%	4,499	22%
Total non-farm income	22,867	119%	18,834	86%	20,851	102%

Table 11 (continued)

Total	Tobacco-growing households (N = 78)		Non-tobacco-growing households (N = 47)		Total (N = 125)	
	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income
Per capita income	8,646		6,881		7,920	
Total household income	27,344	100%	18,279	100%	23,936	100%
Tobacco	3,805	14%	0	0%	2,374	10%
Maize	1,964	7%	641	4%	1,466	6%
Other crops	1,498	5%	1,558	9%	1,521	6%
Livestock	1,332	5%	-201	-1%	755	3%
Total agricultural income	8,599	31%	1,998	11%	6,117	26%
Agricultural wages	670	2%	982	5%	787	3%
Nonagricultural wages	4,500	16%	2,788	15%	3,856	16%
Non-farm self-employment	10,825	40%	8,665	47%	10,013	42%
Transfers	2,751	10%	3,847	21%	3,163	13%
Total non-farm income	18,745	69%	16,282	89%	17,819	74%

SOURCE: Survey by author, May–September 2005.

The differences in income composition between tobacco-growing and non-tobacco-growing households are worth examining in detail (table 11). The average total household income of tobacco-growing households in the four villages is 50% higher than that of non-tobacco-growing households.¹⁶ The difference stems mainly from the higher income from own-farm production (crops and livestock) enjoyed by tobacco-growing households. The table also reveals that, within the income composition of own-farm production, tobacco-growing households generated higher income from maize and livestock than non-tobacco-growing households. As is shown in table 12, tobacco-growing households applied more fertilizer on maize and thus achieved higher production than their non-tobacco-growing counterparts. In addition, tobacco-growing households were better off in asset ownership (especially livestock) than non-tobacco-growing households (table 13). These facts seem to suggest that income derived from tobacco production was reinvested in other own-farm production (in the forms of purchasing fertilizers and livestock). It should be noted, however, that differences in agricultural productivity (in net agricultural income per hectare of land) between tobacco-growing and non-tobacco-growing households varies considerably across the villages (table 12).

Table 12. Farm productivity of tobacco-growing and non-tobacco-growing households

	Horo N = 32	Bongololo N = 33	Mulawa N = 28	Mbila N = 32	Total N = 125
Net agricultural income per ha (MK/ha)					
TH	-4,713	14,852	15,153	-3,260	8,320
NTH	-4,042	4,174	15,573	3,901	3,432
Maize production per ha (kg/ha)					
TH	509	1,589	1,362	813	1,174
NTH	141	1,121	1,212	644	611
Fertilizer application on maize farm (kg/ha)					
TH	115	75	126	125	109
NTH	63	84	105	84	79

NOTE: TH means tobacco-growing households, NTH non-tobacco-growing households.
SOURCE: Survey by author, May–September 2005.

Table 13. Asset ownership of tobacco-growing and non-tobacco-growing households

	Horo N = 32	Bongololo N = 33	Mulawa N = 28	Mbila N = 32	Total N = 125
Area farmed (ha)					
TH	0.650	0.746	1.238	1.090	0.917
NTH	0.421	0.514	0.431	0.974	0.623
Value of livestock (MK)					
TH	1,361	34,337	21,142	14,083	20,204
NTH	9,524	3,642	30,156	2,100	10,197
Number of cattle owned					
TH	0.0	1.3	0.6	0.4	0.7
NTH	0.4	0.5	1.0	0.0	0.4
Number of oxcarts owned					
TH	0.0	0.2	0.2	0.1	0.1
NTH	0.0	0.0	0.0	0.0	0.0
Number of bicycles owned					
TH	0.7	0.4	0.7	0.9	0.6
NTH	0.8	0.0	0.3	0.7	0.6
Number of farm tools owned					
TH	6.9	9.5	10.9	9.4	9.3
NTH	3.7	5.2	3.8	7.1	5.0
Number of household members (15 years or older)					
TH	2.1	2.8	2.7	2.9	2.7
NTH	1.6	2.0	1.7	2.5	2.0
Education of household heads (years)					
TH	4.6	8.0	5.7	5.3	6.2
NTH	4.1	6.7	5.6	4.6	4.9

NOTE: TH means tobacco-growing households, NTH non-tobacco-growing households.
SOURCE: Survey by author, May–September 2005.

