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By

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ABSTRACT

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By

Jean Kayitsinga

The objective of this study is to examine 1) the structuring of farm youths' livelihood strategies in Rwanda; 2) the internal characteristics of the parental agrifamily household, characteristics of the young people themselves, as well as the way the agrifamily household is situated in the broader sociocultural environment; 3) the impact of socioeconomic factors on farm youths' livelihood strategies. Based on data derived from a survey of 1,019 households in Rwanda, it was found that 92 percent of the young people, even though they have declared that they would like to remain in farming as their parents have done, and most of their parents, are aware that they will not inherit enough land for the subsistence of their future families. Findings shows that young people envisage different livelihood strategies to sustain their future families. Some envisage having a farm career; some a non-farm career; some envisage limiting the number of children in their future families. Farm youths' livelihood strategies are differentiated by individual characteristics (gender, age, and education), by social class origin, and by parental advice to their children.

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This thesis is dedicated with honor, respect, and affection to my parents and to my wife, Gaudence Kayitesirwa, for offering me love and support to accomplish this study.

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CHAPTER I

INTRODUCTION

Livelihood or survival strategies are expressed as diverse conditions and organizational relations which allow human beings to survive in various social contexts and groups (Mingione, 1991). Farm youth livelihood strategies, in this study, represent responses of rural adult children (16 years old and over who are still living with their parents) to social and economic pressures surrounding the parental farm and family households.

In this study, the focus is on individual behavior because it is important in understanding why young people envisage particular livelihood strategies. Although the focus is on individual strategies, such strategies must be considered within the context of the particular social group to which young people belong. Therefore, individual characteristics of rural youth, parental household's internal characteristics, as well as the external environment in which the parental household unit is located are examined.

Farm youth livelihood strategies are conditioned by the actual constraints of the agricultural sector, by population pressure in particular, and by alternative opportunities presented by Rwandan society. About 94.5 percent of all of Rwanda's population live in rural areas and base their livelihood on farming (Rwanda, 1991). Rwanda is experiencing extreme population pressure. Population density is among the highest in Africa, with about 271 inhabitants per square kilometer. The population growth rate of 3.7% annually (Rwanda, 1991) is very rapid, and there is

limited available land, with an average of 4.77 persons in each household (Rwanda, 1991) operating an average farm consisting of less than one hectare of arable land (DSA, 1991).

The Rwandan population is very young. Half of the population is under the age of 20. Most young people still live with their families on the small subsistence farms operated by their parents. For others, land scarcity, coupled with rapid population growth, has brought about an exodus as young people leave the family farm in search of land or alternative employment opportunities in both the farm and non-farm sectors. Although young people in Rwanda declare that they would like to remain in farming as their parents have done, 92 percent of them, and most of their parents, are aware that they will not inherit enough land for the survival of their future families (Clay et al.., 1989).

Despite the gravity of current circumstances surrounding households, alternative chances for young people are little known and there has been little research on rural youth issues in Rwanda. Research on the livelihood strategies of young men and women in Rwanda is crucial to both national and local development efforts, and has serious implications for the country's changing agricultural structure.

What do young people think about the current land scarcity and other constraints confronting their parental households, and what are their strategies for their own future families? This study will contribute to current efforts to understand the potential for human capital development, and explore its relationship to the farm enterprise and characteristics of the family household.

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A. Statement of the problem

A strategy or a plan to attain aspired goals of occupational status tends to increase the probability of attaining that status. Even though occupational plans are just one indicator of an individual's future occupational attainment, the two are often highly correlated (Kuvlesky, 1967). My aim in this study is 1) to examine the structuring of farm youths' livelihood strategies in Rwanda; 2) to describe internal characteristics of the parental agrifamily household, characteristics of the young people themselves, as well as the way the agrifamily household is situated in the broader sociocultural environment; 3) to assess the association of socioeconomic factors with farm youths' livelihood strategies.

The problems of farm youth raise important questions. As the land becomes scarcer, farm youths will not inherit enough land for the subsistence of their future families. The questions being addressed to male farm youths in this study are: "*a) Will you stay in farming? b) Do you think you will inherit or receive enough land to support your future family? c) If not, do you think you will be able to purchase land? d) If you will not get enough land (by inheritance, purchase, or gift), what do you envisage doing to support your future household?*" Young women are asked: "a) *Do you think there is enough arable land to meet the needs of families? b) If not, what do you envisage for young households without sufficient land to satisfy their subsistence needs?* Their responses show that they have livelihood strategies for their future families. Two general research problems are addressed. First, what are the individual,

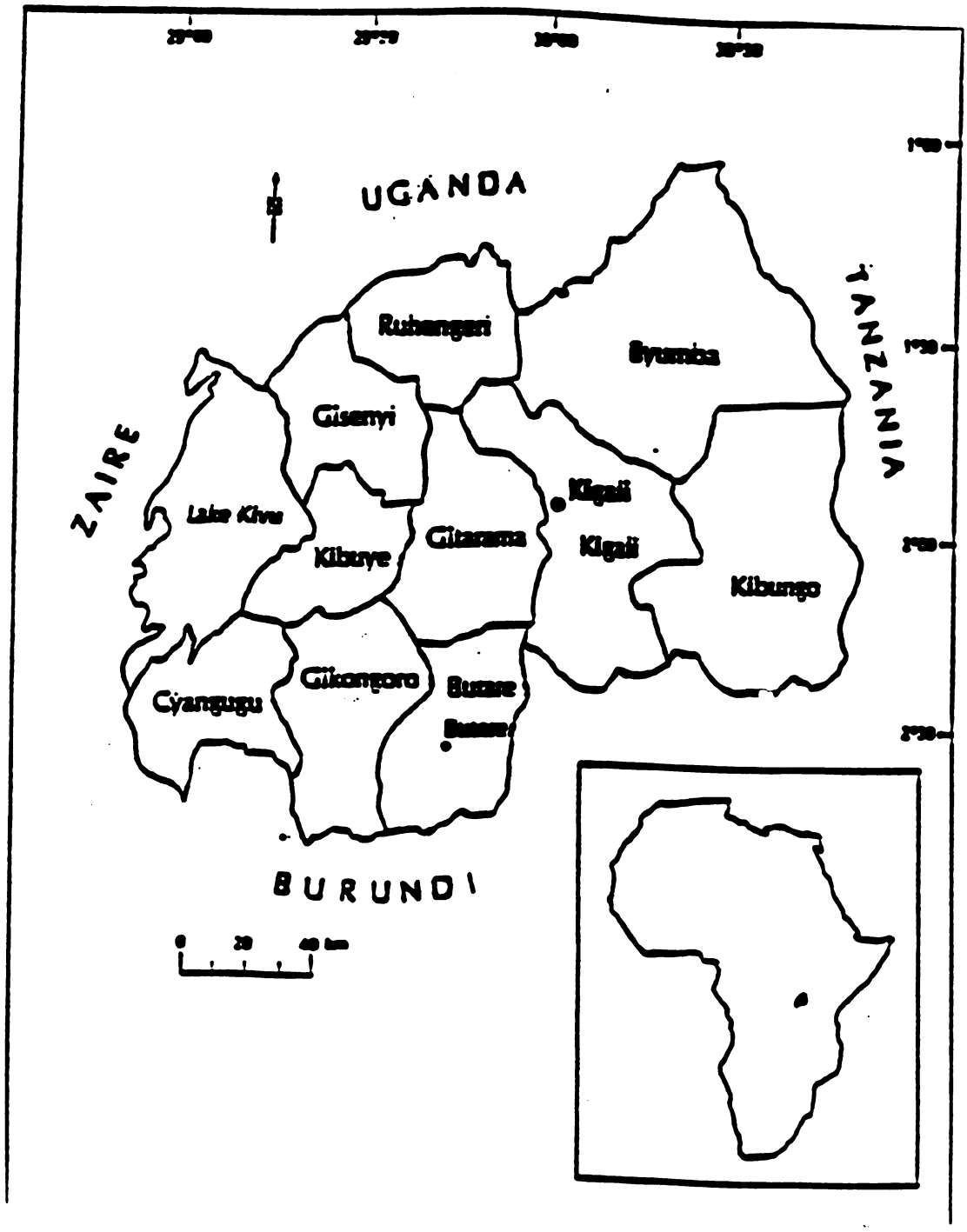

FIGURE 1. THE REPUBLIC OF RWANDA.

grifamily, and social characteristics of young people with different livelihood strategies? Second, what factors influence the formation of farm youths' livelihood strategies?

B. Background of Rwanda

The republic of Rwanda is a small, landlocked country of 26,338 square kilometers (10,169 square miles). Rwanda is located in the central part of East Africa, surrounded by Uganda to the North, Burundi to the South, Tanzania to the East and Zaire to the West.

a. Population

Rwanda is overpopulated; there are approximately 7,155,391 people as of 1991. The average size per household is estimated at 4.74 persons for the country as a whole, and at 4.77 persons in rural households. Population density is estimated at 271 inhabitants per square kilometer (Rwanda, 1991). The annual growth rate is estimated at 3.7 percent. The total fertility rate (TFR) is estimated at 8.6 live births per woman, on average, by age 49 (May, 1988). The sex-ratio is estimated at 95.2 males per 100 females.

b. Agriculture

Unlike many densely populated countries elsewhere, the Rwandan population is essentially rural, with 94.5 percent of people basing their

livelihood on farming. Households operate small landholding averaging .98 hectares of land (DSA, 1991). The total amount of cultivated land is estimated at 1,170,863 hectares (DSA, 1991). The agricultural system is labor intensive and relies on small hand implements (hoes and machetes) for most tasks. Farm production is primarily oriented toward subsistence. Beans, sorghum, and bananas are the principal staple crops, while sweet potatoes, cassava, peas and maize also comprise much of the diet. Most crops are grown on a scale that is too small to play any great part in the country's economy. Amongst the crops, bananas are cultivated by almost all farmers. Approximately 26.5 percent of cultivated land is devoted to this crop, and 68.3 percent of the production is converted into banana beer, "urwagwa," as it is known, for local consumption (DSA, 1991). Despite the past importance of cattle raising in Rwanda, farmers have reduced their grazing land in order to plant more crops. Herd animals are reared by traditional methods. The herds totalled 788,588 head of cattle, 1,976,542 goats, 725,480 sheep, and 280,528 pigs in 1991 (DSA, 1991).

Coffee and tea are among the most important sources of foreign exchange. Coffee represents the main export crop, bringing in 81 percent of export revenue in 1988. However, coffee production in 1989 declined 28.3 percent compared to 1988 (BNR, 1989). The causes of this decline include the unfavorable climatic conditions in certain regions of the country, the late utilization of adequate insecticides, and probably its overall economic rationality for farmers. Not only has the quantity of Rwandan coffee dropped, but so has the coffee quality. Moreover, like other exporters of raw materials, the Rwandan economy has suffered from the recent drop in international market prices. By 1989 the sales from

coffee exports had fallen to 56 percent of export revenue (BNR, 1989). The second-largest export crop is tea, which provided 13.6 percent of Rwanda's export revenue in 1988 and 19.1 percent of its export revenue in 1989 (BNR, 1989). Less important industrial crops are pyrethrum and quinquina. The first is used in insecticides, while quinquina is known for its aromatic properties and is used in spirits. It is also used by chemists for making the quinine used in the drugs to fight malaria.

Farmers in Rwanda rely on the agricultural sector to not only produce enough to feed themselves, but to feed the urban population as well. As the proportion of the urban population to the total population increases (Olson, 1990), the productivity of farmers must, therefore, also rise, otherwise growth would eventually come to an end. There is no doubt that continued population growth in Rwanda is rapidly pushing people out onto the country's decreasing supply of available arable land. The real issue, however, is not whether the country is running out of surplus arable land but whether yields on existing arable land can be raised fast enough to meet the needs of an increasing population. Recently, Rwandese have begun to look toward the non-agricultural sector. Half of the households surveyed in the study of Non-farm Strategies in Rwanda have searched for off-farm employment (Clay, Kayitsinga, and Kampayana, 1989).

c. Economy.

