

# **Inequality and the Emergence of Non-farm Employment in Rwanda**

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## **Introduction**

Off-farm employment has long been seen by farm residents as a way to bridge the income gap among them that arises from stagnating farm production and growing population pressure. In Rwanda, where population density in certain regions approaches 400 persons per km<sup>2</sup>, subdivision and further fragmentation of land has led many households to supplement their incomes through employment in the non-farm sector of the rural economy. Government awareness of the need to stimulate non-farm employment opportunities for the rural poor has grown recently, as demonstrated by a well-known presidential address on this question (Rwanda, 1986), and the official declaration of the year 1988 as the "Year of Raising Farm Incomes." Hope abounds for converting such slogans into reality. Promotion of small enterprises, cooperatives, new sources of credit, and employment training are among the alternatives under study (Rwanda, 1988).

Yet beyond its contribution to the overall growth of farm residents' incomes, expansion of the non-farm sector can alleviate income inequalities in the agricultural sector that result from an unequal distribution of landholdings. To the extent that poor farm households with little access to land can obtain the training, capital and credit to facilitate their participation in the non-farm sector, their relative economic position will likewise be enhanced. Similarly, albeit indirectly, households that continue to rely on agricultural wage labor as their primary source of income also benefit from an expanding non-farm sector, as the creation of employment alternatives shrinks the size of the agricultural labor pool and drives up the prevailing agricultural wage rates.

This paper examines the structure of income inequality among farm households in Rwanda. Specifically, it focuses on inequalities rooted in the distribution of land holdings and on the attendant polarization of relatively large landholders who tend to hire agricultural wage labor, on the one hand, and near-landless householders who provide this wage labor, on the other. Of particular concern is the role of emergent non-farm employment opportunities in this process and the implications for achieving less divergent income inequalities in the future.

Ecological theory contends that populations will respond in several ways to the pressure of population growth. One is to look outward in search of additional resources -- territorial expansion (McKenzie, 1933; Hawley 1950). In Rwanda, this phenomenon occurred for many years, and in the 1960s and 1970s it culminated in a massive resettlement (*paysannat*) program which displaced over 80,000 farmers and their families into previously unoccupied areas (Rwanda, 1985). Though some spontaneous movement of households toward Kibungo continued into the early 1980s (Olson, 1989), the late 1970s signalled the conclusion of this period of territorial expansion.

A second demographic response is for farm couples to have fewer children, and thereby to reduce the number of mouths to feed, as well as the number of claimants to the family holdings in successive generations (Bilsborrow, 1987; Duncan, 1959). This alternative is the only long-term solution, but there are many reasons why it will not come about easily or quickly: i) in Rwanda, large families are traditionally awarded great prestige by virtue of their size; ii) children eventually provide their parents with labor, either on or off the farm; iii) Rwanda's strong kinship system assures parents of support in their old age, and this safety net is strengthened with each additional child (Vander Haar and Clay, 1989).

A third response to demographic pressure on land resources is the development of more a differentiated and specialized system of exploiting these resources (Gibbs and Martin, 1959), or in short, a more complex division of labor (Durkheim, 1933). Occupational differentiation can raise both the efficiency and the quality of production and thereby enable a fixed resource base to sustain a larger population.

The third response constitutes the focal point of this paper. It is argued here that the emergence of non-farm employment in Rwanda represents a restructuring of the traditional, undifferentiated agricultural order. It occurs spontaneously as young farmers, aware that their very survival depends their ability to draw a livelihood outside of, or in addition to, that which they squeeze from the small and fragmented landholdings they inherit from their fathers, begin to experiment with alternative employment strategies.

In agrarian society, one of the earlier forms of occupational differentiation is the simultaneous emergence of farm "managers," or agricultural "entrepreneurs" and agricultural wage laborers. Many, beginning with the classical theorists, have observed that the bifurcation of these two groups is invariably linked to differences in landholdings (Marx, 1967). Those with holdings insufficient for their families' subsistence needs are pressured to seek gainful employment off the family farm. In turn, those possessing excess holdings can put this surplus labor to work for a set wage. Where initially these two groups are unified as peasant farmers concerned with producing for their own subsistence, resource scarcities force their separation. The "farm manager," or entrepreneur orients toward production for a surplus and enters a competitive market where this surplus is exchanged for profit (Mendras, 1970:146). The agricultural laborer also loses his/her identity as a peasant farmer and competes in a market for the sale of his/her

labor. Conversion of surplus production into increased landholdings and/or higher levels of technology differentiates the two groups further; to the extent that their holdings and occupational roles persist across generations, this process leads to the formation of two identifiable social classes.