Table 14. Income portfolios, by quartile

Horo										
	Quartile 1 (highest) (N = 8)		Quartile 2 (N = 8)		Quartile 3 (N = 8)		Quartile 4 (lowest) (N = 8)		Total (N = 32)	
	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income
Per capita income	9,721		2,401		745		-966		2,975	
Total household income	20,923	100%	4,878	100%	1,904	100%	-1,578	-100%	6,532	100%
Tobacco	-2,211	-11%	1,071	22%	12	1%	-476	-30%	-401	-6%
Maize	-5,442	-26%	-22	0%	-477	-25%	-2,792	-177%	-2,183	-33%
Other crops	354	2%	173	4%	-270	-14%	52	3%	77	1%
Livestock	58	0%	-215	-4%	170	9%	-269	-17%	-64	-1%
Total agricultural income	-7,241	-35%	1,007	21%	-565	-30%	-3,485	-221%	-2,571	-39%
Agricultural wages	278	1%	866	18%	595	31%	205	13%	486	7%
Nonagricultural wages	248	1%	0	0%	0	0%	0	0%	62	1%
Non-farm self-employment	25,064	120%	1,673	34%	406	21%	768	49%	6,977	107%
Transfers	2,576	12%	1,332	27%	1,469	77%	934	59%	1,577	24%
Total non-farm income	28,165	135%	3,871	79%	2,469	130%	1,907	121%	9,103	139%

Table 14 (continued)

Bongololo										
	Quartile 1 (highest) (N = 8)		Quartile 2 (N = 8)		Quartile 3 (N = 8)		Quartile 4 (lowest) (N = 9)		Total (N = 33)	
	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income
Per capita income	33,952		14,313		7,132		1,669		13,885	
Total household income	95,882	100%	42,719	100%	25,674	100%	5,213	100%	41,246	100%
Tobacco	15,044	16%	128	0%	8,591	33%	-2,835	-54%	4,988	12%
Maize	-61	0%	3,803	9%	7,582	30%	1,840	35%	3,247	8%
Other crops	455	0%	2,129	5%	120	0%	157	3%	698	2%
Livestock	938	1%	2,938	7%	3,638	15%	89	2%	1,845	4%
Total agricultural income	16,375	17%	8,997	21%	19,930	78%	-749	-14%	10,778	26%
Agricultural wages	138	0%	1,012	2%	456	2%	1,256	24%	732	2%
Nonagricultural wages	1,500	2%	20,860	49%	200	1%	133	3%	5,505	13%
Non-farm self-employment	77,294	81%	9,713	23%	3,335	13%	1,974	38%	22,439	54%
Transfers	575	1%	2,138	5%	1,753	7%	2,599	50%	1,791	4%
Total non-farm income	79,506	83%	33,722	79%	5,744	22%	5,962	114%	30,468	74%

Table 14 (continued)

Mulawa

	Quartile 1 (highest) (N = 7)		Quartile 2 (N = 7)		Quartile 3 (N = 7)		Quartile 4 (lowest) (N = 7)		Total (N = 28)	
	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income
Per capita income	18,214		9,828		5,370		2,203		8,904	
Total household income	52,922	100%	28,738	100%	16,008	100%	11,685	100%	27,338	100%
Tobacco	16,036	30%	11,872	41%	356	2%	2,168	19%	7,608	28%
Maize	2,976	6%	5,954	21%	2,741	17%	3,724	32%	3,849	14%
Other crops	7,766	15%	3,776	13%	1,844	12%	1,455	12%	3,711	14%
Livestock	8,582	16%	-101	0%	1,234	8%	1,337	11%	2,763	10%
Total agricultural income	35,360	67%	21,501	75%	6,175	39%	8,685	74%	17,930	66%
Agricultural wages	0	0%	233	1%	1,464	9%	129	1%	456	2%
Nonagricultural wages	0	0%	0	0%	776	5%	0	0%	194	1%
Non-farm self-employment	9,203	17%	2,757	10%	2,040	13%	764	7%	3,691	14%
Transfers	8,359	16%	4,247	15%	5,553	34%	2,107	18%	5,066	19%
Total non-farm income	17,561	33%	7,237	25%	9,833	61%	3,000	26%	9,408	34%