Prior to 1980, Rwanda enjoyed a growing economy and healthy financial status. Since then the situation has changed dramatically. In 1989, the economy was characterized by a continuously declining

production. GNP declined a substantial 6.4 percent, implying a decline in per capita income of 10.1 percent (BNR, 1989). Among the factors that have contributed to that decline are: the decline in the production of practically all crops due, generally, to the effects of climatic fluctuations and declining soil fertility; the decrease in production of the industrial and service sectors of the economy; and a deterioration in exchange terms ---especially the fall in the price of tea and coffee. In 1989, the international agreement on the price of coffee was not renewed.

Rwanda has been obliged to become increasingly indebted; the national debt has increased by 18.8 percent (4,569 million Rwandan francs) since 1988. Foreign debt has declined by a slight 2.4 percent, particularly because of non-reimbursement of Belgium (100 million FB) and France (449.2 million FF) (BNR, 1989). Moreover, in order to finance considerable balance of payment deficits, the Rwandan government has been obliged to dip even deeper into its currency reserves.

The quality and availability of Rwanda's sub-soil products are mixed and little known. Deposits of cassiterite, from which tin is extracted, are declining, while deposits of beryl and gold are very small. However, there is a quantity of methane gas in the waters of Lake Kivu.

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CHAPTER II

AN INTEGRATIVE THEORETICAL FRAMEWORK

In this chapter, I will formulate an integrative theoretical framework to explain the formation of farm youths' livelihood strategies. First, I will introduce the concept of social reproduction and apply it to Rwanda in order to explain farm youths' livelihood strategies. Second, I will briefly examine the socialization of adult children in preparing them for the future. Then, I will address the agrifamily household as an analytical unit appropriate for the study of farm youths' livelihood strategies in Rwanda. Finally, I will discuss the relationship between some independent variables and farm youths' livelihood strategies, and present associated hypotheses.

1. The Concept of Social Reproduction and Livelihood Strategies

The concept of social reproduction is used in its broader sense in feminist and neo-Marxist theories to refer to the process of reconstituting the social relations of human society necessary for all social and economic activities. It covers all activities necessary to sustain the household and economy, including childbearing, child-rearing, housework, household consumption, and a variety of other non-economic conditions (Tickamyer,1991). Social reproduction includes various organizational relations that permit members of the households to survive in the environment. It comprises strategies adopted by farm youth to sustain their future families in response to conditions and constraints

surrounding the parental households.

Using this socioecological perspective, I assume that: 1) internal activities and resources controlled by members of the agrifamily households are crucial factors for comprehending the diverse household conditions that permit members of households to adopt any survival strategy; 2) the way the agrifamily household is situated in the broader sociocultural environment affects the strategies its members can and do adopt. Thus, farm youths' livelihood strategies rely on pre-existing, socio-historical conditions and, to a certain extent, on the availability of different options for the unit of reproduction (Mingione, 1991) ---in the case of Rwanda, the agrifamily household as embedded in various community networks.

Rural populations change in size, age, and composition as they migrate and engage in different occupational and professional activities. Poverty persists in many rural regions of Rwanda, and persistent recessions of rural economies create questions about the extent to which any of the foregoing trends and problems of rural households can respond to local efforts at change and control. All those conditions that affect the ability of households to use their labor resources, either family non-paid or paid, to survive, to engage in the tasks of physical and social reproduction, and to improve the quality of life, shape the livelihood strategies of the members of Rwandan households.

1. Marx's use of the concept of social reproduction

Marx links reproduction and the capital cycle in a simple, measurable relationship between wage-labor and monetary consumption. He uses the term reproduction in reference to the case of labor power. He argues, in his concept of exploitation, that labor power is the only commodity whose price, fixed within the commodity price system as studied by classical economists, expresses an exchange value that is much lower than the total value it creates during the labor process (Mingione, 1991). The price of commodity labor power, that is its wage, is fixed by market competition through fluctuations in supply and demand. In order to continue to supply their labor power, workers must be able to survive, generate children, and raise them as the next generation of laborers. In supplying their labor power, workers must have no viable alternatives for survival other than the sale of all or part of their labor power. Moreover, Marx presents historical evidence to support that: 1) In order to survive, increasing sections of the population are left without alternatives to selling their labor, and; 2) in the cycle of capital, there exists the means for keeping the level of demand for labor under flexible control, through mechanization and through increases in labor productivity and the means of generating a recurrent surplus in the supply of labor (Mingione, 1991).

The social reproduction patterns of the labor force and of the total population constitute a crucial element in the cycle of capital. The patterns of survival of human beings, their marriage and procreative strategies are, at best, subject to only partial and indirect control by

capital through monetary wages, commodified consumption, and indirectly, through state intervention in the areas of education and health (Mingione, 1991). The interaction between the wage system and patterns of the monetary system is not the only source of survival. Marx suggests a more complex interpretation of social reproduction, which has been ignored in subsequent Marxist studies, useful for analyzing the meaning of survival strategies (Mingione, 1991 :130):

> 1. The persistence and innovative character of forms of self-provisioning understood in a broad sense to include both domestic work and all activities involving self-consumption whether traditional or modern, which means bringing in the debate on the significance of mixed figures such us worker-peasants;
>
> 2. The possibility that the survival of cohabitation is based on the common benefit derived from combining several incomes (income-pooling);
>
> 3. The survival strategies of self-employed, as well as of all the conditions for reproduction permitted by social relations foreign to wage-labor, and also more generally the variable links that are forged between family enterprises, different contexts not based on wage-labor and capitalist concerns in diverse social systems and historical periods.

2. Application of the Concept of Social Reproduction to Rwanda

Applied to the case of Rwanda, the majority of rural people, if not all, practice a subsistence agriculture for self-consumption. They are, in most cases, classified as self-employed on their farms, and have a relatively low monetary income due to an unequal exchange between the amount of work performed and the income received. Members of households --- parents, children, relatives of the parents, and other non-related members, especially children and women --- engage in domestic chores and

in farm activities. Most of those activities are oriented toward self-consumption. Members of households adopt various survival strategies which are, in most cases, foreign to the wage-labor system.

Despite individual differences, certain production techniques are characteristic of subsistence farmers. In general, the basic goal of the subsistence producer is to ensure his family's survival through provision of at least a minimum food supply. Given the frequent danger to crops from bad weather, the primary objective of the subsistence farmer is to minimize the risk of failure, rather than to achieve the maximum level of production and income. The self-sufficiency of each household through diversity, rather than concentration on the range of crops best suited to the prevailing soil and climatic conditions, is stressed. The need for an increased crop production is normally achieved by expanding the area under cultivation rather than by attempting to increase the productivity of the acreage already cultivated.

Technological limitations, rigid social institutions, and fragmented markets and communication networks between rural areas and urban centers tend to discourage higher levels of production. Throughout much of Rwanda, agriculture is still in its subsistence stage. In spite of the relative backwardness of production technologies, the fact remains that, given the static nature of the peasants' environment, the uncertainties that surround them, the need to meet minimum survival levels of output, and the rigid social institutions into which they are locked, most peasants behave in an economically rational manner when confronted with alternative opportunities (Gatete, 1991).

Subsistence agriculture is a highly risky and uncertain venture. In regions where farms are extremely small and cultivation is dependent on the uncertainties of a highly variable rainfall (like that of Rwanda), average output will be low, and in poor years the farmer and his family will be exposed to the very real danger of starvation. In such circumstances, the main motivating force in the farmers' lives is the maximization of their family's chances of survival. Furthermore, farmers' monetary needs increase so much that several incomes need to be combined in order to satisfy their consumption needs. This is why half of the households in rural Rwanda seek off-farm employment to increase their household farm income (Clay, Kayitsinga, and Kampayana, 1989).

The structure of farming and land tenure in Rwanda is influenced by its traditional inheritance system, which reinforces the fragmentation of landholding and which leads to progressively worsening conditions of household well-being for families as the number of their children increases. Traditionally, each son receives a parcel of land from his parents at the time of marriage, and he and his wife settle near the parental homestead in order to support the parents in their old age. Families are obliged to seek additional monetary income, which remains at a low level due to the increased number of agricultural workers competing for relatively few jobs. In order to cope with the progressively decreasing household production, families need to combine a large number of individual off-farm wages, which are very low.

The combination of low farm income and the increasing number of low returns in non-farm occupations is increasingly drawing social classes into reproduction patterns largely, but not exclusively, characterized by

the relation between wage-work and monetary consumption. Social reproduction patterns in Rwanda, as in many developing countries, are characterized by the combination of subsistence agriculture of self-employed farmers, low monetary income from the sale of agricultural products, and diverse types of wage and non-wage work.

In many studies, social reproduction has been considered to have secondary status outside the formative realm of economic production. An understanding of the complex interrelations between changing patterns of social organization deriving from the sphere of reproduction and those deriving from the sphere of production is very important to the study of livelihood strategies.

B. Socialization

Examining and understanding what is involved in socialization for careers/jobs ---preparing farm youth for an uncertain future--- is the key point in examining and understanding the livelihood strategies of young people. When a child is very young, the primary function of the family is to teach him or her existing societal values and to provide emotional support and nurturing. When the child is an adolescent or young adult, however, the family may serve as a source of social activities and of economic resources, such as helping to pay for the child's education or assisting the child in establishing his or her own family (Belsky et al.., 1984; Caldwell, 1982).

Socialization is the process of becoming an adult in which individuals acquire the knowledge, skills, and dispositions that enable

them to participate as more or less effective members of social groups and society (Hamilton, 1988). In this definition of socialization, the terms "knowledge" and "skills" show that one aspect of socialization is to learn in order to be able to participate in a family, community, and society. Children begin learning at home, where they receive parental education. They learn more at school. They also receive vocational training in non-traditional professions like carpentry, masonry, mechanical jobs or crafts. Young people also learn in a group, like cooperatives or scouts, where they share ideas with their peers, and they learn at work, where they gain hands-on experience.

As young people become adults, they develop their own identities --- a separate sense of self. The search for identity arises as a consequence of the combined influence of the changes the adolescent undergoes and, in turn, the resolution of one's identity is a means of reconciling problems created by the combination of these changes (Belsky et al.., 1984). The development of identity for a young adult establishes separation of self from parents, but breaking long-held family ties is not easy.

Young adults simultaneously live with both parents and peer groups, and both influence young adults' behavior and socialization. While young people seek advice and consider the opinions of parents, sometimes young people disagree with their parents' opinions. It depends upon the issue. If it is advice concerning the future, young adults are more parent- than peer- oriented. But if the issue is whether to be a member of a club or cooperative, they tend to be more peer- than parent-oriented (Belsky et al.., 1984). Young adults may show strong agreement with parental advice about livelihood strategies, but may moderate their parents' ideas on

those strategies.

Parents' personal and interpersonal characteristics may be transmitted to their offspring, as well as their conscious and unconscious desires for their children's futures; in the context of the family milieu, the parents help to foster identity development.

C. The Agrifamily Household Framework to Study Farm Youths' Livelihood Strategies

Farm youths' livelihood strategies are individual responses, which implies that the statistical unit of analysis is the individual. However, the household level of analysis is considered for analytical purposes. The household was defined as a physical unit of analysis, and also as an entity that encompasses all social relations among its members, constituting the center for many household decisions oriented toward a better standard of living. The household is seen as a context within which individual strategies are formed. The household is considered, then, as a set of changing social relations that establish mutual obligation; basically, a reciprocal form of social organization aimed at helping its members to survive (Davidson, 1991). Survival here is meant not just in a broad sense, as an end, but also includes strategies for promoting social mobility, both within the same generation and from one generation to the next. Though farm youths' livelihood strategies are individual answers, their formation results from a combination of household characteristics, household members' characteristics, and the household's relation to its environment.

The most generic model of any socio-cultural phenomenon is the meaningful interaction of two or more individuals, which implies that the ultimate unit of analysis is the specific social relations and not the individual, as such (Davidson, 1991). Although households can manage collective action and members can work together to achieve a certain goal, the behavior of the household as a group entity is shaped by many factors.