Though differentiation in the agricultural sector tends to be closely tied to landholdings, differentiation in the rural non-farm sector can occur independently of the distribution of landholdings, and benefit even those whose on-farm production capabilities are limited. By creating employment opportunities for the poor and near-landless segments of agrarian society, growth of the rural non-farm sector can effectively begin to alleviate some of the inequalities inherent in the agricultural sector.

### **Socio-cultural Context**

Rwanda is a geographically small, landlocked country in the highlands of East Africa (see Figure 1). To the west, Rwanda is flanked by Lake Kivu and a volcanic mountain range which occupies much of its border with Zaire. Uganda, Tanzania and Burundi also share borders with Rwanda. With an average altitude of roughly five thousand feet, a temperate climate prevails year-round, and is marked by two rainy periods and their associated agricultural seasons.

Over 93% of Rwanda's rapidly growing population (3.7% per year) live in rural areas and virtually all of these rural households are engaged in agriculture. As households operate an average of only 1.2 hectares of land, farm production in Rwanda tends to be oriented toward subsistence. Beans and sorghum are the principal staple crops, while sweet potatoes, manioc and peas also comprise much of the diet. Nearly all households grow bananas both for home

consumption and, more commonly, for beer-making. Coffee and tea are Rwanda's most important sources of foreign exchange. The agricultural system is labor intensive and relies on small hand implements (hoes and machetes) for most tasks.

Historical ethnic divisions initially placed land ownership in the hands of the Tutsi, cattle-herders from the north, who for centuries maintained a feudal system in which agricultural labor was provided by Hutu tenants. This system was left largely intact during periods of German and Belgian colonial rule, but at the time of independence in the early 1960s, internal social revolution successfully dismantled the traditional feudal structure and created a more equitable system of independent peasant landholders.

## **Data and Method**

Data analyzed in this paper were obtained through a nationwide random sample of 1,019 farm households in Rwanda as part of the 1988 Non-farm Strategies Survey. Survey questionnaires were administered over a three-month period beginning in July, 1988, to various members of sampled households, including husbands, wives and adult children. An experienced team of Rwanda's Agricultural Surveys and Statistics Service (SESA) field staff supervisors was engaged to carry out the interviews.

The questionnaires were designed to obtain information from various members of the households, including husbands, wives and adult children. Topics addressed in the questionnaires included: demographic characteristics of all household members and migrant children; non-farm and off-farm employment; permanent and temporary migration patterns of selected household members; fertility/family size behaviors, plans and preferences of all adult household members;

economic support networks between the household and members of the extended family living elsewhere; sources of household income; physical characteristics of the farm and residence; hired farm labor; and the plans, aspirations and opinions of parents and adult children regarding non-farm training and employment and the future for young people in farming. In all, interviews averaged approximately one and a half hours to administer and usually required multiple visits to meet up with the various respondents from each household. Adult children were the most difficult of all to locate, though through multiple call-backs the interviewers did succeed in interviewing a large number of these young people.

An unusual yet important feature of this study is that the households selected for study are part of a longitudinal study under way since 1986. Consequently, the great volume of information already collected on these households, in areas such as farm size and fragmentation, crop and livestock production, and market transactions, can be drawn upon to enhance this analyses of non-farm strategies. Since 1986, a small number of households in the initial sample have moved away or have been otherwise dropped from SESA's current sample. The total number of households on which data are available at all points in time is 1019; these are the households for which data are presented in the following section.