Table 14 (continued)

Mbila

	Quartile 1 (highest) (N = 8)		Quartile 2 (N = 8)		Quartile 3 (N = 8)		Quartile 4 (lowest) (N = 8)		Total (N = 32)	
	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income
Per capita income	16,233		5,661		2,392		-870		5,864	
Total household income	54,527	100%	19,653	100%	9,976	100%	-2,109	-100%	20,554	100%
Tobacco	-2,249	-4%	-959	-5%	-4,149	-42%	-1,139	-54%	-2,082	-10%
Maize	3,100	6%	2,016	10%	-228	-2%	-109	-5%	1,195	6%
Other crops	3,121	6%	2,091	11%	1,473	15%	901	43%	1,897	9%
Livestock	-25	0%	1,133	6%	-145	-1%	-6,188	-293%	-1,306	-6%
Total agricultural income	3,947	7%	4,281	22%	-3,049	-31%	-6,535	-310%	-297	-1%
Agricultural wages	969	2%	2,025	10%	1,038	10%	1,706	81%	1,434	7%
Nonagricultural wages	29,700	54%	1,457	7%	4,931	49%	526	25%	9,153	44%
Non-farm self-employment	5,047	9%	9,853	50%	6,306	63%	1,851	88%	5,764	28%
Transfers	14,864	27%	2,038	10%	750	8%	343	16%	4,499	22%
Total non-farm income	50,580	93%	15,372	78%	13,025	131%	4,426	210%	20,851	101%

Table 14 (continued)

Total	Quartile 1 (highest)		Quartile 2		Quartile 3		Quartile 4 (lowest)		Total	
	(N = 31)		(N = 31)		(N = 31)		(N = 32)		(N = 125)	
	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income	Income (MK)	% of total income
Per capita income	19,573		7,993		3,863		492		7,920	
Total household income	56,165	100%	23,844	100%	13,306	100%	3,100	100%	23,936	100%
Tobacco	6,352	11%	2,743	12%	1,230	9%	-727	-23%	2,374	10%
Maize	52	0%	2,841	12%	2,393	18%	607	20%	1,466	6%
Other crops	2,768	5%	1,987	8%	758	6%	601	19%	1,521	6%
Livestock	2,188	4%	972	4%	1,224	9%	-1,297	-42%	755	3%
Total agricultural income	11,360	20%	8,542	36%	5,605	42%	-816	-26%	6,117	26%
Agricultural wages	357	1%	1,060	4%	870	7%	859	28%	787	3%
Nonagricultural wages	8,115	14%	5,759	24%	1,499	11%	169	5%	3,856	16%
Non-farm self-employment	29,795	53%	6,103	25%	3,053	23%	1,377	44%	10,013	42%
Transfers	6,536	12%	2,380	10%	2,279	17%	1,511	49%	3,163	13%
Total non-farm income	44,804	80%	15,302	64%	7,701	58%	3,916	126%	17,819	74%

SOURCE: Survey by author, May–September 2005.