The household approach does not deny, however, the existence of internal differentiation of interests or of conflict between individual strategies. Individuals in a household express different livelihood strategies because they are differentiated on the basis of demographic characteristics, employment status, and other attributes. Similarly, they have a broad range of needs, goals, and interests, which influence their livelihood strategies.

In Rwanda, as in other traditional agrarian societies, the household is the locus of both economic production and consumption activities. Household subsistence demands that these activities be unified, and that what is produced by household members be sufficient for their survival needs, that is, for sustenance and the provision of necessary amenities. The coordination of those activities and the investment of labor by all and for all extends beyond the resource-pooling and labor allocation for the household (Clay and Schwarzweller, 1991).

This analysis of farm youths' livelihood strategies combines both the intra-household differentiation between its members and the inter-household differentiation. The focus is on how most farm youths' livelihood strategies are formed. In other words, which factors (individual or household characteristics) influence the formation of farm

youths' livelihood strategies. In order to understand why farm youths come to be associated with particular livelihood strategies, the agrifamily household is used as a unit of social reproduction, and its internal characteristics need to be examined and classified according to individual or household characteristics, in conjunction with external pressures brought to bear upon this unit. Moreover, the way agrifamily households are distributed according to the class, location, gender, kinship, and age relations, helps understand various types of livelihood strategies. These individual and household characteristics provide the basis, or normative framework, that is crucial to the formation of livelihood strategies, and, in effect, determine their subsequent range of possibilities (Davidson, 1991).

A specification of the agrifamily household framework to explain farm youths' strategies in Rwanda borrows from a notion developed by Bokemeier and Garkovich (1988) in their study of farm women's economic roles in the United States. The two stages are: 1) the specification of its components factors, and 2) the relationship between independent and dependent variables. The framework follows socioecological processes and includes factors such as the farm enterprise; the farm family; a combination of the two, called agrifamily household; and the sociocultural milieu in which the agrifamily household operates. Each factor includes key independent variables that we assume may help to explain the process of livelihood strategy formation. This framework emphasizes the active participation of agrifamily household members in the construction of social actions designed to achieve household goals (Bokemeier and Garkovich, 1988).

1. Specification of factors

a. Farm enterprise

The agrifamily household is composed of the farm enterprise and the family unit. Variables internal to the farm household enterprise, such as farm size, labor input, production level, technology level and farming goals, affect both the expectations and the latitude given to the enterprise and to the role performances of family members (Bokemeier and Garkovich, 1988).

The principal assumption in human ecology is that all human activities inexorably depend upon the natural environment for life-sustaining conditions and vital resources, so that social ordering is always constrained and influenced by the environment (Olsen, 1978). The organization of people depends on the availability of resources. Each individual must have access to the environment to obtain resources for satisfying life needs and attaining other goals. Resources include natural resources and intangibles, such as time and wealth. The farm is the basis for agricultural production and is the main source of income for farm families. The majority of people in Rwanda base their livelihood on farming. Land availability (farm size) is an important factor for understanding survival strategies in Rwanda. The type of labor input (hired or familial) that the farm enterprise utilizes also influences the structure and functioning of the farm enterprise. Although the agricultural enterprise is managed by the male head of household, it does not mean that the contributions of the wife, children, and other relatives are considered as an informal service. Farm youths are members of the agrifamily household and participate in agricultural activities that

generate cash income and agricultural products for home consumption. Moreover, young people participate in cash-producing activities on the farm, as well as off the farm, in order to supplement the agrifamily household income. Young people who still live in the parental home contribute to domestic chores, while those who live outside the parental home continue to support their parents by providing either labor or cash and gifts (Clay and Vander Haar, 1989). Farm youths constitute, then, an important labor force of the farm enterprise, and their contribution to the parental family is grounded in the normative and cultural system that allows people to survive in various social contexts.

From an ecological perspective, farm youths, like other members of the agrifamily household, are part of the earth's ecosystem and must live within the bounds of nature. By their work, they transform nature in order to satisfy their needs. They cultivate land, for example, to produce beans, sorghum, and other agricultural products, or to raise cattle for other ends such as production of milk, meat, and manure. The core idea of ecological analysis of social activities, according to Stinchombe (Stinchombe, 1983), is resources.

Resources are characteristics of environments that can be used in human activities to produce something that is valuable because life is a continuous struggle between living organisms and the environment. Farm youths' activities are dependent upon the natural environment for life-sustaining conditions and vital resources.

The utility of resources in an environment is defined by the activities one wants to carry on (Stinchombe, 1983). For instance, the advance of technology multiplies the uses to which a given environment can

be put, and then increases the value of resources. But when people intervene in an environment, we have to ask whether the change they have made is stable or not. The resources available for human use are, in the long-run, limited by the ecosystems that can be balanced. Because those resources are limited and useful, they should be preserved. This is the case for land resources in Rwanda. If land is continuously exploited inadequately, it is evident that it will produce less as its capacity diminishes.

> When we say that environment "limits but does not determine" the activities that can go on at a given place, what we mean is that there are always alternative ecosystems that could be stable in the environment. These alternatives ordinarily have different rates of return. If an environment is exploited less efficiently; of course, then it will support few humans (Stinchombe, 1983:31).

Technology/knowledge in Rwanda is still at a low level; thus, it is not included in this framework. It normally increases the variety of ecosystems that can be made to balance by facilitating imports into the environment, by providing means for reducing the outflow of crucial resources, or in other ways by increasing the amount that can be extracted from the ecosystem without causing its permanent decay into a non-reproductive system (Stinchombe, 1983). Agricultural modernization represents a change in the technological level of the farm enterprise, with consequences for the agrifamily household and its members, which may lead to substantial or insignificant changes in the farm practices of the enterprise. The effects of such changes on the farm family and household will vary with the sociocultural milieu within which the household functions (Bokemeier and Garkovich, 1988). Internal household activities and the resources controlled by members of households are crucial to an

understanding of diversity of household conditions which, in turn, permit members of households to adopt any survival strategy.

b. Farm family

Most of the households in Rwanda are extended family units composed of a husband, a wife, children, relatives of the husband, and/or relatives of the wife. The family is organized in terms of mutual and parental obligations as the main organizational form, marital responsibilities, emotional attachments, affection and other non-economic networks contributing in different ways to the patterns of social reproduction. The family reinforces the internal solidarity between members of the household and helps members to deal with rapidly changing external conditions in the environment.

The structure and functioning of the farm family subsystem reflect individual and joint influences of a host of factors including: personal variables (age, education), life-course (marital status, number and age of children), social class variables, family power (gender differences), and family ideology reflected in parents' aspirations for their children's future.

The combination of the farm enterprise and the family forms the agrifamily household, the main goal of which is the survival of all members.

> An agrifamily household engages in both the production (the agricultural enterprise) and reproduction (the family enterprise). Within this household, members negotiate role performances that satisfy their role obligations to both the family and the agricultural enterprise as defined by household goals. These role performances reflect the expectations of household members as structured by demands of the enterprise and the family (Bokemeier and Garkovich, 214).

The agricultural production process and its changing structure are, therefore, key determinants for young people's livelihood strategies, since the majority of families base their livelihood on farming.

c. Sociocultural milieu

The way the agrifamily household is situated in the broader sociocultural environment will affect the strategies its members can and do adopt. In conjunction with the needs, aspirations, and power of its respective members, households filter the opportunities and constraints presented by the wider society. The strategies pursued will, in turn, affect the form and operation of the household, and ultimately its reproduction over time (Davidson, 1991).

Population trends constitute an important factor interrelated with the amount of resources, particularly land. In the particular case of Rwanda, the total fertility rate is estimated at 8.6 live births per woman, on average by age 49 (May, 1988). Because of their functional interdependencies, human beings adapt to the environment through collective activities, rather than through individual behavior. Population is the basic factor of any social organization. It could be an agrifamily household, a community, a region, or a society. The size of

the population is, thus, very important for all organizations/societies. In order to adapt to the environment, populations create patterns of social organization to regulate and perpetuate their common activities, and they also utilize material and social technology to obtain necessary resources and attain common goals. In addition to the size of population, its density, other population characteristics, public health, role specialization, and intellectual development are significant for the social organization of a society.

Rural communities practice agricultural systems in order to satisfy survival needs through complex interactions between socioeconomic institutions and environmental resources. The integration of rural communities into local and international economies has transformed the agricultural systems upon which the local environmental management strategies were based (Campbell and Olson, 1991).

As resources become scarce, the need to reduce the population is felt, but there is a factor of time. Nature determines boundaries, like the scarcity of land available for cultivation, but natural boundaries are often overcome by technological development and by means of transportation and communication, as in Western countries, or by other strategies, such as the increasing off-farm employment in Rwanda (Clay, Kayitsinga, and Kampayana, 1989).

Economic opportunities normally extend beyond the boundaries of a given natural environment. Since Rwanda was characterized by a declining economy and an unhealthy financial situation, production has been continuously decreasing. That implies a decline in per capita income and in employment opportunities. The mode of the economic production is an

important factor. It affects the amount of surplus wealth that exist in society. It includes what Marx called forces, means, and relations of production. The overall surplus, including food, is produced by the transformation using the technological knowledge of the resources in the environment in order to satisfy the needs of people. Therefore the surplus is positively related to population size. But the per-capita wealth is negatively related to population size. The mode of production is influenced by the political policies and practices, patterns of social and economic organizations, beliefs and social values concerning work and wealth. To maximize the usability of that surplus wealth and a resulting power, people compete by using all means (expropriation, coercion, manufacturing, performance of key functions) in order to accumulate much wealth or profit. That engenders the formation of social class with, on one hand, those who own and control the mode of production (e.g., resources, capital) and, on the hand, a lower class that generally constitutes the labor. As society becomes more complex, shifting from an undifferentiated and simple to a complex and differentiated profile with an increase in population, technology, and more competition for the surplus we observe a division of labor in society (Durkheim, 1984) or as it has been called, social integration, since it deals with how units of a social system are coordinated.

Over time, the social system may become increasingly out of balance with the ecological system (contradictions between the forces and relations of production), which will eventually be corrected through social change (Hawley, 1986); and the society moves from one scale to another within regions (state) and over - reaching regional boundaries.

The surplus is oriented to local markets. If national price policies for food crops are perceived as providing insufficient incentives to produce a marketable surplus, then farmers may limit output to subsistence needs and the government may need to import food to maintain national supply (Campbell and Olson, 1991). A decision taken on world economy markets to change the price of an agricultural product influences national policy in producing this product, which, in turn, affects the village-level land use practices as farmers respond to price changes (Campbell and Olson, 1991). The economic organization (mode of production, market) is, therefore, an important factor in the study of livelihood strategies.

Cultural and religious values of Rwandese should be taken into consideration in this model. The culture's gender roles center women's behavior on the family and/or household maintenance in Rwandan society. Generally, women in Rwanda work at home and on farms near their homes. The gender division of tasks may influence and differentiate young females' livelihood strategies from young males' strategies.

Social structure, i.e., the distribution of resources, land tenure, and power, conditions the interaction among people, families and communities. Land ownership has traditionally been an important factor in determining social and individual goals in Rwanda. Land ownership has been seen as a basis of wealth and individual control. The exercise of power should, therefore, be analyzed as it determines the distribution of resources and produces different farm family goals and modes of functioning.

These factors have engendered the fragmentation of labor processes in different branches of production, and entail new forms of commodity

production, increase the willingness of farmers to seek off-farm employment, and favor the emergence of social class on a range of family and community-based strategies for survival. The application of this framework to the case of Rwanda considers crucial differences in the level of technology used in the farm enterprise, the availability of resources in the environment, and the sociocultural milieu, and how these factors interact with the agrifamily household. The framework is not fully applied because it does not include all variables, such as technological level, commodity mix, etc..

