



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

SOURCES AND IMPLICATIONS OF RURAL HOUSEHOLD INCOME FOR IMPROVING RURAL ENTREPRENEURSHIP IN AFRICA: EMPIRICAL EVIDENCE FROM BOTSWANA

A Panin, M Mahabile, I Mphoh and U Batlang

Department of Agricultural Economics, Extension and Education, Botswana College of Agriculture, Gaborone

Abstract

In many African countries, a high proportion of the population resides in the rural areas and derives their incomes mainly from agriculture. This notwithstanding, there is a growing evidence that incomes from nonfarm employment sources are increasingly becoming important among the rural population. Using Botswana's rural household survey data, this paper examines the relative contributions and implications of agriculture and nonfarm employment to rural household incomes. Contrary to the popular held view that most rural households derive their income mainly from agriculture, the findings of this analysis clearly indicate that nonfarm employment is the dominant source of income in the study area. It accounted for 53% of the average total farm-household income of P4787 (1US\$ = P2.49). Remittances alone contributed a substantial share of 37% and constitute an important source of income for most households in the area. On average, 40% of each household's labour force were migrant workers. As regards employment in the area, agriculture employed more than 88% of the active labour force in the villages. The relatively low contribution (47%) from agriculture implies that the potential for savings, investment and development of entrepreneur skills among most people in the area is limited. This situation is likely to encourage rapid rural-urban migration of a considerable proportion of the youth in the area. It is suggested that development strategy of Botswana government should concentrate on sustainable agricultural growth and establishment of rural enterprises to increase both income and employment shares of agriculture and non-agricultural activities, respectively, as well as rural entrepreneurship

1. Introduction

Majority of African population are rural dwellers. Agriculture is their main economic activity from which they gain their livelihood through the combination of crop and livestock production. Nevertheless, there is a growing evidence that in recent years nonfarm employment is becoming increasingly an important source of rural household incomes. For example, Panin (1988) and Debrah and Sissoko (1990) estimated an income contribution of 14 and 9% from off-farm activities of farm family members to net total cash incomes of rural households in northern Ghana and semi-arid zone of Mali, respectively.

Two main factors may contribute to the increasing importance of incomes from nonfarm employment sources. First, agriculture in many parts of Afrika is experiencing a declining productivity. This poor performance invariably affects the net farm incomes of many households and thus, makes the opportunity cost of labour in nonfarm employment to be higher than returns to labour in agriculture. Subsequently, a substantial portion of the household labour force seek employment in non-agricultural sectors in urban areas and from their incomes remit cash to support the remaining household members. It is generally assumed that remittances are a part of an intertemporal, mutually beneficial arrangement between the migrant workers and those family members remaining at home. However, as pointed out by Hodinott (1992), even though, such contracts are voluntary in nature, their provision for mutual benefit makes them self-enforcing. Second, the seasonal nature of farming itself plays an important role. It allows farm family members to optimize their allocation of labour throughout the year by engaging in off-farm activities during the lean periods of agricultural production. Of course, the

availability of jobs is the primary determining factor in the amount of nonfarm employment.

The strategy of farm family members allocating part of their labour resource to nonfarm employment while continuing their farm production, an employment pattern known as *pluriactivity* is not unique to African farmers but also farmers in developed countries. According to several authors (i.e., Olfert, 1992; Fuller, 1990) nonfarm employment and its importance to family income is increasing in most developed countries.

While the importance of nonfarm employment to rural African households is recognized, from practical point of view, there exists little quantitative data on the magnitude and implications of its contributions to rural household incomes.

The purpose of this paper is to extend the existing literature by estimating and examining the implications of the relative income contributions of crops, livestock and nonfarm income sources to the rural populace in Africa. The analysis uses survey data on rural households in Botswana.

2. The study area and data used

The study area comprises four villages namely Bokaa, Modipane, Morwa and Oodi selected from Kgatleng district in Botswana. The district is located in the south-eastern part of the country and falls under the Gaborone regional extension area. The selected villages are within 20-40 km radius of Gaborone, the capital of Botswana.

Like the rest of the country, the rainfall of the study area is varied in its distribution with annual mean ranging from 400-500 mm. The vegetation of the area is tree savanna. The economy of the area is mainly based on

subsistence farming activities. Most of the residents in the area are engaged in agriculture. Draught animal power is the main farming technology of the smallholders. However, the use of tractor for ploughing is becoming a common practice.

The major crops of the area are sorghum, maize, beans and millet. These are commonly grown in mixtures of two or three crops. Sorghum, in terms of acreage and utilization is the most important single crop. A distinctive characteristic of crop production in the area likewise the rest of the country is low productivity which over the past two decades has led to rapid declining domestic production and increasing dependency on food imports. Livestock rearing constitutes an integral part of the farming systems in the study area. Beef production is the most important livestock activity with respect to income and labour employment.