5. INCOME COMPOSITION OF RURAL HOUSEHOLDS

Table 14 classifies the households into four income groups (according to the level of per capita income) and shows their income portfolios. Overall, households in upper income quartiles earned high income both from own-farm production (due mainly to the high productivity of tobacco, as discussed above) and from non-farm sources. Particularly important is non-farm income. As shown in the table, households in the highest quartiles generated most of their income from sources other than own-farm production. In particular, their income from non-farm self-employment is considerably higher than that of other households. On the other hand, non-farm income of households in the lowest quartiles was less than one-tenth of that in the highest quartiles. Across the four villages, only about a quarter of household income was derived from own-farm production. The remaining three-quarters came from other sources. This proportion contrasts with the “50:50 split between own-farm income and off-farm or nonfarm income” in Dedza District in the 2000/01 season, which was reported by Ellis et al. (2003, 1504). The low proportion of agricultural income found in this study may partly be explained by the crop failure in Horo and Mbila in 2004/05.

Table 14 also reveals the importance of non-farm income for the households that earned negative income from their agricultural production. In the case of two villages (Horo and Mbila) that experienced crop failure, net income from own-farm production became negative because of a sharp drop in the harvests of tobacco and maize. Consequently, households in the two villages derived most of their income from the non-farm activities of wage labor (both agricultural and nonagricultural), self-employment, and transfers.

Further investigation of income composition reveals sharp differences between villages on the one hand and tobacco-growing households and non-tobacco-growing households on the other (tables 11 and 14). In contrast to the households in two villages (Horo and Mbila) that experienced crop failure, households in Mulawa enjoyed much higher income from own-farm production. Overall, 66% of household income was derived from own-farm production in Mulawa, and the proportion was even higher (70%) among tobacco-growing households. The total income of tobacco-growing households was also higher than that of non-tobacco-growing households. The high proportion of income from own-farm production in Mulawa can be explained by two factors. The first is the relative remoteness of the village from town and thus the limited

opportunities for non-farm economic activities. The second is the widely practiced cultivation of dimba, which generated additional income for households. In contrast, among non-tobacco-growing households in Bongololo, 95% of income was derived from sources other than own-farm production, and their total income exceeded that of tobacco-growing households. The high proportion of non-farm income among households in Bongololo can be attributed to the availability of a wide variety of income-earning opportunities because of the proximity of the village to town. Thus, the income composition of rural households varies considerably from village to village and from household to household, depending on many factors such as weather conditions, proximity to town (and availability of non-farm income sources), and the types of economic activities engaged in by household members. An oversimplification of household income portfolios would conceal these important differences and the variations in rural livelihoods in Malawi.

6. TOBACCO MARKETING INSTITUTIONS AND SMALLHOLDERS

At the time of the survey, all tobacco produced by smallholders was to be sold at the four auction floors in Malawi.¹⁷ Farmers graded and baled their tobacco, and the bales were sent to the depots managed by the Tobacco Association of Malawi (TAMA) and the National Smallholder Farmers' Association of Malawi (NASFAM). The two associations then arranged transport to send the bales to the auction floors.¹⁸ The costs of the storage and transport of the bales to the auction floors were deducted when payments of tobacco were made. Various levies and fees were also deducted before farmers received payment for their tobacco.¹⁹ After sending their tobacco to the depots, farmers had to wait several weeks (sometimes months) for their payment.

In order to sell their tobacco at the auction floors, smallholder farmers needed to join tobacco clubs. Clubs were groups of tobacco producers with usually 10 to 20 members. Each club was registered at the auction floors, and the payment of tobacco was made to the club's bank account.²⁰ Club members prepared their own bales (with an identification number on each bale) and received payment according to the weight of and price offered for the bales. This meant that the minimum requirement for farmers to join clubs was the production of at least a bale of tobacco a year, a bale weighing about 80–100 kilograms. Most clubs also collected membership fees to cover miscellaneous expenses.

Tobacco clubs were also units of loan provision. Both governmental credit institutions such as the Malawi Rural Finance Company (MRFC) and commercial banks provided loans to clubs. Loans were used mainly to buy fertilizer at the beginning of the rainy season (October to December). Loan repayment was made when tobacco was sold at the auction floors by deducting the amount of loans, plus interest, before the payment for the sale of the tobacco was made to the club's bank account. This meant that club members could not receive payment for the sale of their tobacco until the repayment of the loan was complete. This often resulted in a further delay in receiving tobacco income.

