CASH INCOME GENERATION AND EXPENDITURE ALLOCATION CHARACTERISTICS IN SMALLHOLDER FARMING SYSTEM: CASE STUDY OF MUFINDI DISTRICT

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Abstract

A study to establish cash income generation and expenditure allocation characteristics in smallholder farming system was conducted in four purposefully sampled villages in Mufindi district - Iringa Region. The objectives of the study were (i) identification of cash income generation activities of smallholder farmers, (ii) categorise expenditure allocation in different household enterprises in sample villages and (iii) to establish the implication of income allocation priorities on household economy and environment. The results indicated that major sources of cash income for smallholder farmers were from; (i) non-farm activities such as sale of local beer and hand-craft activities, (ii) sales of crops, and (iii) sale of livestock. On expenditure allocation, the study shows that high proportion of income is allocated to family expenses such as. food purchase, education and health services. Proportionately little income was allocated to finance farm activities and negligible income for purchase of farm inputs like fertilisers and pesticides. Finally, the study conclude that, despite the importance of agriculture in smallholder farmer's economy, the current evidence indicates declining interest to invest income generated from agriculture and related activities into agricultural production.

1 Introduction

Smallholder farmers generate their income mainly by the sale of agricultural products (especially food crops) livestock and livestock by-products, non-agricultural activities (off-farm employment, hand-craft items, local brew, charcoal and petty trading, and remittance and gifts from their relatives and friends (Collier *et al.*, 1986; FAO/Kilimo, 1995, Hella, 1995). A study conducted by Oberoi and Singh (1980) in state of Punjab indicated that the remittance raised the average income of the households of out-migrants by 31% and the relative effect of remittances proved to be much greater on the poor households than better-off households. On the other hand migration of people from rural to urban areas affects the income of rural areas. Mishra (1982) found that absence of youth male from villages affects the entire mode of production, thus encouraging women to come forward and take charge for the whole system. Another study conducted in South Africa shows that, historically migrant labour from rural to urban, creates rural poverty and a high incidence of women headed household, thus agriculture production declining year to year (O'laugline, 1998). Various studies have established that large proportion of income generated is allocated to family expenses such as food, education and health services and that limited income was allocated to farm inputs.

A study conducted in Iringa rural and Njombe districts to establish expenditure allocation pattern revealed that, 89% of household's income is used to finance family expenses. Farm inputs and farm labour expenses accounted 11% of the total household income (Hella, 1995). Another study in the Southern Highlands of Tanzania (see Kilimo/FAO, 1995) reported that, household expenses accounted for 71.2% of the total family expenses, followed by labour (10%), farm cultivation (9.8%), the farm input was the least (8.7%). In Mgeta and Kilosa areas, Due *et al.,* (1981) and Die et al., (1983(found that family expenditure accounted for about 42% of the household income and farm inputs accounts for only 8% of the income. A similar expenditure pattern was found in Somalia where half of the household income was allocated to family expenses and no income was allocated in farm action (FAO, 1993).

Based on these studies, the expenditure patterns seem to vary from one location to another. Less is also known about the proportion of rural household budget allocated to farm inputs such as fertilizer, seeds and agro-chemicals. The objective of the study was to establish income generation and expenditure allocation characteristics in smallholder farming system in Mufindi district.

2 Methodology of the study

2.1 Study area

Mufindi district is one of the five districts in Iringa region. Other districts are Iringa rural, Ludewa, Njombe, and Makete. The district is located 34'30° - 36'00° longitudes east and 8'00° - 8'80° latitude south of the equator. It is estimated that about 90% of the population in the district depends on agriculture (FAO/UNDP, 1976). The district receives uni - modal rainfall falling between November/December to April/May. The average temperature is 23°C.

2.2 Data collection and analysis

Purposeful sampling approach was used to select villages based on the interest of the researcher from two strata categorised by accessibility by road. Four villages; Igeleke, Kibengu, Ihimbo and Ukami were selected. Igeleke and Kibegu are villages, which can easily be reached by road from Mafinga (District headquarters) while Ukami and Ihimbo villages can be reached but with difficulties. In each village, respondents were first grouped into three mutually exclusive strata, based on their level of income. Later, from each stratum, respondents were randomly selected. A sample of 167 respondent was thus drawn from the four villages. Distribution of sample farmers by village is presented in Table 1.