Data for this analysis are drawn from 1991 and '92 surveys of 90 randomly selected smallholder farming households in the study area. Information on personal and socioeconomic characteristics of the household members, various aspects of their farming systems, off-farm activities, earnings, employment and remittances of members living elsewhere was collected.

3. Results and discussion

3.1 Demographic and socioeconomic characteristics of sample households

Table 1 presents some important demographic and socioeconomic characteristics of the sample households. These characteristics provide a brief descriptive view of the households studied. They also throw light on such vital factors as labour capacity, literacy rate of household members and dependants which to some extent serve as determining factors for nonfarm employment.

As revealed by the demographic characteristics, household sizes in the area were large with an average of 7 persons. Moreover, the households were dominated by males, headed by very elderly people and had more uneducated members as reflected in the literacy rate (48%). The literacy rate was defined as proportion of household members who had completed at least six years of formal education. Another remarkable feature depicted by the household characteristics is the dominance of males as heads of household. Of the total sample of 90 households, 64 were headed by males compared with 26 by females. However, a considerable number of male heads of households was engaged in nonfarm activities in urban areas.

Also, on average, there were more adults (both males and females of 16 years of age or more) in each household than children. Nevertheless, the estimated share of potential labour force amounted to 56% of total household members, suggesting a possible high dependant: worker ratio in the area. For this analysis, the potential labour force, thus the pool from which individuals may seek to participate in the labour market, is considered to be all those between the ages of 16 and 65 years excluding those attending school.

Cattle herd size varied greatly among the sample households. It ranged from 0 to 67 with an average of 11 units per household. It was found out in the analysis that slightly more than 40% of the sample households did not own any cow or an ox. These results confirm those observed by the ministry of agriculture (MoA, 1991). Since draft animal power, mainly the use of oxen, is the traditional farming technology, the disparity in the cattle

ownership is likely to have an adverse impact on crop production in the area. Average cultivated acreage per household amounted to 6 ha. This, however, varied between 2 to 14 ha.

3.2 Distribution of the potential labour force by migrant and non-migrant workers

Table 2 contains information on the distribution of the households' potential labour force size by migrant and non migrant workers as well as the relative distribution of the non-migrant workers by employment. For the purpose of this study, migrant workers are referred to as those household members belonging to the potential labour force who have migrated to other places outside the study area and are either seeking or engaged in nonfarm employment. The non-migrants include the rest of the potential labour force size residing in the study area. Nonfarm employment was defined to include off-farm employment by the non-migrant workers, nonfarm self-employment by any member of the households and employment by family members in other than an agricultural occupation.

As can be seen in Table 2, a substantial proportion (40%) of the average household's labour force fall under the category of migrant workers. Majority of these people were found to occupy mostly non-highly skilled jobs such as cleaners, messengers, drivers and security guards in private companies and government ministries largely because of their little educational background.

Of the remaining 60% - the non-migrants, more than 88% were engaged in agriculture. This emphasizes the importance of agriculture as the main source of employment in the rural areas. As the data show, non farm employment does not play any significant role in the study area. It accounted for slightly more than 3% of the total non-migrant working force.

Surprisingly, the remaining 7% were found to be unemployed. One would have expected that in rural areas, especially, places where arable land is not a limiting factor of production and can easily be acquired by the residents, there would not be an unemployment problem. Almost all the unemployed people refused to give reasons as to why they, at least, did not engage themselves in farming.

3.3 Farm household income and relative contributions of income sources

A statement of annual income for sampled farm households and information on relative contributions of various sources of income are presented in Table 3. Net household income is defined as the sum of incomes from crop production, livestock raising, other agricultural related activities and nonfarm employment.

The average net household income which varied greatly among the households amounted to P4787.00. While agriculture is by far the highest source of employment in the study area, it contributed less than 50% of the household income. A breakdown of its total contribution reveals livestock activity as the dominant source of income in the agricultural sector. It contributed 43% to the total household income compared with a meagre amount of about 2% from crop production. As shown in the table, with a share of 53%, non-farm employment emerged as the most important source of farm household income in the area. When this is disaggregated, it is evident that remittances from other family members constitute the largest proportion. Alone, they accounted for 37% of the total household income.

Table 1: Average farm household characteristics of sample, Kgatleng District, Botswana, 1991/92

Characteristic	Average Number
Sample size	90
Household size	7.01 [2.77]
Potential labour force ¹	4.78 [2.40]
Active farm workers ²	2.43 [1.32]
Female headed households	26.00
Male headed households	64.00
Age of household head	60.14 [13.54]
Literacy rate ³ of household members (%)	47.68 [25.34]
Household composition (%) by:	
Sex	
male	51.64 [17.39]
female	48.36 [17.39]
Age	
children (<16 yrs)	20.39 [22.20]
adult (>16 yrs)	79.61 [22.20]
Cattle herd size	11.42 [10.21]
Area cultivated (ha)	6.19 [2.80]

1 Includes all household members between the ages of 16 and 65 years excluding those attending school.

2 Adult household members except those in school who are engaged in the farm work.

3 Defined as proportion of household members who had completed at least six years of formal education. Standard deviation in [parentheses].