These institutional arrangements provided smallholder tobacco farmers with both incentives and disincentives to form or join tobacco clubs. Two major incentives were the access that farmers got to loans and the ability to sell their tobacco on auction floors. Among the disincentives were the entry barrier of producing at least a bale of tobacco to join or form clubs; long waits for payment for tobacco; the cost of membership fees; and the deduction of levies and fees at the auction floors, which reduced the net income from tobacco. In addition, once a club was formed, existing club members tried to screen other farmers who wanted to join the club by selecting only those who were trustworthy and able to produce enough tobacco. Among those likely to be denied membership were newcomers to the village, farmers with very little land, farmers who had misbehaved in the past, and elderly or female farmers with less strength to work.

Besides the official tobacco marketing channel of auction sales through clubs, unofficial sales of tobacco to individuals were common and tolerated by authorities in many parts of Malawi. Several types of person bought tobacco from smallholders. One type was small-scale, private traders who bought tobacco from smallholders and resold them to others. Another was "farmers" who bought tobacco from smallholders or traders, graded and baled it themselves, and sold it on auction floors under their own names. In Horo, resident traders and farmers rode their bicycles to Mozambique to purchase tobacco and resold it at weekly markets in the village nearby. In Mulawa and Mbila, some farmers sold their tobacco to traders who were said to be coming from Zambia. In most of the sample villages, some smallholders were using these unofficial channels of tobacco marketing (table 15).

Table 15. Sales of tobacco to traders or individual farmers

	Horo N = 16	Bongololo N = 27	Mulawa N = 19	Mbila N = 16	Total N = 78
Number of cases	11	3	1	8	23
%	69%	11%	5%	50%	29%

SOURCE: Survey by author, May–September 2005.

In the past, these private traders have been the target of accusations in policy discussions about tobacco marketing. In fact, private traders (called “intermediate buyers”) had been allowed to buy tobacco as of 1994, but were banned from doing so in 2000. The main accusations that led to the ban on intermediate buyers were that they were exploiting smallholders by offering very low prices, and that their actions had caused the quality of tobacco in the country to deteriorate. However, as Koester et al. (2004) points out, these accusations have not always been based on evidence. Besides that, the private trading of tobacco contributes to the improvement of smallholder livelihoods in four important ways²¹:

1. Private traders provide a convenient (and often the only) sales channel for those producing a small amount of tobacco. As farmers need to produce at least a bale of tobacco to become a member of clubs, smaller producers have been practically excluded from the official marketing channel of auction sales. If private traders, who buy tobacco even in small quantities, were not available, farmers producing less than a bale would find no sales channel for their tobacco.
2. Private traders purchase tobacco with cash, providing liquidity to smallholders (Koester et al. 2004). Official sales channels through the auction floors make farmers wait several weeks or months until the farmers receive payment for their tobacco. Owing to this delay, some farmers, including tobacco-club members, opted to sell their tobacco to private traders, in order “not to waste time,” as one farmer in Mbila explained to this writer.
3. As discussed earlier, club membership is not always open to everybody, because of the screening practiced by the established members. If one cannot become a member of a club, private traders are the only sales channel available.

4. Tobacco trading itself is an important source of income for rural residents. As was discussed in the previous section, income from non-farm economic activities such as trading plays a vital role in improving rural livelihoods. This is particularly true in a year in which a crop failure occurs. In that case, most of the household income is derived from non-farm income sources. If one owns a simple means of transport such as a bicycle, there is no barrier to entry to tobacco trading. The opportunity for trading becomes even better in villages where tobacco is traded in weekly markets, as was the case in Horo.

When considering reform of the tobacco sector, these positive aspects of private trading need to be taken into consideration.