Table 1 Respondents in surveyed villages

Villages	Igeleke	Kibengu	Ihimbo	Ukami
Accessibility by road	Good	Good	Poor	Poor
Respondents No.	41	39	44	43

Source: Survey result 1997/98

A structured questionnaire was used to collect data about; village characteristics respondents characteristics, cash income from crop sale, cash income from livestock sale, cash income from non-agriculture activities, cash income allocated for household expenses (non agriculture), farm input purchases, labour expenses, and farm operation expenses. Descriptive statistics such as means, percentages were used to summarise the data.

3 Result and discussion

3.1 Household characteristics

Household characteristics considered in this study included level of education, age of respondents, size of the household and the status of household in the society. The average age of the household head was 44 years, with a range between 21 and 72 years. Education level of respondents varied considerably. The results revealed that, 15% of the respondents had no formal education, 9.98% had adult education, 1.79% completed secondary education and majority 73.63 % have primary education. Igeleke, Kibengu, Ihimbo, and Ukami villages had an average family size of 5.9, 5.35, 4.99, and 5.86 respectively. Overall average family size in the study area was 5.52 members with a range of 1-10 family members per household (Table 2).

3.2 Farm resource

Farm resources consist of labour, land, and capital items. Study results revealed that family labour is basic for farm operations in all four villages surveyed. All mature able-bodied household members work in the farm. Also school children assist some farm operations after school and during holidays. In both villages, women work more in farm than men. Activities like cultivation, planting, weeding, harvesting, are mostly done by women. Not surprising therefore to have high percentage of polygamous marriage (50%) in the study area.

Land was found to be valuable resource in all villages sampled. Each family had access to land for cultivation although many farms were allocated far from home. Land was acquired through inheritance, buying, or allocated by village government. The marginal land was used for bamboo plantation (*Mianzi*), which was found to be a major source of income to all respondents. In all villages surveyed, equipment such as hand hoe, axes, *panga*, and *nyengo* were main farm implements owned by the farmers. Other items owned but by few respondents include; bicycles, carts and very few owned ox-ploughs.

Table 2 Characteristic of households in Mufindi district by village

Characteristics	Igeleke	Kibengu	Ihimbo	Ukami	Average
Average Family Size	5.90	5.35	4.99	5.86	5.52
No Education by (%)	9.75	12.82	25.01	11.62	14.80
Adult education (%)	7.32	2.56	15.90	11.62	9.35
Primary Education (%)	80.98	82.05	56.81	76.74	74.14
Secondary Education (%)	2.44	2.56	2.27	0.00	1.82
Polygamous (%)	41.46	25,64	68.18	67.44	50.68
Monogamous (%)	46.34	69.23	27.27	23.25	41.53
Single (%)	12.19	5.12	4.54	9.30	7.79
Female household (%)	17.00	20.50	13.63	51.16	25.57
Male Household %	83.00	79.50	86.37	48.84	74.43

Source: Survey result 1997/98.

3.3 Farm activities

3.3.1 Crop production

The most important crops grown for both food and cash income were; maize, beans, peas, round potatoes, sweet potatoes, wheat, vegetables (cabbage, Chinese cabbage), and fruits (pears, peaches). Normally maize is inter-cropped with beans, round potatoes with peas, vegetable. Round potatoes and peas are normally grown during dry season on the valley bottom plots popularly known as *Vinyungu*.

All crops are produced under small scale and very small (sometimes without) external input usage. Farm operations like cultivation, planting and weeding are normally done manually by hand-hoe. Use of ox-plough for cultivation and organic fertilizer was limited to few farmers who are better off. No household was reported to use improved varieties, herbicides or tractor. This situation is reflected by low productivity for all crops. Comparing productivity across the surveyed villages, Igeleke and Kibengu recorded relatively higher yield on all crops than Ukami and Ihimbo. The difference is envisaged to be attributed by the fact that the former villages have better access to both input and output markets than the other two villages. Availability of market affects the production opportunities through input and output purchase and sale respectively.

3.3.2 Livestock production

Main livestock types kept are pigs, chickens, and guinea pigs. Ukami and Ihimbo villages were found to have high livestock population than Igeleke and Kibengu. Livestock management and productivity were poor in all surveyed villages. For instance, pigs and chickens were raised under free-range system fed extensively around the homestead. No improved livestock breeds were recorded in the sample villages.

3.3.3 Non-farm activities

Non-farm activities for income generation include; off-farm employment, local brew making, charcoal sale, pottery making, mats and basket making, tailoring, traditional healing and petty trading. Local brewing *(Ulansi and Komoni)* was reported by all respondent as the main non-farm activity during rain and dry season respectively.