Non-farm employment refers to the total number of days that adult members of the farm households worked in non-agricultural activities, either on the farm or off the farm, over the course of the preceding 12 months. Off-farm employment is the number of days worked off the farm, in agricultural as well as non-agricultural activities. In most cases non-farm and off-farm work was done by the male head of household and/or his spouse, and on occasion by another member of the household. Whenever possible, this employment information was obtained

directly from those engaged in such activities. To avoid potential problems due to unreliable recall over a 12-month reference period, respondents were asked about their employment only over the previous 3 months. Previous research has shown that non-farm and off-farm employment varies little in Rwanda from one quarter of the year to the next (Rwanda, 1986). Employment estimates were annualized by enlarging the 3-month reported figures by a factor of four.

Household income was operationalized as a composite, summated measure of all major forms of income received plus the value of agricultural production generated by the household over the preceding 12 months. Included in this measure were: income received from the sale of labor, livestock and banana beer (the major source of cash income for 40% of all farm households), plus the market value of all crop production. Average incomes were consistent with those estimated using detailed income data collected under the 1983 Rwanda Household Budget and Consumption Survey (Rwanda, 1988).

Farm size was measured as the total amount of land operated by the household irrespective of ownership. Parcels rented in are included, as are parcel operated under special agreements (often at no cost) with local authorities, kin or other owners. Though rental agreements have become increasingly common in Rwanda, the vast majority of parcels is farmed directly by owners. Thus, differences between land owned and land operated are on average very small.



## Findings

### *Patterns of Off-farm Employment*

Approximately half (47%) of farm households in Rwanda engage in some form of off-farm employment, and since our survey reference period includes only the three months preceding the date of the interview, it is very likely that this figure underestimates the true proportion. When the members of farm households do seek employment off the family farm it is most commonly as agricultural wage laborers (31%) on the farms of their neighbors (Table 1). The remaining 69% of their time off-farm is spent in the rural non-farm sector, notably as artisans, laborers or in commerce -- generally in small businesses. Over five percent of off-farm employment is held by government functionaries.

[see Table 1]

Those engaged in agricultural wage labor are most often hired to clear and till the soil or to weed and otherwise maintain fields of crops. Only 6.2% of all hired agricultural labor is used at the time of harvest. The three most important crops for which labor is hired are beans, sorghum and sweet potatoes. Time spent off the farm in artisanal activities is heaviest in the construction industry. Brick and tile makers, masons and carpenters account for over half of all artisanal employment. Basket weaving, tailoring and art/embroidery, all industries in which women are heavily involved, comprise another 37% of the artisanal subsector.

The number of days per year that households are employed off the farm in various types of activities is presented by farm size category in Table 2. The estimated average number of days

worked off-farm by Rwandan households is 78, or slightly under a third of a person-year.<sup>1</sup> As described above, agricultural wage labor, artisanal trades and commerce constitute the largest portion of this time. Households in the smallest farm size category appear to be the most likely of all to seek employment off the farm. This finding is consistent with our initial hypothesis that households experiencing the greatest resource constraints (insufficient landholdings) would be more actively engaged in off-farm employment.

The only farm households to depart from this otherwise very supportive pattern of findings are those in the largest farm size category (2.0 Ha and above), where work off the farm is a relatively high 77 days per year. These large farms tend also to support relatively large number of adults, and the more adult workers there are in a household, the greater the chance that one or more of these workers will be "freed up" to work off the farm (Clay et al., 1989). Once the number of adult workers in the household is controlled, the level of off-farm employment found among members of these households drops off radically.

[see Table 2]

The type of off-farm employment households engage in is also connected to the size of their holdings. Households with small landholdings tend to work off their farms as agricultural wage laborers, while those with larger holdings are more likely to hold jobs as functionaries and in commerce, though differences in the latter are not statistically significant. Employment in the artisanal trades seem to bear little connection to farm size. In summarizing the pattern of findings

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<sup>1</sup> Estimate based on 250 work days per year.

reported in Table 2, one can conclude, at least tentatively, that those from large farms tend to occupy those jobs that require higher levels of schooling and working capital, while those from households with small holdings make up the bulk of the agricultural wage labor pool.