Table 2: Distribution of potential labour force by migrant and non-migrant workers and employment type

Item	Average number per household
Total potential labour force size ¹	4.78 [2.42]
Proportion (%) of potential labour force size classified as:	
migrant workers	40.17 [28.45]
non-migrant workers	60.08 [27.43]
% of non-migrant workers engaged in:	
agriculture	88.35 [14.41]
nonfarm employment	4.43 [6.91]
unemployment	7.22 [13.11]

1 Includes all household members between the ages of 16 and 65 years excluding those attending school. Standard deviation in [parentheses].

In a separate descriptive analysis, it was found out that slightly more than 82% of total sample households received remittances during the survey period, making it a common source of income for the people in the area. This high proportion of remittance recipients indicates that African migrant workers do have mutual financial contracts with the rest of the family members to fulfil be it voluntary or obligatory.

Income from off-farm activities of the farm workers represented a share of 16% of the total household income. This exceeds that of crop production by far. However, this mode of income was not popular among the households. On average, only 29% of households in the area derived income from such sources. The low level of participation by farm workers in off-farm activities is largely a function of availability of such job opportunities in the rural areas.

Table 3: Farm household annual income and relative contributions by employment, 1991-92, Kgatleng district, Botswana (n=90)

Source of income	Value (Pula) ²	Percentage contribution
1. Agriculture		
Total gross revenue from crops	552.72 [545.85]	
(Production costs) ¹	-462.92 [341.85]	
Net crop production income (A)	89.80 [542.48]	1.88
Total gross revenue from livestock and products	2170.10 [2916.20]	
(Production costs)	-105.30 [36.85]	
Net livestock income (B)	2064.80 [2766.83]	43.14
Agricultural related activities (C)	93.89 [538.83]	1.96
Net farm income (A+B+C)	2248.49 [2923.07]	46.99
2. Nonfarm employment		
Net income from off-farm work	772.92 [1560.90]	16.15
Net remittances	1764.80 [2115.87]	36.87
Total net nonfarm income (D)	2537.72 [2499.23]	53.02
3. Total net household income (A+B+C+D)	4786.21 [3986.30]	100.00
Net income per active farm worker from:		
Crop production revenue	36.91	
Livestock production	848.66	
Farm income	924.16	
Household income	1967.20	

1 Includes both variable and fixed costs.

2 Pula, Botswana currency (1US\$ = P2.49). Standard deviation in [parentheses].

It is interesting to note the income contribution of agriculture, particularly that of crop production, to household income. On the basis of income per farm worker, the value of crop production and that of agriculture on the whole amounted to P37.00 and P924, respectively. By any measure these respective incomes are very low and suggest a high degree of poverty in the area especially for a considerable proportion of households without livestock. This implies that the potential for savings, investment and development of entrepreneurial skills among most people in the area is limited. This situation is likely to encourage rapid rural-urban migration of a substantial proportion of the youth in the area.

4. Conclusions

This paper has examined the respective contributions and implications of sources rural household income using Botswana rural household survey. Contrary to the popular held view that most rural households derive their income mainly from agriculture, the findings of this analysis clearly indicate that nonfarm employment, particularly remittances, is the dominant source of income in the study area. Nevertheless, agriculture is still the main source of employment for most residents in the area. The relatively low contribution from agriculture implies that most households in the area will either remain in chronic poverty or loose their youths through migration to other places to seek for non farm employment if adequate measures are not taken to help them. Hence, It is suggested that the development strategy of the Botswana government should concentrate on sustainable agricultural growth and establishment of rural

enterprises to increase both income and employment shares of agriculture and non-agricultural activities, respectively.

References

- DEBRAH, S. AND K. SISSOKO. (1990). Sources and transfers of cash income in the rural economy: The case of smallholder mixed farmers in the semi-arid zone of Mali. ALPAN Network Paper No 25. International Livestock Centre for Africa (ILCA), Addis Ababa, Ethiopia.
- FULLER, M A. (1990). From part-time farming to pluriactivity: A decade of change in rural Europe. *Journal of Rural Studies*, Vol 6:361-373.
- HODDINOTT, J. (1992). Modelling remittance flows in Kenya. *Journal of African Economies*, Vol 1, No 2:206-232.
- OLFERT, M R. (1992). Nonfarm employment as a response to underemployment in agriculture. *Canadian Journal of Agricultural Economics*, Vol 40:443-458.
- MoA. (1991). Botswana's agricultural policy: Critical sectoral issues and future strategy for development. Ministry of Agriculture, Gabarone, Botswana.
- PANIN, A. (1988). Hoe and bullock farming systems in northern Ghana: A comparative socioeconomic analysis. TRIOPS Verlag, Langen, Germany.