2. Relationship of Factors to the Dependent Variable: Farm Youth Livelihood Strategies

a. Emergence of Social Class within the Farm Enterprise and Livelihood Strategies

It is difficult to transfer the concept of class as it has been used by Marx or Weber for industrialized countries to agrarian countries such as Rwanda. However, the penetration of the forces of the economic market in rural Rwanda and the farmers' dependency upon it, will push them toward an economic calculation at the cost of alternative goals of production. As the influence of the market increases, such an economic calculation is inevitable. As a result, there is a tendency toward class formation.

For both Marx and Weber, the meaning of social stratification is not given by a passive classification of individuals according to their position in more or less simple or complex scales based on available resources and opportunities, rather it is derived from the social relationships of property and work (Mingione, 1991). Social class represents a structure of social relationships and cannot be measured as

status or prestige. Weber states that status groups are generally coterminous with social classes (Turner et al..,1989). Marx and Weber use the concept of class in employment and distribution of property, typically social relationships that generate diverse and important interests, thereby implying opportunities and the probability of behavior. Weber considers social class as an aggregate that makes possible the identification of uniformities in behavior, opportunities, and life-chances. Marx sees class as the most important collective historical vehicle; that is, the promotion of social change. Marx's concept of class is too rigid, while Weber's has flexibility. If class is defined by Weber as a socio-organizational factor, it will not be an aggregate of similar interest, individual behavior, life chances, and collective action.

The behavior and expectations of individuals of the same class are conditioned by other socioeconomic factors in addition to property and work. People may belong to the same class and have different behaviors or life chances. With the decline of family income for example, people increase their alternative sources of income. In rural Rwanda, the majority of households are headed by landowners who control the means of production, but they are also employed on other farms or off-farm.

Although it is not easy to classify them into classes, factors such as the ownership of land, the land tenure system, farm size, level of education, and control over labor are the main axes of social differentiation in rural Rwanda. Three social classes may be defined, even though the lines of demarcation are not clearly identified. A class becomes real as people experience it (Mooney, 1988). The first category, "lower class," includes farmers who own small farms and who are obliged to

rent/share lands from those with larger holdings in order to complement their agricultural production. They use family members as a labor force, but mainly work for others to increase their low income. Their level of education is either some primary school or no schooling at all. The second category, "middle class," embraces all farmers who own medium-sized farms and who neither provide land to rent nor search for land to rent. They most frequently use family labor and hold a middle income position. They are generally self-employed on their own farms. Their level of education is less than high school. This group represents the majority of farmers in Rwanda. The third category, "upper class," tend to own larger farms and they rent out a portion of their property for rent, share with relatives or friends, or give away land as a gift --- they are landlords. They also use hired labor and realize profit from the labor of other workers. In most cases, members of the last category have a relatively higher level of education (high school or more).

As landholding increases, the agrifamily household can use the increased power to gain control over the labor forces. When the size of holdings has increased sufficiently, the household can easily employ the adult family members (Clay and McAllister, 1991). In the case of households in which members have a high level of education, they hire agricultural laborers, preferring to use their own skills in higher-paying jobs off-farm. In contrast, those households with smaller landholding, generally with a lower level of education, are obliged either to rent additional land or to sell their labor in order to make ends meet.

The recent situation shows that the majority of both large (more than 2 hectares) and small (less than .5 hectares) farmers need

supplemental income to maintain their families (Clay, Kayitsinga, and Kampayana, 1990). Off-farm work becomes, then, one of the goals of farm families oriented toward optimizing "short-run financial returns," (Bokemeier and Garkovich, 1988) because farm income is not sufficient to meet the basic consumption needs. This is an acute problem in Rwanda, particularly in regions with less landholding. The obligation of parents toward their sons who wish to stay in farming, in terms of providing land, is decreasing as the availability of land declines. Whether or not this parental obligation is maintained varies according to the family's resources. Therefore class is important in understanding different types of livelihood strategies.

Moreover, the level of education achieved by parents, and by children themselves, that is used to manage the agrifamily resources shape their livelihood strategies. Not only has high educational attainment been shown to lead to improved management skills and to the adoption of innovations, but in virtually all cultures of the world, educational attainment is also a characteristic that reinforces social class divisions and tends to be maintained within family lines across generations (Clay and Mcallister, 1991).

Social class origin thus influences education, parents' expectations, and opportunities for a future career or job for a child. Parents from the upper class, with a high level of education, more income, and large size of landholding, generally have a higher standing of living and prefer to send their children to college. Those from the lower class, characterized by a relatively low level of education, less income, and small landholding, are usually full-time farmers and prefer that their

children become farmers, too. The land tenure system, farm size, use of hired labor, family income, and educational status of household members are jointly indicative of the agrifamily social class.

b. Farm Family and Livelihood Strategies

Another key factor of the agrifamily household's survival strategies is family size. As family size increases dramatically, all households in rural Rwanda have begun searching for off-farm employment. Farmers' incomes are not sufficient to meet their basic consumption needs. The inadequacy of the agrifamily household's farm income, in particular, to satisfy its members' needs is a result of a combination of factors both internal and external to the agrifamily household. In fact, the land ownership system as described above is associated with a limited and controlled subsistence agriculture, which provides meager monetary incomes and is poorly complemented by paid wage-labor off the farm. As a result, an increasing supply of labor (high birth rate) is a rational alternative designed to: 1) combine a large number of individual off-farm wages; 2) be able to compete with a growing number of potential wage-laborers; and 3) bring a drop, rather than a rise, in the rate of earnings. The increasing number of children may simply be a farm-family goal oriented toward reproducing a "viable farm with at least one farmer in each generation" (Salamon, 1985:326) and (Bokemeier and Garkovich, 1988).

Farm youths' livelihood strategies are critical issues for farm families. An understanding of family characteristics is a prerequisite, as they relate to a variety of individual characteristics, behaviors and

plans of their children. A major goal for families is to raise the children and orient them for the future. The family ideology is reflected in parents' desires for the future of children.

c. Personal and family characteristics

Generally, women in Rwanda work at home and on farms near their home. Only 20.7 percent of off-farm employment is done by women. Young females stay home with their mothers and both, in addition to working on the farm, do most of the household chores. In addition, young females have lower levels of education compared to young males, especially at the high school and university levels.

D. Hypotheses

1. Livelihood strategies of farm youth vary significantly by personal characteristics: age, gender, and level of education.

Even though farm youths are considered as an age-specific sub-population, it is assumed that the younger the youth is, the more likely his livelihood strategy is to be in farm careers rather than in non-farm careers or limiting the number of children.

It is hypothesized that young men are more interested in farm careers and in non-farm careers than their sisters. The strategy of limiting the number of children is more likely to be announced by young women than by young men.

Young people with no schooling are more likely to envisage farm careers than non-farm careers or limiting the number of children.

2. Children's livelihood strategies are assumed to be similar to parents' desires for their children's future.

3. It is hypothesized that farm youths' livelihood strategies are differentiated by their social class origin.

Young people who think of limiting the number of children or having a non-farm career as their livelihood strategies are more likely to come from wealthier households, while those who think of farm careers as their livelihood strategy are more likely to come from poor families.

CHAPTER III.

DATA, MEASUREMENT, AND METHODS

This study will use data from the survey of Non-Farm Strategies collected in 1988 under the Agricultural Surveys and Policy Analysis Project by the Rwandan Agricultural Studies and Statistical Office within the Ministry of Agriculture, Livestock and Forestry. The survey covered a national sample of 1,019 households and included interviews with the head of the household, the spouse, and children aged 16 years and above who were still living in the parental household. Children of 16 years old and above were interviewed to get information on their strategies for the future. At this age they are considered active in the labor force. The purpose of this survey was to understand the structure of rural households and their activities, particularly the non-farm strategies.

Survey questionnaires were developed and administered over a three-month period beginning in July 1988 to various members of sampled households. A variety of topics were addressed in the questionnaire: demographic characteristics of all household members and migrant children; non-farm and off-farm employment of all household members; permanent and temporary migration patterns; fertility and family size behaviors; plans and preferences of all adult household members; sources of household income; physical characteristics of the farm and residence; hired farm labor; family support networks, and; finally, the part concerning our analysis for this present study, strategies of adult children and parental advice regarding their children's future families.

Interviews required approximately one and a half hours to administer and sometimes required multiple visits to meet with the various respondents from each household. Special care was taken by enumerators to ensure that all household members to whom the questionnaires applied were located and interviewed. Adult children still living in the household were the most difficult of all to locate.

For the purpose of this research, a sample of households in which children of 16 years old and over were still living in the household, is considered. A young person in Rwanda is economically active at about 12 years old and sometimes he (she) begins working on the family farm at an even earlier age. Approximately by the age of 16, a young person begins to think about his or her own household. There are some young people who marry at this age and, therefore, might have an idea of what they will do to support their families. These youths, whether single or married, who were still living in the household, are included in this sample.

The dependent variable used is farm youth livelihood strategies. Multiple responses to the question: "If you will not get enough land (by inheritance, purchase, or gift), what do you envisage doing to support your future household?" reflect different survival strategies. Response categories were: (a) farm laborer/wage earner; (b) non-agricultural worker; (c) migration for job; (d) migration for land; (e) waiting for government help; (f) running a small business; (g) vocational training; (h) grouping in cooperatives; (i) limit the number of births; (j) increase the productivity or acquisition of land; and (k) other. The responses were combined into four categories to simplify the analysis. Those categories are: a) farm career; b) non-farm career; c) limit children; and

(d) other strategies. The farm career category includes (a), (d), (h), and (j) responses. The non-farm category encompasses (b), (c), (f), (g) responses. The third category contains response (i). The remaining responses are classified in the last category.

The independent variables include: 1) individual characteristics of young people: gender--male and female; age--self-reported years; and education--four categories including (a) no schooling, (b) primary incomplete, (c) primary complete, and (d) more than primary; 2) farm characteristics: farm size--measured in hectares (1 hectare=2.471 acres), land tenure variables (rent lease, loan, and borrow)--(a) yes ,(b) no; hired labor--(a) yes, (b) no; and 3) family variables: family size, family income--measured in Rwandan francs and classified into six categories from (a) less than 33,000 to (f) 125,000 Rwandan francs ($1=100 Rwandan francs); and parental advice to their children's future--five categories which are (a) farm career, (b) non-farm career, (c) limit children, (d) children make do on their own, (e) other. The parental advice variable is created from a combination of the advice of both fathers and mothers to their children.

The analysis of data is presented in three stages: 1) a descriptive analysis of farm youth characteristics and the agrifamily household characteristics; 2) the distribution of farm youth livelihood strategies by those characteristics; and 3) a discriminant analysis of the dependent variable (categorical variable) to determine which of the independent variables are most useful in describing differences among livelihood strategies, and to explain which variables contribute the most to the formation of particular livelihood strategies.

CHAPTER IV.

RESULTS OF DATA ANALYSIS

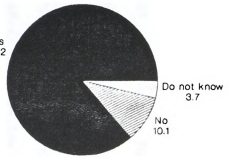
A. Farm Youth Livelihood Strategies

Young men in Rwanda are aware of the problem of land scarcity. They do not believe they will inherit enough land for their future families, as was a traditional expectation. In fact, though 86.2 percent of young men in our sample declared that they would like to stay in agriculture, 92 percent believe they will not inherit sufficient land from their parents. Forty-eight percent of these young men believe that they will not be able to buy land; the remaining 39 percent figure that eventually they will be able to purchase land while 13 percent of young men declare that they do not know if they will be able to purchase land. Only three percent believe that they will receive the traditional inheritance of land from their parents. Despite the moral obligation parents feel to leave sufficient landholding to their sons, few have realistic plans to do so.