7. CONCLUSION

This study has analyzed the role of tobacco production in the overall livelihood strategies of smallholders in rural Malawi. It has revealed that tobacco production is a risky business for smallholders, because it entails potentially high returns but also a risk of large loss, especially in the case of crop failure, as occurred in the 2004/05 season.

Through the analysis of income portfolios, it has been found that non-farm income played important roles in rural livelihoods. Better-off households derived most of their income from non-farm sources, while those hit by unfavorable weather conditions compensated for their loss in agricultural income with non-farm income. On the other hand, the income composition of rural households varied considerably across villages and types of households, suggesting that oversimplification of income portfolios would conceal important differences and variations of rural livelihoods.

The study has also revealed that unofficial marketing channels of private tobacco trading were fairly widespread in many parts of Malawi. Private tobacco trading has positive effects on rural livelihoods by providing alternative sales channels to smaller producers and non-club members with instant cash, and by broadening the scope of income-earning opportunities of rural households.

A main policy implication drawn from this study to improve the rural livelihoods in Malawi is the importance of creating a facilitating environment that supports diversification of rural economic activities. The diversification can be promoted both in agricultural production (especially drought-resistant production systems such as dimba cultivation) and in

non-farm income earning activities (such as trading, including private tobacco trading). Improving rural road networks is also essential to support diversifying rural economic activities. On the other hand, care should be taken in the process of policy formulation to avoid imposing unnecessary market regulations and taxes that may discourage income generation and diversification of economic activities of rural households.

REFERENCES

- Ellis, F., Kutengule, M. and Nyasulu, A. 2003. "Livelihood and Rural Poverty Reduction in Malawi." *World Development* 31(9): 1495-1510.
- Government of Malawi. Various Issues. *Economic Report*. Lilongwe: Ministry of Economic Planning and Development.
- Harrigan, Jane. 2003. "U-Turns and Full Circles: Two Decades of Agricultural Reform in Malawi 1981-2000." *World Development* 31(5): 847-863.
- Jaffee, Steven. 2003. "Malawi's Tobacco Sector: Standing on One Strong Leg is Better Than on None." Washington, D. C.: The World Bank (Africa Region Working Paper No.55).
- Kadzandira, J. M., Phiri, H. M. and Zakeyo, B. 2004. "Malawi – Tobacco Sector Performance Audit: The Perceptions and Views of Smallholder Tobacco Farmers on the State of Play in the Tobacco Sector." Report Submitted to The World Bank Lilongwe Office, Malawi.
- Koester, U., Olney, G., Mataya, C., and Chidzanja, T. 2004. "Status and Prospects of Malawi's Tobacco Industry: A Value Chain Analysis." Report Prepared for The Emergency Drought Recovery Project, Ministry of Agriculture, Malawi.
- Maleta, Marc. 2004. "Malawi – Tobacco Sector Performance Audit: Review of the Performance of Sector Institutions." Report Prepared for The Emergency Drought Recovery Project, Ministry of Agriculture, Malawi.
- Mims, John and Mathieu, Laurence. 2002. "Malawi Selected Rural Livelihoods Data Tables." LADDER Working Paper No.27, Norwich: University of East Anglia.
- National Statistical Office. Various Issues. *Statistical Yearbook*. Zomba: Government Press.
- Orr, Alastair. 2000. "'Green Gold'?: Burley Tobacco, Smallholder

- Agriculture, and Poverty Alleviation in Malawi." *World Development* 28(2): 347-363.
- Orr, A. and Mwale, B. 2001. "Adapting to Adjustment: Smallholder Livelihood Strategies in Southern Malawi." *World Development* 29(8): 1325-1343.
- Peters, Pauline E. 1999. "Agricultural Commercialization, Rural Economy and Household Livelihoods, 1990-1997." Harvard Institute for International Development.
- Takane, Tsutomu. 2005. "Tobacco and Smallholders in Malawi: Village Case Studies in the Mchinji and Mangochi District," in T. Takane (ed.) *Agricultural and Rural Development in Malawi: Macro and Micro Perspectives*, Institute of Developing Economies (Africa Research Series No.11).
- Tsonga, Ernest W. 2004. "An Analysis of the Performance of Malawi's Tobacco Production and Exports." Report Prepared for The Emergency Drought Recovery Project, Ministry of Agriculture, Irrigation and Food Security, Malawi.
- Zeller, M., Diagne, A. and Mataya, C. 1998. "Market Access by Smallholder Farmers in Malawi: Implications for Technology Adoption, Agricultural Productivity and Crop Income." *Agricultural Economics* 19: 219-229.