3.4 Income Generation

Cash income in the study area was accrued from three main sources namely; crops, livestock and non-farm activities. Table 3 presents contribution of each source in surveyed village. The results indicate that, there is a slight variation between income from crop sale and livestock sale across villages. For instance while Igeleke and Kibengu recorded more than 35% income from crop sale, Ihimbo recorded less than 20%. Only Ihimbo and Ukami villages recorded relatively higher than average income from livestock sale. This variation can be explained to be associated with market availability, since Kibengu and Igeleke have relatively good access to Iringa and Mafinga markets than Ihimbo and Ukami.

Table 3 Cash income generation by village and enterprise.

	Percent cash income			
Village	Crop %	Livestock %	Non-farm %	Total
Igeleke	39.33	3.11	57.56	100
Kibengu	36.36	1.86	61.78	100
Ihimbo	18.08	14.50	67.42	100
Ukami	31.54	7.34	61.12	100
Average	31.33	6.70	61.97	100

Source: Survey result 1997/98

In all villages surveyed, non-agricultural activities contribute significantly (between 57.5 - 67.4%) to the total household cash income than any other source. There is no significant variability between sample villages with regard to contribution of non-farm activity to total household income. Respondents reported no income from remittance and gifts. This observation however does not rule out remittances as source of income to villagers in the study area.

3.5 Household expenditure pattern

Assuming there is no barter trade, income generated from sources discussed above is allocated to household expenses, farm expenses and some can be saved. In this paper, household expenses were divided into non-farm, farm operation, farm labour, and farm input expenses. Non-farm expenses include purchased food, fuel, education and health services and household items. The results revealed that, although non-farm expenses differ from family to family and from one village to another, general trend in all villages

indicated that non-farm expenses accounted for 70% of the total household expenses. Igeleke and Kibengu villages recorded household expenses above the average whereby Ihimbo and Ukami village recorded less than the average (Table 4). Relatively high living standards due to accessibility to goods and service markets in former than latter villages explain the reasons for the differences observed.

Table 4 Family expenses by village

Village	Household expenses	Farm Operation	Labour cost	Farm input
Igeleke	76.89	10.99	6.47	5.65
Kibengu	73.16	11.72	8.64	6.48
Ihimbo	65.47	14.83	8.00	11.70
Ukami	67.49	9.80	13.31	9.40
Average	70.70	11.80	9.20	8.30

Source: Survey result 1997/98

On the other hand, farm expenses are meant to finance farm operations (e.g. land cultivation, planting, weeding and harvesting), purchasing farm inputs (fertilizer, seeds, and agro-chemicals), and labour expenses (both hired and shared labour {*Mgowe*}). Total cash income invested in agriculture ranges between 23% and 29% of the total income generated by the household. Analysis by cost item indicated that high proportion of farm income was allocated for financing farm operations followed by labour cost. The lowest expenditure was on farm inputs (Table 4). Surprisingly, percentage of farm operations, labour and input expenses were slightly higher at Ihimbo and Ukami villages than at Igeleke and Kibengu. Accessibility by road to latter villages reflects the presence of both inputs and labour market at relatively cheap prices could be an economic reason for the differences.

3.6 Implication of income generation and allocation characteristics

The foregoing discussion lead to an interesting observation with regard to smallholder income generation and expenditure allocation characteristics. Two observations are made. First, investment pattern and proportion of household budget would, have reflected the fact that farming is a core activity that defines livelihood of all farmers in the study area. Negligible proportion of household cash income invested in agriculture explains our second observation in that, despite the importance of farming in the economy of smallholder farmers, it is not a potential source of income. The implication is that:

- smallholder farmers have a declining interest in farming. In case of any other option farming as an enterprise will be dropped at together,
- increased dependence on off-farm activities, of which, main raw materials are products of natural resources like trees, grasses and soil would eventually destroy biodiversity,
- Agricultural production continues to depend on natural soil fertility, which is also

declining. Lack of incentive to invest in agriculture lead farmers to adopt unsustainable production decisions like shifting cultivation, use of fire to produce ash as an alternative to organic and inorganic.

4 Conclusion and recommendations

By not allocating cash income to agriculture, small farmers are caught in the vicious circle of low productivity and in most cases at the expense of the environment that supply resource for production. However state of poverty among farmers leads to type of decisions that aim at meeting the needs of today without caring for future. This perception can only change if there is a deliberate effort to change farmers from subsistence producers to market producers. In order to achieve this the following recommendations are made:

- Strengthening rural input and output markets so that farmers can produce for the market
- Improvement of rural road networks so that produce in rural areas can easily reach urban consumers.

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