### *Off-farm Employment and Characteristics of Individuals*

To learn more about how and why certain households look to off-farm employment in an effort to generate income, we examine some of the characteristics of the individuals who comprise these households and who engage in off-farm employment. When households do seek employment off the farm, either in the non-farm sector or in the agricultural labor market, 77.5% of the time they are represented by only one person. Less frequently, a second household member (15.9%), or even three or more (6.6%) can be so employed.

Table 3 reports that heads of households work off the farm far more often than do other household members, as they account for over 55% of all off-farm employment in Rwanda. Adult children still living in the household are next at 34.3%, followed by spouses at 7%. Consistent with these results is the finding that nearly 80% of all off-farm employment is held by men. Because traditional Rwandan society places a heavy burden on women to labor both in the fields and in the home, few women are encouraged to seek specialized vocational training. The areas where women make the largest contribution off their own farms are as agricultural wage laborers, basket weavers and seamstresses -- all jobs that have great flexibility as to either when or where they are performed, thereby permitting coordination between on- and off-farm responsibilities.

[see Table 3]

Age also appears to be an important determinant of off-farm employment. Roughly 60% of this labor market is controlled by workers in their 20s and 30s. Those in the 20-29 age bracket invest a greater share of their time off-farm than any other group, averaging 140 days per year. There are several good reasons for why this age group stands out in its provision of off-farm labor. The first is that these young people are still experimenting a great deal with alternative career strategies and, because they have fewer dependents (or may still be living on their parents' farms), stability of employment is less crucial. Second, parents of these young people are in their 40s and 50s and are not yet ready to pass on more than fragments of their land holdings to their children. Third, many of these young farmers are aware that they will never inherit enough land to meet the subsistence needs of their families and believe they must make a niche for themselves elsewhere. Fourth, the level of schooling and specialized vocational skills obtained by this group exceeds that of their elders, allowing them to compete for those jobs in the non-farm sector requiring higher levels of training.

Table 3 highlights the importance of educational attainment to securing off-farm employment, as nearly a third of all such employment is held by the 17.4% of individuals who have managed to complete primary school. Those who comprise this "elite" group work off-farm an average of 177 days out of an estimated annual 250 work days, or 71% of their time. By comparison, individuals with no formal schooling at all work off their farms only 42% of the time. Globally, those who work off-farm do so 124 days per year on average, or "half time."

#### *Multivariate analysis of Agricultural Wage Labor and Non-farm Employment*

In previous sections, bivariate relationships were examined between characteristics of households and individuals on the one hand, and off-farm employment on the other. Table 4 reports the findings of a multivariate analysis that discerns the relative importance of these individual and household factors in explaining variations in non-farm employment and the sale and purchase of agricultural wage labor. The

strongest predictor of households' participation in the rural non-farm sector is the number of adult male workers in the household ( $\beta=.26$ ). In part, this is because a large number of workers can easily exceed the labor requirement of the farm. Rather than under-employing these hands within the household, they are encouraged to seek alternative employment opportunities off the farm. A complementary interpretation is that members of larger households tend to operate relatively large and prosperous farms, and to achieve higher levels of formal education, giving them a competitive edge in the non-farm sector. By contrast, however, an increased number of female workers does not translate into increased non-farm employment. This finding reflects the fact that women generally lack the training necessary for non-farm employment and, concomitantly, because they are assigned so many other household responsibilities such as caring for young children and preparing meals, their absence from the household tends to disrupt established patterns of daily life (and male domination) far more than does the absence of male workers.

[see Table 4]

Education of the head of household similarly has a positive effect on household employment. As suggested earlier, this is largely a reflection of the fact that non-farm employment so often requires higher levels of formal schooling. This is true for the independent trades and small businesses, as well as for those who are salaried by local enterprises or the government.

The zero-order correlation between farm size and non-farm employment ( $r=.04$ ) is slightly positive in direction but not statistically significant. However, once other variables in the model are held constant, the hypothesized negative correlation between farm size and off-farm employment emerges ( $\beta=-.11$ ). In other words, large farms tend to have many adult workers and their heads of households tend to have achieved relatively high levels of schooling, two characteristics that have also been shown to lead to non-

farm employment. Consequently, these two factors suppress the true inverse relationship between farm size and days of non-farm employment.

