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MASTER THESIS

Farming and rural systems development: Impact of off-farm activities on living standard of rural and semi-urban households, Nigeria

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Declaration

I hereby declare, that I have written this master thesis "Farming and rural systems development: Impact of off-farm activities on living standard of rural and semi-urban households, Nigeria" myself with help of the literature listed in references.

Prague 6-Suchdol, 18 April 2012

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Abstract

Over the last couple of decades, there has been recognisable shift in methods of income in rural Nigeria. Most significantly, the importance of off-farm activities has increased. This is true of nations that have seen a high growth in population, like Nigeria, and this alternate source of revenue cannot be overlooked in terms of its importance economically and socially. The impact of this growth in engagement of off-farm activities on the living standard of people has been the subject of numerous studies, some of which are analysed in this thesis. Nonetheless, the links are very complicated and their impact is not unequivocal. This thesis analyzes living standard of households in rural and semi-urban areas of Nigeria focusing on off-farm activities. The results indicate that all of the surveyed villages have their own livelihood strategies for subsistence and all diversify their incomes. Almost 99% of the households sampled have at least some form of off-farm income. On average, off-farm income accounts for almost 53% of total overall family income. Strikingly, the villages with the highest share of off-farm income show very low economic and social security. Generally, the survey has shown that participation in off-farm activities is primarily a means by which to cope with the lack of natural capital and as a complementary source of income for poor households.

Key words: living standard, off-farm income, household economy, Nigeria

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List of Abbreviations

CIA	: Central Intelligence Agency
DFDI	: Department of International Development
GDP	: Gross Domestic Product
HDI	: Human Development Index
HDR	: Human Development Reports
UNDP	: United Nations Development Programme
USD	: United States Dollar
WB	: World Bank

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1. INTRODUCTION

The importance of agriculture activities in Nigeria and other Sub-Saharan countries is indisputable in terms of incomes and food security. However, the significance of off-farm activities is proving to be more and more important in improving the level of households' incomes than was previously assumed. The economy of Nigeria is highly dependent on agriculture itself since this sector involves 60% - 70% of the population and its share on GDP is about 35% (WB, 2012). If talking about persecution of rural poverty in developing countries, off-farm activities are now considered as an inseparable part of the process. It was realized that people's incomes cannot be drawn from agriculture alone as it is homogenous source but differentiation of sources is a must even in poorest countries in the world. The higher the diversification of sources, the higher the economic success is today seen as motto of most economical subjects in the world. Off-farm incomes are important as an off-season, part-time or home-based income supplement for households whose main activity is farming (Gordon and Craig, 2001).

Access to off-farm activities is not automatic. There are a few basic prerequisites that help to promote the trend of participation of off-farm income in total households' economy. These factors can be education, infrastructure, health conditions or financial services and other resources. There exist several pieces of evidence that indicate the necessity of finding new ways of income generation in poor rural areas, not only in Nigeria but around the world. Amongst these the main one to be mentioned is the incapacity of rural systems to provide necessary amounts of food for all inhabitants. It cannot be expected that this trend would change very quickly despite possible diminishing of birth rates. It also happens very often that people from these areas for different reasons are not able to move from rural to urban areas where they could find other options for income. On the other hand, the capacity of towns and other urban territories is not unlimited and very often the flow of these people finishes at city suburbs, slums and their quality of life does not noticeably improve.

The role of off-farm activities and income from them is dependent on different factors upon which they can or cannot be done, some of them were stated above. However, as with every income generation activity, it should be at least taken into account and its effectiveness measured.

2. LITERATURE REVIEW

2.1. Livelihood strategies

What people do for living is affected by needs and preferences of individuals, the opportunities available to them, habitual practice and political or economic circumstances. Livelihood strategy is a set of all activities and choices carried out in order to satisfy both individual and group needs. The assets are combined and used to achieve people's livelihood goals (Preston, 1994; Babulo et al, 2008).