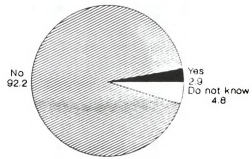
One important livelihood strategy as shown in table 1 is farm laborer/wage earner. Despite the fact that 82 percent think they will not inherit enough land for their own families, 16.7 percent of all young people state that they envisage working on farms for a salary. Their strategy is, then, to stay in a rural area and work for those who have larger sized holdings. This strategy is explained by the system of inheritance which has historically influenced the structure of farming and land tenure in Rwanda. The inheritance system reinforces the attachment of the children to the farm and is, in addition, viewed as a sign of family solidarity. In addition, the farm has long been the main source of subsistence in the Rwandan economy. Agriculture provides food for families and, with the sale of surplus crops, allows families to obtain

FIGURE 2. OPINIONS OF YOUNG PEOPLE ON LAND AVAILABILITY

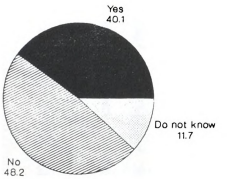
YOUNG MEN WHO WOULD LIKE TO STAY IN AGRICULTURE



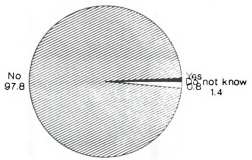
OPINION OF YOUNG MEN ON INHERITANCE OF LAND



YOUNG MEN WHO THINK THEY WILL BE ABLE TO PURCHASE LAND



OPINION OF YOUNG WOMEN ON LAND AVAILABILITY



other goods, and thereby increase their overall standard of living. The farm has great importance for each household, so much so that its value has led to its fragmentation and diminishing size.

As half of the households in Rwanda seek off-farm employment to increase their incomes, 14.5 percent of the youths have interests in non-farm occupations such as running a small business (9.1 percent), carpentry, masonry, mechanical jobs or handicrafts (5.4 percent). The recent situation shows that the majority of both large and small farmers need supplemental income to maintain their families. This is a crucial problem in Rwanda, particularly in those regions now facing famine. The obligation of parents toward their sons who wish to stay in farming, in terms of providing land, is decreasing as the availability of land declines. Whether or not this parental obligation is maintained varies according to the family's resources. Thus, young people hope to support their own families by seeking non-farm occupations.

A non-negligible percentage of youth (16.8 percent) expect to have vocational training. Their strategy is, therefore, oriented toward vocational education, as only 25.3 percent of young people have managed to complete primary school. Because they do not expect sufficient land, they need training for a non-agricultural profession in order to be able to support their own families later.

The majority of youths (23.5 percent) reported birth control as a strategy for their families. Family planning is taught, and the government encourages people to reduce the number of births. The National Population Office (ONAPO) disseminates information on how to limit births. This strategy of birth control implies that young people will reduce the number of children in their families. It is a long-run strategy. It reflects also the effects of the Population Office's campaigns.

Another strategy is migration. Approximately seven percent of Rwandan youth think that they will migrate in search of land or jobs. Recall that 45.6 percent of young men in Rwanda leave their parental home. Their planned destinations are other rural areas (31.0 percent), urban areas (10.0 percent), and neighboring countries (4.5 percent) (Clay, Kayitsinga, and Olson; 1990).[1] Migration is an alternative under the

Table I, Percent Distribution of Livelihood Strategies of Young People.

Strategy	Code	Number of cases	Males	Females	All Youths
Farm laborer/wage earner	(1)	59	22.5	10.6	16.7
Non-agricultural worker	(2)	19	8.6	2.0	5.4
Migration for job	(3)	14	4.4	3.4	3.9
Migration for land	(4)	12	1.8	5.0	3.4
Waiting government help	(5)	8	.8	3.0	2.2
Small business	(6)	32	10.6	7.4	9.1
Vocational training	(7)	59	15.4	18.4	16.8
Grouping in cooperatives	(8)	26	6.1	8.9	7.5
Limit the number of children	(9)	83	10.0	38.0	23.5
Productivity/acquisition of land	(10)	14	4.8	3.3	4.0
Other	(11)	26	14.2	---	7.4
Total		351	100.8%	100.0%	100.0%

pressure of population growth. It implies that many people, especially youth, plan to leave their family in search of land to cultivate or other possibilities for employment. Unfortunately, territorial expansion has

[1] Young men living near the parental home are considered non-migrant. Those who are living in other places, either in rural or urban areas, or abroad, are considered migrants. The sample size includes all young men and not only those who are still living with their parents.

already taken place in Rwanda. People from the overpopulated regions of the north and west now occupy the eastern regions that once had ample, fertile land. All cultivable land is now occupied. Migration to urban centers or out of the country is all that remains. Many farm youth migrate to urban areas, especially those who are educated. Only a small percentage of men with secondary schooling remain at home. Among those who leave, 60 percent are reported to have gone to the capital city, Kigali, during the period 1977-1980 (Olson, 1990). Youth who migrate, temporarily or permanently, continue to support their families. In addition, when those who migrate return with an improved standard of living, they are often envied by friends and relatives in the home community. The positive image of migration is seen by many as a viable and sensible strategy. Urban migration has many consequences for the agricultural sector. Each person wants to maximize his (her) chances, hoping that (s)he will get a good job in the city. The recent flood of temporary and permanent migrants to the city of Kigali, particularly from the densely populated regions of the north and west, has formed its own very large, untrained and largely unemployed urban labor pool that maintains strong ties to the agricultural sector (Olson, 1989).

Rwanda has historically experienced a relatively few exchange of work migrants with its neighbors, i.e., Uganda, Tanzania, Burundi and Zaire in particular. One reason of the current conflict in Rwanda is the return home of Rwandan refugees. Rwanda will witness an inflow of persons from outside who have the right to settle in some areas of the country. There is no reason to believe that small farmers from these regions, Uganda, Tanzania and Zaire are any less constrained by their local economies than are Rwandan farmers. Host countries may create difficulties or may not be willing to receive immigrants.

Grouping into cooperatives is considered by 7.5 percent of young people as a strategy in order to have more land. The creation of cooperatives is also supported by the government. It is a short-term possibility, especially in valleys or in swamps that belong to the government.

There are also those who aspire to increase the productivity of their holdings by using fertilizers. Others believe that they will be able to rent or purchase land, or will receive it from a relative or a friend (four percent).

1. Livelihood Strategies and Gender

We did not ask the young women in our sample if they will stay in agriculture for the reason that, in most cases, young females in Rwanda will not decide; rather, they will follow their husbands when they get married. The young women's responses show that they also have livelihood strategies for future families. Even though young women do not inherit land, 98 percent of them, like their male counterparts, think that young people will not possess enough land for the needs of their future families.

Comparing the strategies of young men and women in Table I, we have found that the two differ in several important ways. Young men tend to be more interested in farm and non-farm occupations than are young women, although young women do aspire to farm careers as well as to non-farm careers. In fact, 35.3 percent of young men envision work on farms and hope to acquire land by purchase, by lease, or to receive it as a gift from relatives or friends, compared to 27.7 percent of young women. This difference is explained by the fact that women in Rwanda generally work at

home and on farms near the home. Young women stay home with their mothers and together, in addition to work on the farm, are responsible for most domestic chores. Young men work on the parental farm, too, but also they seek other farm occupations; especially, they work for those who have larger holdings for additional income, and sometimes the place of work is far from the parental home. This strategy of farm career includes the possibility of obtaining land by location, purchase or as a gift from relatives, and these involved only men. A woman does not receive inheritance of land because she is expected to get married and join a man who has a farm. Only a woman who does not get married, or a widow, may receive an inheritance of land.

There is also a difference between young men and young women who have a strategy for non-farm occupations. About 39 percent of young men are willing to engage in non-farm careers compared to 31.2 percent of young women. Many non-farm careers in rural Rwanda, such as running a small business, carpentry, masonry, mechanical jobs, are done by men. Both young men (15.4 percent) and young women (18.4 percent) expect to complement their level of formal education by vocational training. Women make the largest contribution in handicrafts such as basket weavers and seamstresses.

The strategy of limiting children is predominantly stated by young women (38 percent compared to ten percent for men). Young women are the first target of family planning campaigns, and that may boost up the number of young women who foresee limiting the number of children as a strategy. Indeed, having fewer children than their parents did is a long run strategy for Rwandan youths of both sexes.

B. Individual Characteristics

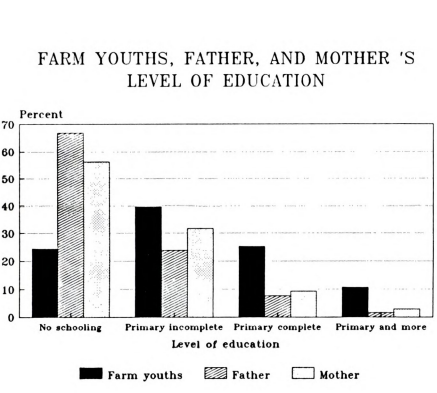
This study focuses on farm youth of 16 years and above who are still living with their parents. The population median age is estimated at 20 years old. Figure 2 shows also that about 49.3 percent of children who are still living at home are between 16 and 19 years old. Approximately, 85 percent of these young people are in the 16-24 years age group. The distribution of these young people by gender reveals that 51.8 percent are males.

A comparison of farm youth by their levels of formal education (figure 2), highlights the low level of education of young people in rural Rwanda. About 24.4 percent of farm youth have no formal schooling, and 39.5 percent of young people completed some formal education but less than primary school. With this level of formal education, young people have very limited opportunities for careers outside of farming, since they do not have the skills necessary to compete for other jobs.

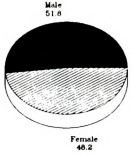
Only 25.3 percent of farm young people have completed primary school. Only 10.8 percent of young people have gone beyond primary school education. The level of education for the parents (father and mother), compared with young men and young women' s level of education, shows that children have a relatively higher level of education than their parents.

The occupational status of these young people shows that the majority are agriculturists (77.6 percent) (see figure 4). Their principal and secondary occupations are on farms. They work on farms of their parents as familial farm labor or work as paid labor on other farms; 16.7 percent combine agricultural and non-agricultural occupations. Non-agricultural occupations include small business trades, carpentry, masonry, mechanical jobs or handcrafts.

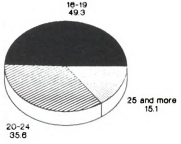
FIGURE 3. DISTRIBUTION OF FARM YOUTHS BY GENDER, AGE, EDUCATION AND PARENTS' LEVEL OF EDUCATION



DISTRIBUTION OF FARM YOUTHS BY GENDER



DISTRIBUTION OF FARM YOUTHS BY AGE



C. Agrifamily Household Characteristics

1. Farm size

The enormous constraint on Rwanda's agriculture is the lack of land to cultivate relative to population that is increasing exponentially. The average farm size for each household is estimated at .95 hectares and has to provide food for an average of 4.77 people. Table 2 shows that about 74 percent of the households have farms of less than two hectares in size and 40 percent of households have farms of less than one hectare. This finding confirms the unrealistic possibility of land inheritance. The sustainability of the farm in the long run is uncertain.

2. Income

The average total family income is estimated at 96,371 Rwandan francs ($964). The household total income is divided into different categories: Farm income, non-farm income, on-farm income, and off-farm income. Farm income is the value of crop production, livestock, and income from the work on others' farms for a salary. Non-farm income comes from non-agricultural sectors, such as trade and craftsmen. On-farm income includes only the value of the agricultural products sold. Off-farm income consists of the total income from outside the household. It encompasses the salaries, income from trade, or handcrafts, and earnings from other farmers. The distribution of incomes shows that the total family income generally comes from the farm. The major source of income is the sale of the agricultural products. It is complemented by

paid labor on other farms and by non-farm incomes. The average off-farm income is estimated at 17,127 FRW ($171).

Households with larger holdings (two hectares and more) have a higher farm income and also a higher non-farm and off-farm income compared to those with low farm size (less than a hectare). The level of education

Table II, Farm Size by Level of Education of the Head of Household and by Source of Income.

	Size of landholding (hectares)				
	less than 1 ha (1)	1.0-2.0 ha (2)	2 ha and more (3)	Total	(N=)
Percentage of Households	39.7%	34.2%	26.1%	100.0%	255
			(Mean)		
Level of education of the head of the household	1.26	1.53	1.60	1.44	254
Total family income	67,795	98,262	137,114	96,371	254
Farm income	57,270	87,114	112,663	91,978	255
Non-farm income	10,525	11,149	24,296	14,369	255
Farm production sales	53,133	84,428	111,875	79,215	255
Off-farm income	14,661	13,834	25,080	17,127	255

for the head of the household in which farm size is more than two hectares is relatively higher, on average 1.60, in comparison with the level of education for the head of household with farm size less than one hectare (1.26).