Households whose members seek employment as farm laborers are not, generally speaking, the same households as those whose members find employment in the non-farm sector ( $\beta = -.12$ ). Despite the tendency to work in either one or the other sector, these two groups of households have two things in common -- they both tend to have relatively small landholdings and a large number of adult male workers. Again, this finding supports the notion that off-farm employment serves as an important strategy for households suffering from an over supply of labor relative to landholdings.

The third set of regression coefficients in Table 4 pertain to the amount of farm labor that households hire in. It is no surprise to find that, unlike households that engage in large amounts of off-farm labor, households that hire in labor tend to operate larger farms ( $\beta = .19$ ). Perhaps most revealing of all is the finding that households that hire the most agricultural labor also tend to work in the non-farm sector ( $\beta = .17$ ), notably in commerce, in various trades, and as functionaries. The higher education levels attained by these farmers permits them to participate in the higher end of the non-farm employment market, and pay minimum wage rates to those who work their holdings.

### *Focus on High Income Households*

To explore further the notion that farm size, education level, non-farm employment and the employment of agricultural wage laborers are four variables that tend to mutually reinforce one another in the process of income generation, and implicitly, of social class formation, we have isolated the 51 (5%) highest income households in our sample. These households generate an average income of 253,000

Rwandan francs (Frw)<sup>2</sup> per year, approximately 3.6 times the average for all households outside of this high income group.

As expected, we find that many of the heads of these 51 households have achieved relatively high levels of formal schooling. More than a third have completed primary school, and many of these have gone on to even higher levels. Due in large measure to the high educational attainment these farmers, and other members of their households, their participation in the non-farm sector is exceptionally high. Over two-thirds of these households generate non-farm income from one source or another, and of these, 77% are employed as functionaries or small businessmen (the upper echelons of the non-farm sector).

Though these high-income households are heavily engaged in the non-farm sector, they also operate (manage) some of the largest farms in our broader study sample. A full third of these households operate holdings of 3 hectares or more, and the average for this group of 51 households is 2.6 hectares. Generally speaking, these should not be considered subsistence-oriented farms. Rather, they are market-oriented and make heavy use of hired farm labor. Of the 51 farms, 37 (73%) employ labor from outside of the household, and four of these employ the equivalent of three or more full-time workers.

This brief analysis of high-income households highlights the combined importance of education and landholdings as the basis for income generation in Rwanda. By applying these human and land resources to an increasingly differentiated occupational structure, these households can draw from both the high end of the non-farm sector and from a growing pool of agricultural wage labor, to further expand their income-generating capabilities.

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<sup>2</sup> 75 Frw = \$1.00 US

### *Non-farm Labor and Inequality*

The polarization of farms in Rwanda in terms of their ability to generate income can be seen in Table 5 which shows the proportion of farms in various income categories and the proportion of total income (column 3) they generate. While the households in the highest income class comprise only 15% of the population, they command nearly 35% of the country's total rural income. This concentration of wealth is represented in a Gini coefficient of .34, which is comparable to many other African countries even further along in the process of rural class formation.

[see Table 5]

For purposes of the present analysis, however, our interest is more to assess the extent to which off-farm employment helps reduce income inequality. Where column 3 of Table 5 presents the distribution of total household income in Rwanda, columns 4 and 5 break out this total into sub-categories -- "agricultural" and "non-agricultural" income. Agricultural income is the value of all crop production, livestock and beer sales (banana and sorghum), as well as wages earned in the agricultural sector (agricultural wage labor). As described earlier, off-farm income is exclusively that earned from employment in the non-farm sector.

The Gini coefficients reported in Table 5, indicate that non-agricultural income is more concentrated in the hands of high income households (Gini=.50) than is agricultural income (Gini=.31). Where the wealthiest 15% of households control 33% of income derived from farm production and wage labor, they control nearly 50% of non-farm income. Not only do these findings seem to contradict our initial expectations that non-farm income would help equilibrate inequalities in the agricultural sector, but they suggest that income received from non-farm employment may even compound differentials in agricultural income. Though we observed earlier in our multivariate analysis of employment patterns that



the number of days worked in the non-farm sector was inversely related ( $\beta = -.12$ ) to days worked in agricultural wage labor (an important component of agricultural income), we did not look at the relationship between incomes generated from these two sources. Looking now at this correlation we find that households generating large agricultural incomes also tend to generate higher incomes in the non-farm sector ( $r = .08$ , significant at .01 level).