For a better understanding of households' livelihoods and main factors by which they can be influenced and the relationships among these, the sustainable livelihood framework has been designed. It can be applied to both rural and urban areas and can be used either to plan new development activities or to see the contribution of existing activities to sustainable livelihood (DFID, 1999; Villavicencio, 2008). Relations among all the activities and its complexity are infinite (Preston, 1994).

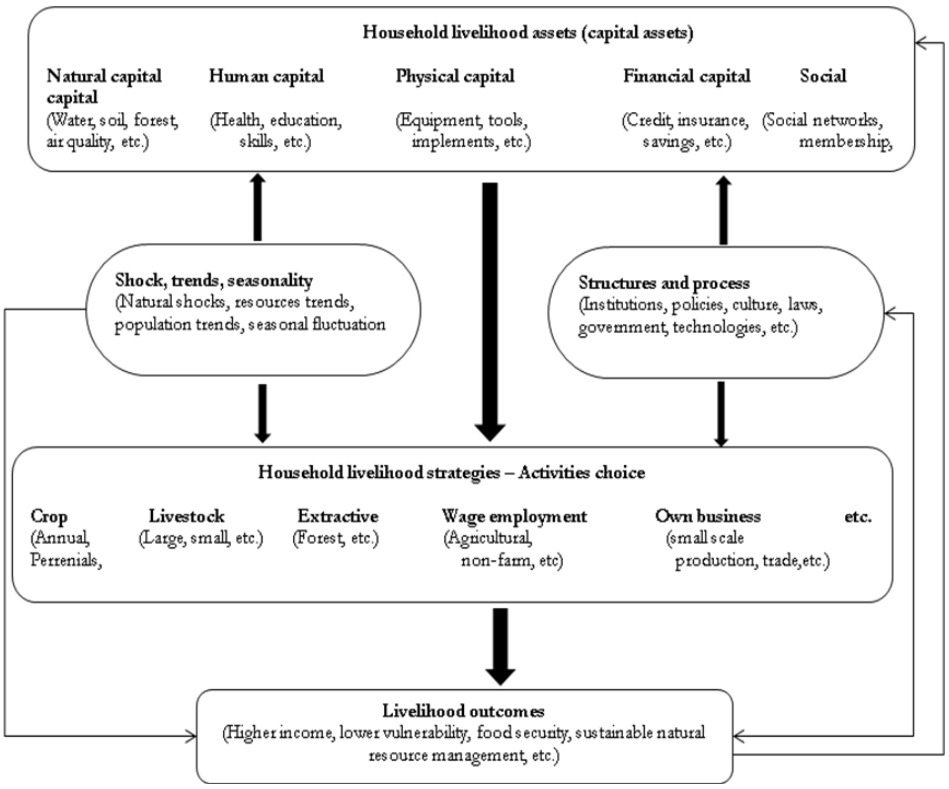

Figure 1 Sustainable livelihood framework

Livelihood assets are resources, both human and non-human, to which an access is needed in order to build a livelihood. Capital assets are fundamental for livelihood strategies. To arrange a flow of income, provide resources for daily subsistence and other benefits the assets need to be stored, collected, distributed or exchanged to activities. The household distributes and organizes its resources to carry out a living strategy (Babulo et al., 2008; Liang et al, 2012). None of the assets separately on its own would be sufficient enough to earn all the diverse outcomes that people need and require. Especially in poor, rural areas where the access to all capital assets is usually very limited, people have to find specific combinations of assets available and adapt their activities accordingly (DFID, 1999).

Five main categories of capital assets have been identified: human, natural, financial, social and physical (UNDP, 2006; Babulo et al, 2008; Liang et al; 2012).

The asset pentagon is usually located in the core of the livelihood framework and was designed to illustrate schematically the variety of people's access to different capital assets. The pentagon represents a scale of diverse levels of access where the point where the lines meet shows the zero access to the given capital whilst the opposite edge means the maximum access (DFID, 1999).