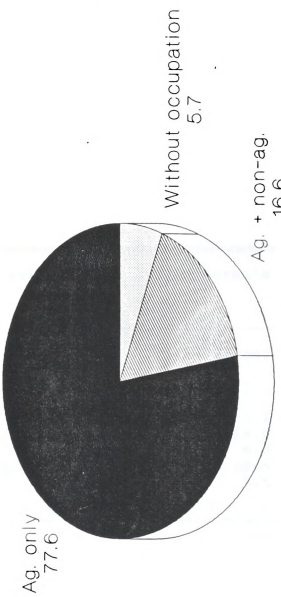


FIGURE 4. DISTRIBUTION OF FARM YOUTHS BY OCCUPATIONAL STATUS

D. Parents' desire for their children's future

About 80 percent of Rwandan parents think that their children will not inherit enough land for the needs of their own families. Table 3 shows parents' opinions for their children's futures. About one-third of the parents want their children to continue working on the farm as they

Table III, Parents' Advice for Children's Future

Advice	Code	Parents Father	Mother
farm career	(1)	31.2	33.9
non-farm career	(2)	19.2	24.4
limit children	(3)	6.9	10.7
children responsibility	(4)	26.6	28.6
other	(5)	8.1	2.4
Total		100.0	100.0
(N=)		(267)	(171)

have themselves. Even parents who do not have enough land for their children want them stay on the farm. They suggest that their children should work as agricultural laborers, rent land, save money in order to purchase land, or migrate in search of land. This advice to children is explained by the fact that more than 94 percent of the parents are principally farmers themselves and the majority have not completed primary

school. The nature of the relationship between parents and their adult children has been so strong that parents were obliged to give a portion of the farm to each son, and always expected their support in return. Parents not only have a moral obligation to provide land to their sons, but also they want them to continue farming. In addition, children have been very active on the farm. They have been considered an important part of the farm labor pool in rural Rwanda. Their role on the farm is, thus, important in regard to the economic benefits accrued by the household. Children constitute a form of unpaid labor. Although farm career is the most frequent parental advice to children's future, it does not indicate that other parental advice to children are denied.

Parents also advise their children to pursue non-farm careers. Approximately 19.2 percent and 24.4 percent of fathers and mothers, respectively, declare that they would orient their children to non-farm careers. A two-tiered explanation is that; 1) as land becomes scarce, a non-farm career would complement farm income in order to satisfy rural youths' consumption needs; 2) parents receive support from their children's off-farm incomes: some adult children leave their parents to seek off-farm employment and continue to support them by sending money and/or gifts throughout their lives (Clay and Vander Haar; 1989).

A substantial number of parents --- 26.6 percent of fathers and 28.6 percent of mothers, respectively indicate that it will be up to the children to make do on their own. That means either that parents want children to deliberately make their own decisions, or that they may have no decision due to few resources to offer to their children. Less than ten percent of parents would rely on their children to reduce childbearing.

To learn more about how and why farm youth decide to choose particular livelihood strategies for their futures, the following section describes farm youth livelihood strategies by their individual characteristics and by characteristics of the agrifamily households in which they live.

E. Farm Youth Livelihood Strategies by Individual Characteristics

1. Livelihood strategies and age

The distribution of farm youth by livelihood strategies and by their age shows that farm youths' livelihood strategies are differentiated by age. There is little variation in the number of teenagers (16 to 19 age group) by their livelihood strategies. Examination of farm youths' livelihood strategies by age and by gender reveals that young females between 16 and 19 years of age are more likely to envisage limitation of the number of children and non-farm careers, but less likely to think of farm careers than young males. Nonetheless, 44.8 percent and 36 percent of farm youth between 20 and 24 years old, respectively, envisage limiting the number of children in their families and non-farm careers, in contrast to about 30 percent who envisage farm career livelihood strategies. The distribution of livelihood strategies in that group by age and sex shows that there are more young males who envisage limiting children than do young females. The number of young females who foresee farm careers and non-farm careers is greater than that of young males in that group.

In the oldest group (25 years old and more), few young people envisage limiting the number of births (6.3 percent). There are relatively more young females who envisage farm careers than young males, but fewer young females who envisage non-farm careers.

Table IV, Farm Youth Strategies by Personal Characteristics

	STRATEGIES				
	Farm career	Non-farm career	Limit the number of children	Other	Total
	(1)	(2)	(3)	(4)	
Personal Characteristics					
			Percent		
Sex**					
Male	57.7	57.3	22.0	84.9	51.8
Female	42.3	42.7	78.0	15.1	48.2
Age^					
Male					
16-19	56.4	45.4	42.8	46.8	49.2
20-24	28.2	35.2	51.5	31.7	33.8
25+	15.4	19.4	5.6	21.5	16.9
Female					
16-19	42.7	53.6	50.7	54.1	49.5
20-24	32.1	37.0	42.9	22.9	37.4
25+	25.2	9.5	6.5	22.9	13.1
All Youths					
16-19	50.6	48.9	48.9	47.9	49.3
20-24	29.8	36.0	44.8	30.4	35.6
25+	19.6	15.1	6.3	21.7	15.1
Education*					
Male					
No schooling	32.2	22.0	19.3	26.9	26.1
Primary incomplete	47.1	38.1	38.0	36.1	40.9
Primary complete	11.4	28.1	24.1	27.8	21.7
More than primary	9.2	11.9	18.6	9.3	11.2
Female					
No schooling	41.4	19.5	9.7	42.3	22.5
Primary incomplete	30.7	44.1	41.0	0.0	37.9
Primary complete	20.9	26.8	35.1	57.7	29.2
More than primary	7.0	9.7	14.2	0.0	10.4
All Youths					
No schooling	36.1	20.9	11.8	29.2	24.4
Primary incomplete	40.2	40.6	40.3	30.6	39.5
Primary complete	15.4	27.5	32.7	32.3	25.3
More than primary	8.7	11.0	15.2	7.9	10.8
Total	**31.6**	**35.3**	**23.5**	**9.6**	**100.0**
(N=)	**110**	**123**	**82**	**33**	**349**

* $p < .01$, ** $p < .001$, ^ not significant

2. Livelihood strategies and level of education

Farm youths' livelihood strategies vary according to the level of education. Table 4 shows that young people with no schooling are more likely to envisage farm careers than non-farm careers or limiting children's strategies. In contrast, young people who have completed or gone beyond primary school tend to envisage limitation of the number of children and non-farm careers than they think of farm career strategies. In fact, 36.1 percent of young people who conceive of farm careers as their future strategy have no schooling, while 21 percent and 12 percent of young people with no schooling have, respectively, envisaged non-farm careers and limitation of the number of children as their livelihood strategy. Approximately 40 percent of young people in each strategy group have not finished primary school. Besides, 47.7 percent of those who think of limiting the number of children as a strategy have primary and higher level of education. Among young people who envisage non-farm careers, 38.5 percent have completed or had more than primary school. And 24.1 percent of young people who envisage farm careers have completed primary school or gone beyond primary school.

Table 4 also depicts the differences between livelihood strategies according to the level of education by gender. More young females have completed primary school than young males (29.7 percent compare to 21.7 percent). Among those who have completed primary school, there are more young women who envisage limiting children and also having a farm career than young males. In the category of young people with no schooling, there are more young females who envisage a farm career than young males, but more young males who foresee non-farm careers and limitation of the

number of children as their strategy than young females. There is not much differentiation in the group of young people who have not completed primary school. It seems that more young males drop out than their sisters. There are more young males than young females who have reached high school. The higher the level of education young people have, the more likely they are to envisage either limiting the number of their children or having non-farm careers rather than farm careers.

In the following analysis, discriminant analysis is used to determine independent variables that distinguish exclusive groups of young people by their strategies. It permits to identify the independent variables that are important to classify among the groups and to develop a method for predicting group membership for new cases.

F. Stepwise Discriminant Analysis of Farm Youth Livelihood Strategies

In this analysis, after all data have been processed, only 267 cases of young people (both males and females) are included in the discriminant analysis. The rest of the cases are excluded because they have at least one missing discriminant variable. The univariate statistics presented in Table 5, indicate the subgroup means of personal, farm and family characteristics.[2] On the basis of stepwise discriminant

[2] Although the subgroups' means of those independent variables show differences between livelihood strategies, they are not all statistically significant. The significance tests for the equality of groups' means for each variable indicate that only sex, level of education, lease land, and parental advice of having a farm career variables have a significance level smaller than .05. The hypothesis that all groups' means are equal for those significant variables is rejected. For the rest of the variables, group means do not appear to be different. It might be sampling error, and/or big variation within group, or simply under-count of young people since a household was visited twice in order to meet more young people. However, all independent variables are included in the discriminant analysis since they are theoretically valid.

analysis, it appears that farm youth livelihood strategies groups are differentiated by gender, age, and level of education of young people, farm size of parents' households, use of hired labor, land tenure system (lease, loan, rent and borrow land), family income, family size, and by parental advice for children's future.

The group of young people who envisage limiting children is overwhelmingly composed of young women --- 78 percent of young people in that group are females. The group of young people who think of farm careers and that of young people who foresee non-farm careers are dominantly formed by young males. The farm careers group includes 58 percent of young males, while the non-farm career group contains 61 percent of young males. There is practically no difference between groups according to the average age of young people within each group, and it was not expected.

The level of education achieved by the youths reinforces the differentiation of livelihood strategies groups. The more formal education the youths have, the more likely they are to envisage limiting children and/or a non-farm career. Young people with relatively high levels of education, compared to those whose formal education is low or with no schooling, have a better chance to access to a job in the non-farm sector. They can also easily understand the usefulness of limiting the number of children in their families. In contrast, young people in the farm career group have the lowest level of education among the groups. They are attached to the land and expect to work on farms or to acquire land.

Farm youth livelihood strategies groups differ according to the average size of landholding owned by their parents. The group of young people who envisage limiting the number of children has the relatively

largest average size of landholding (1.67 hectares). The group of young males who foresee farm careers, "the farm group", comes from households with a slightly larger average size of landholding (1.55 hectares) compared to the group of young people who envisage non-farm careers (1.50 hectares).

Table V, Subgroups Means for Discriminant Analysis of Farm Youth Livelihood Strategies Groups (N=267 Young people)

	Farm career (1)	Non-farm career (2)	Limit children (3)	F
Sex	0.58	0.61	0.22	15.30*
Age	20.72	20.57	19.85	0.96
Education	2.01	2.26	2.49	4.17*
Farm size	1.55	1.50	1.67	0.37
Lease	0.05	0.16	0.13	3.61*
Loan	0.19	0.21	0.30	1.45
Rent land	0.51	0.36	0.47	2.26
Borrow land	0.22	0.23	0.25	0.10
Hired labor	0.30	0.32	0.25	0.44
Family income	88,335	97,391	106,705	1.66
Family size	6.80	6.73	7.46	1.94
Parental advice:				
farm career	0.36	0.25	0.19	3.12*
non-farm career	0.16	0.22	0.25	1.03
limit children	0.06	0.07	0.10	0.43
children responsibility	0.34	0.37	0.34	0.14

* p<.05.

The comparison of livelihood strategies groups by land tenure system highlights differences among the groups. The group of young people who envisage farm careers is more likely to come from households that rent the most land. Fifty-one percent of households in that group rent land

compared to 36 percent and 47 percent in the non-farm careers and family size reduction groups, respectively. Households in each group borrow land to cultivate, generally from their relatives or friends who are willing to lend or rent it to them. This implies that all households need more land to cultivate and share whatever they possess, including those with less land. Some households lease their land. The group of young people who desire to have a farm career as their livelihood strategy comes from households that practically do not lease their land, probably because they do not have much to fulfill their own needs. In contrary, the non-farm and the family size reduction groups of young people live in households which lease their land (16 percent and 13 percent respectively). Members of households in the non-farm careers and in the family size reduction groups have a relatively higher level of education than those in the farm career group. Those households prefer to lease their land because their members that are most likely to work in non-farm sectors. Young people who mentioned limiting the number of children as a possible livelihood strategy come from households are most likely to loan land. Thirty percent of households in the family size reduction group give land for cultivation for free. Households in the group of young people who think of limiting the number of children as a livelihood strategy have larger compared to the others. It is in the family size reduction group that households hire the least labor compared to other groups. One interpretation is that this group has the largest family size and use more family labor than hired labor.