ENDNOTES

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- ¹ The figures are five-year averages, calculated from the data in Malawi Government (various issues) *Economic Report* and National Statistical Office (various issues) *Statistical Yearbook*.
- ² Zeller et al. (1998), Peters (1999) and Orr (2000) are exceptions, though their analyses are based on data obtained in the mid-1990s.
- ³ An exception is Kadzandira et al. (2004).
- ⁴ It is noteworthy that out of 18 female headed households in Bongololo, 10 were engaged in the brewing and sale of beer.
- ⁵ *Dimba* refers to the gardens established in wetlands (called *dambo*) or in streambeds where water is available throughout the year. *Dimba* cultivation was also practiced in other villages studied, but on much smaller scales, both in number and acreage.
- ⁶ One household was not available for interview at the time of the survey.
- ⁷ Most interviews were conducted with household heads. When household heads were not available, or when the household heads were not the ones managing farms, other household members who were knowledgeable about farming and household economic activities were interviewed.
- ⁸ The major languages spoken in the villages were Chichewa in Horo and Mbila, and

Chitumbuka in Bongololo and Mulawa.

- ⁹ These data on production and price were obtained from the Tobacco Control Commission.
- ¹⁰ Among the 78 tobacco-growing households, 76% (59 households) allocated more land to maize than tobacco.
- ¹¹ The low level of education of household heads in Horo should not be attributed to the high proportion of female headed households. In fact, the average number of years of education of household head of FHH (4.8 years) in the village was higher than that of male headed households (3.4 years).
- ¹² Following Mims and Mathieu (2002), per capita income is defined here as net total household income divided by resident adult equivalent units (AEUs). AEUs are as follows: male 15 years or older = 1; female 15 years or older = 0.8; male or female 14 years or under = 0.5.
- ¹³ The result parallels the findings of Ellis et al. (2003) in Dedza District, although they found significant differences in livestock ownership across income groups.
- ¹⁴ It may seem paradoxical that the households in the lowest income quartile spent more on hired labor. This is because the money to hire labor was derived from the previous year's income. The normal rain in the 2003/04 season enabled most households to earn reasonable crop incomes to employ hired labor for the next season. However, in the 2004/05 season, some of them experienced the crop failure caused by dry spells and the resultant negative crop income, and thus falling into the category of lowest income quartile.
- ¹⁵ Depending on the quality of leaves, prices offered at the auction floors considerably varied, ranging from 50 to 150 cents per kilogram.
- ¹⁶ Not all tobacco-growing households, however, earned higher income. When we classify households into income quartiles according to household income per consumption unit, tobacco-growing households are distributed across all income quartiles.
- ¹⁷ Major auction floors are in Limbe (Southern Region), Lilongwe (Central Region) and Mzuzu (Northern Region). In 2005, an additional floor has been set up in Kasungu District (Central Region).
- ¹⁸ Farmers in Horo arranged transport themselves to send bales to the auction floor through tobacco clubs.
- ¹⁹ They include auction fees (2.5% of gross proceeds), TCC (Tobacco Control Commission) levy (0.45 cents per kilogram), Hessian levy (30 cents per bale), ARET (Agricultural Research and Extension Trust) levy (1% of gross proceeds), and TAMA/NASFAM fees.
- ²⁰ A few large-scale farmers individually registered at the auction floors and arranged transport themselves.
- ²¹ The followings are based on the information provided by farmers during the in-depth interviews and free discussions.