[see Table 6]

Since farm size is highly correlated with total household income ( $r = .46$ ) one might suppose that the same pattern of income distribution would hold true for farm-size categories as for income groups. Table 6 tells us that while total household income is, indeed, concentrated on the larger farms (Gini = .19), the distribution of non-farm income is considerably more equitable (Gini = .08) than is agricultural income (Gini = .21), contrary to the pattern of findings in the previous table. These findings suggest that non-farm employment can, in fact, help narrow the income gap between large and small farmers. But because a small group of large farmers tend to have higher levels of training, hold higher paying jobs in the non-farm sector, and treat their farms as business enterprises, their incomes from this combination of sources tends to be disproportionately high. Thus, when comparing income classes (as opposed to a farm size classes) the effect of non-farm employment is to create even greater disparities in total income.

## Conclusions

The inheritance and accumulation of landholdings explain much, but not all of the income inequalities observed among farm households in Rwanda. For those households whose holdings do not permit an escape from poverty, their labor endowment may -- not through agricultural wage labor, but through employment in the non-farm sector. Households that have managed to secure both land resources

and the skills necessary to participate in the non-farm sector are in an exceptional position to generate higher incomes and to accumulate wealth. Households of this type also tend to use their resources to their fullest advantage; by working off the farm themselves and hiring large amounts of farm labor, they maximize income from farm production.

At the other extreme, are the near-landless farm householders with little formal education and no training for alternative employment. Though not the largest identifiable group, farmers with less than 0.5 hectares of land, no schooling and no non-farm income are numerous, accounting for 26% of Rwanda's rural population. Providing for these households, which, underemployed on their own farms, have begun to rely on the meager wages they earn as day laborers, will require heavy investment in the rural non-farm sector, particularly in the development of small and micro enterprises. Creating a policy environment that encourages the growth of small enterprises and that carefully targets direct assistance programs designed to improve the access of small producers to information, to inputs, and to management and technical skills (Mead and Liedholm, 1989), will undoubtedly foster growth in the non-farm sector. Yet since off-farm income currently accounts for only 12.7% of total income in Rwanda, its effect on reducing inequality at this stage is minor.

In the interim, young men and women in Rwanda are saying that they wish to follow in the path of their parents and become farmers themselves; yet 85% of these young people, and the majority of their parents, believe that they will not inherit enough land for the subsistence needs of their families (Clay et al., 1989). Among the 85% of young men in Rwanda who believe they will not inherit enough land to meet their families' needs, nearly a quarter expect to have no other options than to make future careers as agricultural laborers; others expect to migrate in search of employment; none believes that the strategy of saving their earnings in order to purchase additional land holds any promise for the future. Those who expect to acquire the skills necessary to participate in the non-farm sector are few. Though most parents

have an opinion about how their children should plan for the future, an surprising 26% indicate that their children will have to make do on their own.

In the light of these findings, one must conclude that the premiere challenge facing parents, communities and government officials today will be to overcome inequalities rooted in the distribution of landholdings by providing the nation's less endowed young men and women with the skills, access to credit, guidance and employment opportunities necessary to build a future beyond the encroaching hedgerows of their family inheritance.

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Table 1. Percentage of Days Worked Off-farm by Type of Employment

<u>Type of Employment</u>	<u>% of Days</u>
Agricultural labor	30.8
Artisanal	18.9
Non-ag labor	12.8
Commerce	16.4
Functionaries	5.6
Other salaried	12.3
Other	3.1
Total	100.0
(N=)	(464)

Table 2. Days Worked Off-farm by Type of Employment and Farm Size

Farm Size (ha)	Type of Employment								Total
	N	Agri- cult.	Arti- sanal	Unskld Labor	Comm- erce	Funct.	sal.	Other	
<0.5	253	31.2	16.8	10.4	10.8	4.0	20.4	3.2	96.8
0.5 - 1.0	325	30.8	14.8	9.6	8.8	0.4	7.6	3.6	76.0
1.0 - 2.0	261	15.6	14.4	10.0	16.4	1.6	5.6	0.2	63.6
2.0 +	180	12.8	14.0	10.0	16.4	17.2	4.8	1.2	76.8
Total	1,019	24.0	14.8	10.0	12.8	4.4	9.6	2.4	78.0
Sig		.003	.093	.996	.325	.001	.056	.317	.050

Table 3. Percent of Off-farm Employment and Mean Days Worked per Year by Characteristics of Individuals (Population = all Individuals Who Work Off-farm).