Considering group differences by family income, it appears that the family in the family size reduction group has the highest average income, 106,705 Rwandan francs ($1,067). The farm career group has the lowest average family income, 88,335 Rwandan francs ($883). Yet this is not a

great difference. Table 5 highlights the differentiation of farm youth livelihood strategies by the social class origin of young people. Young people whose livelihood strategy is to limit the number of children are relatively from the wealthier households compared to young people whose livelihood strategy is oriented towards farm careers.

Examination of the family size per group reveals that the group of young people who envisage limiting the number of children comes from relatively larger families, with an average of 7.46 members, in comparison to families, in the farm careers (6.8 members) and in non-farm careers (6.73 members) groups, even though they are all characterized by large families.

Livelihood strategies groups are distinguished by the parental advice to their children for the future. A relatively higher percentage of parents who would advise children to continue farming is situated in the farm career group (36 percent). In other words, the father's desire that his son continue in farming influences the son's livelihood strategy, as evidenced by the fact that of the youths who indicated preference for farm careers, 58 percent were males. Table 5 highlights that some young people envisaged a livelihood strategy that is different than their parental advice for the future. Twenty-five percent and 19 percent of parents whose children respectively think of a non-farm career and/or of reducing the number of births in their families, would advise them to have a farm career.

Farm youth livelihood strategies are found to differ according to individual characteristics: sex, and level of education; farm enterprise variables: farm size, hired labor, land tenure system (lease, loan, rent, and borrow land); and family variables: family income, family size, and parental advice to children. Young people and agrifamily characteristics

are further examined using stepwise discriminant analysis to determine which variable is the most likely to be a predictor of young people's livelihood strategies.

Three discriminant analyses are effected ---one for both young males and females, one for young males, and another for young females. For both young males and females, only seven out of twelve variables were included in two statistically significant discriminant functions (see Table 6). The results shows that farm youth livelihood strategies can be differentiated based on seven variables. The group centroids show that function 1 differentiates groups by family size reduction, by distinguishing young people who envisage limiting children and those who think of careers. That is, limit children livelihood strategy groups have a negative centroid while other groups have positive centroids. Function 2 distinguishes groups by farming career. It differentiates groups who envisage a farm career from those who foresee non-farm careers. Non-farm career group has a negative centroid and farm career group has a positive one.

The standardized discriminant coefficients are interpreted similarly to standardized regression coefficients. The size of the coefficient indicates the relative importance of the variable to the discriminant analysis of the groups. The factors that are most important, by the order of relative contribution to family-size reduction function in classifying groups, are sex, level of education, parental advice to children for farm careers, hired labor, parental advice stating children responsibility, and renting land.

The sex of youth is highly and positively associated with family size reduction function. Since limiting the number of children has a negative centroid, young females are more likely to envisage limiting the

number of children in their future families than are young males. The level of education contributes negatively to function. The lower the level of education a youth has, the less likely (s)he is to envisage limiting the number of children as a likely livelihood strategy.

Hired labor has a positive contribution to function 1. In other words, young people from households that hired much labor are less likely to think of limiting the number of children as an alternative livelihood strategy. Adult children constitute the unpaid labor on the farm. The more children a farmer has, the less paid labor is used. Children may think that they will use family labor instead of paid labor. Renting land contributes negatively to function 1. In fact, households who have small farm size are obliged to rent land in order to increase the family income. Young people from households that rent much land foresee limiting children as their livelihood strategy. Households that they come from are renting much land, probably because the farm income is too low to satisfy all household members' needs. Young people from those households that rent much land, often because they do not have adequate land, know that they will not inherit much land and think of having few children as their livelihood strategy. Parental advice to their children to have a farm career offers a positive contribution to function 1. In other words, young people whose parents would advise them to continue farming are less likely to count on limiting the number of their children as a livelihood strategy. Parents value their children with regard to their support as laborers, financially, and in domestic chores, and help them in establishing their own future families. This finding confirms that parental advice influences children's livelihood strategies. Young people whose parents mention that it is the children's responsibility to think of their future are less likely to think of limiting the family size as a

probable strategy. Parents assist their children in preparing for their future by providing moral and material support, but sometimes they trust them and let children decide for themselves and choose what they see as appropriate to their future lives.

The factors with the greatest relative contribution to function 2, that discriminate young people with farm career strategies from those with non-farm career strategies are, in order of contribution to the function: lease of land, rent of land, parental advice for farm careers, level of education of young people, parental advice involving children responsibility, hired labor, and sex.

The level of education of young people contributes negatively to function 2. Young people who envisage a farm career tend to have a lower level of education while those who think of a non-farm career tend to have higher level of education. Young people with higher levels of education are more likely to think of non-farm opportunities than those with lower levels of education. With a higher level of education, young people think that they will be able to compete in non-farm occupations.

Lease of land is the highest contributor to career function. It contributes negatively to function 2. It means that young people who envisage a farm career as a plausible livelihood strategy, come from households that lease less, if any, land. It makes sense since households that lease less land have relatively smaller and members of those households have relatively lower levels of education (r=.19). In contrast, young people who foresee a non-farm career as their livelihood strategy are from households that lease much land. The key factor here is the level of education of children, since households that lease much land have larger . Lease of land contributes more in absolute value to function 2 than it does for function 1.

Renting land contributes positively to farm careers. Young people from households that rent much land are more likely to imagine farm careers than they do non-farm careers. Those young people who work on farms with rented land may think that they will be able to rent land like their parents. Another explanation is that households that rent much land generally have smaller and lower levels of education. Consequently, young people may think that their only alternative livelihood strategy is working on farms, since it may be hard for them to compete for non-farm jobs becaude their low level of education.

Not surprisingly, the parental advice to children for farm careers is the third factor that contributes to function 2. Farm career parental advice contribute positively to the farm careers function. Young people who envisage a farm career have parents who want them to continue a farming career. This study shows that children consider their parental advice and desire for the establishment of children's future families.

These two functions are statistically significant at .05 level. Function 1, family size reduction, has the strongest discriminating ability, accounting for 72.11 of the variance explained by the discriminant analysis. The remaining is explained by function 2, which is less statistically significant. The canonical correlation is a measure of the degree of association between the discriminant scores and the groups. The canonical correlation for the two functions are, respectively, 40 percent for function 1 and 22 percent for function 2. Varimax rotation of the discriminant function axes were used since the functions are not orthogonal. It facilitates the interpretation of the axes. Moreover, such a rotation has no effect upon group separation and the relative location of cases, but one cannot tell which discriminant is the most important.

A classification of results for farm youth livelihood strategies gives each case a group score based on the discriminant analysis and compares the computed group assignment to the actual score. Based on the significant independent variables, this discriminant analysis of farm youth livelihood strategies correctly classified 50.95 percent of farm youths' in livelihood strategies groups (Table 6). The discriminant functions performed better than what would be found at the proportional chance level of 33.3 percent. It, then, means that the capability to differentiate farm youth's livelihood strategies is greatly enhanced by these independent variables: individual, farm, and family characteristics.

Table 6 highlights farm youth livelihood strategies by gender. A discriminant analysis of young males' livelihood strategies is performed and seven out of twelve variables are included in two statistically significant discriminant functions. The group centroids shows that function 1 differentiates groups of young males by family planning, by distinguishing young males who envisage limiting the number of children and those who think of a career. Function 2 distinguishes groups of young males by non-farm careers. Function 2 groups young males who envisage a non-farm career with others.

The factors that are most important, by the order of relative importance to function 1 (family planning), in classifying groups of young males are: hired labor, loan land, lease land, family income, parental advice to limit the number of children, farm size, and renting land. For young males, hired labor contributes negatively to function 1. Young males who think of limiting the number of children in their families come from households that hired less labor. Those households hired less labor, in part, because they have many members and use family labor. In other words, young males who desire to limit the number of children in their

families as their livelihood strategy come from larger families in comparison to young males who envisage other livelihood strategies.

Table 6 shows that young males who want to limit the number of children come from households that are in the "upper class". Those households that give out land to cultivate, either for free or for money, generally have larger and possess more income. In fact, both loan land, lease land, family income, and farm size contribute positively to function 1. Young males who choose limiting the number of children as their livelihood strategy come from wealthier households. Those households have higher incomes and larger size of , give out land for free and for money, hire less labor because they have larger family size, and practically do not rent land. Table 6 reveals that young males who consider limiting the number of children in their families as a livelihood strategy, have parents who would not advise them to do so. Parental advice to limit the number of children contributes negatively to function 1. This implies that adult children sometimes disagree with parental opinions and desires.

The factors with the relative highest contributions to function 2 (non-farm careers) are, in order of importance: farm size, rent land, family income, parental advice to limit the number of children, lease land, hired labor, and loan of land. Farm size contributes negatively to non-farm career function. Young males who foresee non-farm careers as a likely livelihood strategy are from households with small , that was expected since those young males will not expect to inherit enough land if their parents do not own much land. Renting land also contributes negatively to function 2. Young males who state non-farm careers as their livelihood strategy are from households who rent less land. Household activities influence children's livelihood strategies. Family income, hired labor, and lease of land all contribute positively to function 2.

In other words, young males who envisage non-farm careers as their livelihood strategy are more likely to come from households that have higher income, hire labor, and lease their land. These households hire labor and lease a part of their land to increase the family income. It was previously found that members of households with higher income tend to have a relatively higher level of education. Level of education is not a significant discriminant; its effects may be accounted for family income (r=.21). Young males from wealthier households have a higher level of education, which would allow them to be competitive in non-farm sectors. Parental advice to limit the number of children has a positive standardized coefficient for function 2. Young males whose livelihood strategy is a non-farm career have parents who would recommend them that they limit the number of their children. Like their children, those parents have a relatively high level of education.

Function 1 (family size reduction) is statistically significant at .05 level, and has the strongest discriminating ability, accounting for 72.11 of the variance explained by the discriminant analysis. The remaining variance is explained by function 2 (non-farm career), which is less statistically significant (.06). The canonical correlation for the two functions are, respectively, .36 for function 1 and .30 for function 2.

Classification results for young males' livelihood strategies gives each case a group score based on the discriminant analysis and compares the computed group assignment to the actual score. Based on the significant independent variables, this discriminant analysis of young males' livelihood strategies correctly classified 50.63 percent of young males in livelihood strategies groups (table 6). The discriminant functions performed better than what would be found at the proportional

chance level of 33.3 percent. This means that the capability to differentiate young males' livelihood strategies is greatly enhanced by these independent variables: rent land, lease land, loan land, hired labor, farm size, family income, and parental advice of limiting the number of births.