Selected Characteristics	% of Off-farm Employment	Mean Days Worked Per Year	Distribution of Population Age 10+ Years
<i>Relation to head of household:</i>			
Head	55.7	134	20.0
Spouse	7.0	78	14.8
Child	34.3	124	60.6
Other	3.0	66	4.6
Total	100.0%	124	100.0%
<i>Sex:</i>			
Male	79.3	140	47.0
Female	20.7	85	53.0
Total	100.0%	124	100.0%
<i>Age:</i>			
10 - 19	13.5	111	29.9
20 - 29	31.2	140	25.2
30 - 39	30.3	118	22.1
40+	25.0	120	22.8
Total	100.0%	124	100.0%
<i>Education level:</i>			
None	35.6	106	41.8
Some primary	33.2	111	40.8
Primary +	31.2	177	17.4
Total	100.0%	124	100.0
(N=)	(667)	(667)	(5,084)



Table 4. Multiple Regression Analysis of Days Worked Off-farm by Household Members in the Non-agricultural Sector and in the Agricultural Sector, and Days of Wage Labor Hired by Households (N= 1,019).

	<u>Days non-ag</u> <u>employment</u>		<u>Days ag labor</u> <u>worked</u>		<u>Days ag labor</u> <u>hired</u>	
<u>Explanatory variables</u>	<u>beta</u>	<u>(r)</u>	<u>beta</u>	<u>(r)</u>	<u>beta</u>	<u>(r)</u>
Days non-ag employment	--	--	-.12*	-.07*	.17*	.19*
Days Ag labor worked	-.12*	-.07*	--	--	-.02	-.07
Days ag wage labor hired	.17*	.19*	-.02	-.07	--	--
Farm size	-.11*	.04	-.15*	-.10*	.19*	.20*
Male workers in hshld	.26*	.25*	.21*	.15*	-.07	.03
Female workers in hshld	.03	.07	.05	.06	-.01	.03
Educ of head of hshld	.12*	.17*	-.01	-.02	.16*	.19*
Age of Head of hshld	-.01	-.05	-.06	-.08*	.05	.03
Multiple R <sup>2</sup>	.12		.06		.10	

\* Significant = <.01

Table 5. Percent of Households, Total Income, On-farm and Off-farm by Income Group (N= 1,019).

Income group (in FRW)	% of Households	% of Total Income	% of Agric. Income	Non-agri. Income
Less than 33,000	15.2	4.5	4.9	1.3
33,001 - 50,000	18.6	9.5	10.4	3.9
50,001 - 70,000	19.5	14.7	15.0	12.6
70,001 - 90,000	15.6	15.4	15.6	13.8
90,001 - 125,000	15.9	21.0	21.3	19.1
125,000 and above	15.2	34.9	32.8	49.2
Total	100.0%	100.0%	100.0%	100.0%
(Gini coeff=)		(.34)	(.31)	(.50)

Table 6. Percent of Households, Total Income, On-farm and Off-farm by Farm Size Group (N= 1,019).

Farm size (in Ha)	% of Households	% of Total Income	% of Agric. Income	% of Non-agri. Income
< .25	6.7	3.6	2.9	8.6
.25 - .50	19.1	12.0	10.8	19.8
.50 - 1.0	32.0	27.5	28.3	21.1
1.0 - 2.0	24.4	28.7	30.0	21.1
2.0 - 3.0	11.1	16.4	16.4	16.2
> 3.0	6.7	11.8	11.6	13.2
Total	100.0%	100.0%	100.0%	100.0%
(Gini coeff=)		(.19)	(.21)	(.08)