Table 6 highlights factors that are most important to discriminate young females' livelihood strategies. Those factors are different from those that differentiate young males' livelihood strategies. Function 1 differentiates groups of young females by farm careers, by grouping young females who think of a farm career as a livelihood strategy apart from those who do not. Even though function 2 is not statistically significant, it distinguishes groups of young females by family planning. Function 2 differentiates young females whose livelihood strategy is to limit the number of children from those who envisage careers. Young females' livelihood strategies are differentiated based on four variables. Variables that contribute to function 1 (farm career) are, in the order of importance: lease of land, parental advice for a farm career, children responsibility, and level of education. Young females who envisage having a farm career are from households that lease less land, probably because they own small . Members of households with small tend to have a lower level of education. The lower the level of education, the more likely young females are to plan to stay on the farm. Education has a negative and small standardized coefficient for function 1 (farm career). Parental advice for farm careers has a positive and substantial contribution to function 1 for young females. This implies that young females whose parents want them to pursue farming are more likely to envisage a farm career as their livelihood strategy. Parents influence young females' livelihood strategies, which are more likely to be farm careers. If a

Table VI, Stepwise Discriminant Analysis of Farm Youth Livelihood Strategies Groups (N=267 Young people, 135 Young males, and 132 Young Females)

Standardized Discriminant Coefficients

	Function 1			Function 2		
	All Youth	Male	Female	All Youth	Male	Female
Sex	.882	-----	-----	-.006		
Education	-.279	-----	-.030	-.318		-.867
Rent land	-.148	.098		.537	-.712	
Lease	.051	.405	-.759	-.592	.408	.344
Loan		.635			-.037	
Hired labor	.253	-.892		-.010	.131	
Farm size		.117			-.840	
Family income		.304			.624	
Parental advice:						
farm career	.260		.747	.509		.313
non-farm career						
limit children		-.168			.441	
children responsability	.187		.422	.240		.384
Eigenvalue	.193	.149	.114	.054	.101	.041
Percent variance	72.11	56.33	73.56	27.89	43.67	26.44
Lambda	.795	.791	.863	.949	.908	.961
Canonical correlation	.402	.360	.320	.227	.303	.198
Chi-square	59.22	29.77	18.88	13.63	12.21	5.12
Significance	.000	.008	.015	.058	.057	.163

Group Centroids

		Function 1: Family size reduction			Function 2: Career		
		All Youth	Male	Female	All Youth	Male	Female
Farm career	(1)	.247	-.251	.441	.346	-.280	.211
Non-farm career	(2)	.238	-.012	-.241	-.213	.344	.195
Limit children	(3)	-.726	.999	-.158	-.171	-.403	-.317

NUMBER OF CASES CLASSIFIED (N=): 351

	All Youth	Male	Female
PERCENT OF GROUPED CASES CORRECTLY CLASSIFIED:	50.95%	50.63%	48.86%

young female has a high level of education, her primary livelihood strategy is to limit the number of the children in her own family. Level of education has a negative and high standardized coefficient for function 2. The more education a young female has, the more likely she will plan to limit the number of children she will bear. Function 1 (farm career) is statistically significant at .05 level and has the strongest discriminating ability, accounting for 73.56 of the variance explained by the discriminant analysis. The remaining variance is explained by function 2 (family size reduction), which is not statistically significant (.163). The canonical correlation for the two functions are, respectively, .320 for function 1 and .20 for function 2. Classification results for young females' livelihood strategies gives each case a group score based on the discriminant analysis and compares the computed group assignment to the actual score. Based on the significant independent variables, this discriminant analysis of young females' livelihood strategies correctly classified 48.86 percent of young females in livelihood strategies groups (table 6). The discriminant functions performed better than what would be found at the proportional chance level of 33.3 percent. This means that the capability to differentiate young females' livelihood strategies is greatly enhanced by these independent variables: level of education, lease land, parental advice of having a farm career, and children responsibility.

CHAPTER V.

SUMMARY AND CONCLUSION

This study examined the structuring of farm youths' livelihood strategies in Rwanda. Although farm youths' livelihood strategies are individual responses, they are conditioned and depend upon different organizational relations within an agrifamily household. Young people's livelihood strategies vary along two major functions---the career, either on farm or in non-farm sectors, and the reduction of the family size. These factors associated with farm youths' livelihood strategies are responses to conditions and constraints surrounding the farm enterprise and the family in rural Rwanda.

Although young people in Rwanda declare that they would like to remain in farming as their parents have done, they are aware that they will not inherit enough land to fulfill their traditional expectations. This study shows that young people envisage different livelihood strategies to sustain their future families. Some would prefer a farm career (31.6 percent); some a non-farm career (35.3 percent); some expect limit the number of children in their future families (23.5 percent); and some anticipate other strategies (9.6 percent).

Young people who foresee farm careers as a strategy think of working on farms for a salary; acquiring land by inheritance, purchase or gift; or think that they will group into cooperatives in order to have more land. Some of them view the alternative of increasing the productivity of their holdings by using fertilizers, while others think that they will be able to rent or borrow land from farmers who possess more land. There are also those who expect to migrate in search of land. These strategies reveal

that, despite land scarcity, young people look toward the continuation of farming.

The other livelihood strategy for young people in Rwanda is a non-farm career. Non-farm careers include activities such as running a small business, performing carpentry, masonry, or mechanical jobs, pursuing handicrafts or other non-farm occupations. Some expect to have vocational/professional training. Some young people think that they will migrate either to urban areas or to other rural areas in search of non-farm jobs. Their non-farm livelihood strategy is explained by the fact that the sustainability of a farm, in the long run, is uncertain. Insufficient farm land can easily lead to shortages if other alternatives are not found, particularly those in the non-agricultural sectors. Non-agricultural activities are needed to help farmers to supplement their meager incomes. This study shows that young people also plan to limit the number of children in their future families as a livelihood strategy. It is a long-run strategy that is desirable for individual families and for the country as a whole.

Farm youth livelihood strategies are differentiated on the basis of both individual, farm, and family characteristics. This study shows that young men tend to be more interested in farm and non-farm careers than are their sisters. The strategy of limiting the number of children is more likely announced by young women than by young men. Not surprisingly, farm youths' livelihood strategies vary according to the level of education. Young people with no schooling are more likely to envisage farm careers than non-farm careers or strategies that involve limiting the number of their future children. In contrast, young people who have completed primary school and/or who have gone beyond primary school are more likely to envisage limiting the number of their future children and

non-farm careers than they are to think of farm careers as a livelihood strategy.

Farm youths' livelihood strategies are also differentiated by their social class origin. Young people who choose limiting the number of children as their livelihood strategy come from wealthier households, "the upper class." They come from households that have higher incomes and larger size of, give out land for free and for money, hire less labor because they have larger family size, and practically, do not rent land. Young people who envisage limiting the number of their future children or having a non-farm career come from families with higher incomes, while those who foresee farm careers as their livelihood strategy are from families with lower incomes.

This study reveals that young people who aspire to farm careers also come from households that hired less labor, probably because they use more familial labor. Young people from poor households with lower incomes and a low level of education for members of the household decide in favor of having farm careers. They expect to receive inheritances of land and to work on the farm. These poor households have, in general, less holdings, and young people aspire to work for those who have larger holdings. They expect also to obtain land by other means, such as gifts from relatives, or by purchasing or renting it. Parents in these households want their children to become farmers like themselves. Some declare that if children do not receive enough land, it is up to them to try to do the best thing for their future. In addition, children in these households have completed at least primary school, they do not have other choices, except to work on farms.

Young people from wealthier households are more likely to receive inheritance of land because their parents have larger holdings. With a

high level of education, they can compete in non-farm sectors. Young people from wealthier households, especially young women, state birth control as a future strategy. It is found that the more education one has, the more likely one is to practice family planning.

Young people in rural areas, as members of the farm enterprise, engage in various activities to improve the quality of their lives. They are self-employed on the farms and practise a subsistence agriculture, in most of the cases, for self-consumption. The farm enterprise uses both family and paid labor. The farm income remains low, due to the decrease in the quantity and value of the agricultural products sold. Members of households seek off-farm employment in order to complement the farm income. Their monetary needs have increased so much that several incomes, farm and non-farm, are combined in order to satisfy consumption needs. Specifically, this study supports the idea of Mingione on social reproduction patterns. The combination of subsistence agriculture of self-employed farmers, low farm incomes, diverse types of social organizations, various wage and non-wage activities within and around the agrifamily household, characterizes social reproduction patterns in Rwanda. These conditions and constraints of the agrifamily household shape farm youths' attitudes, behaviors, and expectations.

The family has been playing an important role to teach children existing societal values, providing emotional support, and assisting them in establishing their own families. This study shows that parents' advice regarding their children's future is transmitted to their offspring. Farm youths' livelihood strategies are, thus, influenced by parents' personal and interpersonal characteristics, as well as by their conscious and unconscious desires for their children. Some young adult children envisage livelihood strategies different from the desires of their

parents. This affirms the notion in socialization theory that a young adult, as he/she grows up, considers parents' opinions and advice, but also develops his/her own identity (Belsky et al., 1984). This study shows that parental advice to children contributes to the differentiation of adult children's livelihood strategies. Young people who envisage farm careers have parents who want them to continue in farming as a career. However, parents do not always influence their children's livelihood strategies. For example, young people who think of limiting the number of their future children have parents who advise other strategies.

This study indicates that farm youths' livelihood strategies are differentiated by individual characteristics: sex and level of education. The livelihood strategies of young people are also distinguished by their social class origin. Income, farm size, hired labor, rent of land, lease, loan and borrowing land , and education of members of households jointly indicative of social class are found to differentiate farm youths' livelihood strategies. Finally, parental advice to children contributes to the differentiation of adult children livelihood strategies. Sometimes young people's livelihood strategies are different from their parents' advice regarding their future. Farm and family characteristics, thus, influence farm youths' livelihood strategies.

This study has policy implications for education and careers for young people, and family planning programs, as well as for the sector of agriculture. Young people who envisage farm careers have a lower level of formal education compared to those who think of non-farm careers or of limiting the number of their future children as livelihood strategies. The key factor is education. In order for Rwanda to succeed in economic development in the long run, it must be able to develop and provide enough

quality schools for both formal and vocational education for its many young people, which are its primary resource.

The education of its many young males and females ---both formal and vocational/professional training--- should be a priority in Rwanda. With a high level of education, young people are able to compete in non-farm sectors. It is recommended that formal education in Rwanda encourage mass education at least up to the high-school level. Young women's education is especially important for future families. Education and professional training allow young women to seek off-farm employment; education remains one efficient way of limiting the number of children that young women bear. Vocational education is needed to prepare all young people for future careers. But education should be accompanied by the creation of jobs, particularly non-farm jobs. This requires the implantation of industries, the development of non-agricultural activities, the promotion of small enterprises, and the formation of cooperatives in rural areas that would increase the family income and decrease urban migration, thus avoid the accumulation of the totality of all economic activities in big cities.

Increasing farmers' capacity to withstand the effects of deficient land would help to prevent shortages, and the use of appropriate modern farming systems would increase food production and family income. That necessitates an increase in the use of appropriate modern technology. In addition, since many young people, as well as their parents, desire the continuation of farming, the creation of greater employment opportunities for young people in rural communities would maintain their attachment to the farms, thus is an appropriate response to economic crises in rural Rwanda. Limiting the number of children born is a long-run strategy and should be accompanied by the preparation of young people for farm and non-

farm careers by either vocational and professional training, or by creating more employment opportunities on the farm and in the non-farm sector.

For Rwanda to succeed in economic development in the long run, it must be able to develop and provide enough schools with quality for both formal and vocational education for all citizens, especially young people, which are its main resource. In addition, the development of non-agricultural activities, the promotion of enterprises or industries, the formation of cooperatives, the distribution of credits in rural Rwanda are all topics to investigate thoroughly for the development of Rwanda.

It has been shown, particularly in developed countries that natural boundaries, are often overcome by technical development. Appropriate technology may increase people's standard of living. For example, there are efficient agricultural techniques which are not expensive and which would increase the productivity of the soil and guarantee the conservation of the soil. With a little technology, the country may easily exploit lakes and other natural resources. With the potentialities of water, hydro-electric energy should be created and distributed for the whole country.

There are other very complex questions on youth issues that need more data in future researches: What do farm youth need to know and be able to do in order to assume productive adult roles as workers, citizens, and family members? What is the proper balance between education and socialization that is equally appropriate for all future adult roles, and specific training to prepare youth for particular roles? What are the advantages and disadvantages of the educational system? How do families, communities, and work socialize farm youth for future careers? How pervasive is youth employment in rural areas, and what kind of jobs do

they find off-farm? How much income do they earn and how much do they contribute to the parents' family? What is the impact of off-farm employment compared with youth participation on the farm, considering both the family and economic values? The answers to these questions would help to draw some lines for policy recommendations that would maximize the utility of this important human capital of youth, underemployed on the farm and/or unemployed off-farm. These research questions are important for a long-run solution to youth problems in rural Rwanda.

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