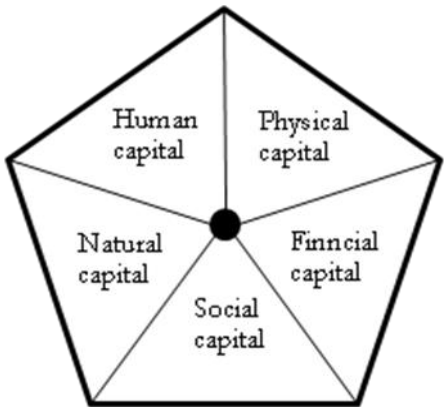

Figure 2 Asset pentagon

Human capital refers to education, skills, abilities, knowledge, awareness, experience, physical ability, health and others. For a household, the human capital can mean the level and quality of the labour force. It is clear that all of these are very important for generating a flow of income. There is an obvious linkage between schooling, experience and skills of an individual and access to better opportunities. The importance of education, both formal academic and

work skills, to improve living standards, has been proved by a significant number of studies. Poverty is highly related to lower educational levels and a lack of skills since education plays an important role in gaining better paid non-agricultural jobs (Ellis, 1999; Janvry and Sadoulet, 2001).

Good health is also a fundamental feature for livelihood. Poor health conditions can limit working capability and can cause livelihood constraints. The evidence shows that good health and education contribute to labour productivity in the majority of countries (DFID, 1999; Schultz, 2003).

Land, water, forest, soil, quality of air, wildlife, biodiversity and atmosphere are all comprised in the term natural capital (DFID, 1999; Babulo et al, 2008). The relationship between natural capital and vulnerability context within the livelihood framework is comparatively close. Fires, floods and earthquakes are natural processes that threaten farmers´ livelihood; seasonality is mainly caused by a different amount of natural capital over the year. The importance of natural capital for those who yield their livelihood from natural resources like farming, fishing, extraction, etc, is apparent. However the relationship is much broader than this. Everyone is dependent on food derived from natural capital as well as our health (human capital). This can be affected by the quality of natural capital (DFID, 1999).

The term financial capital refers to income (both employment and self-employment), savings, finances available, remittances, pensions, credit, allowance, governmental subsidies, gifts, etc; in other words financial resources serving to meet livelihood objectives and financial needs (DFID, 1999; Babulo et al, 2008). It shows the availability of cash or equal source that makes adopting of diverse livelihood strategies possible. Financial capital is the most universal of all five capital assets categories and at the same time the least available to the poor. This fact makes the other four assets more important to them. Financial capital can be exchanged for another kind of asset to meet livelihood needs; for instance purchasing food in order to increase food security (DFID, 1999).

Social capital are social resources that enable people to cooperate and work together in order to meet the needs of their livelihood. It includes networks (both vertical and horizontal, groups, access to institutions, shared values and interests, partnership, friendship etc. (DFID, 1999; Babulo et al, 2008). Social capital can impact other livelihood

assets. For example increasing the efficiency of economic relations can improve financial capital. The evidence shows that communities with higher social capital are wealthier. However measuring social capital is questionable (DFID, 1999).

Physical capital represents infrastructure and means needed to support livelihood, including shelter and buildings, water supply, tools, equipment, energy, transport, communication and others (Babulo et al, 2008; DFID, 1999). Lack of physical capital can gravely influence other assets and lower standard of living. For instance bad infrastructure can reduce access to good health care or education, limited tools, equipment, tools or fertilizers can decrease amount and quality of agriculture production, etc. (DFID, 1999).

Livelihood strategies and outcomes are not affected only by assets accessibility and vulnerability context but also by structures and processes. *Structures* are either public or private organizations and institutions which implement *processes* – policies, laws, legislations, etc. that affect access to capitals, decision-making and livelihood strategies. Structures and processes exist at all levels from household to international scope (DFID, 1999).

The vulnerability context represents the environment people are surrounded by and its impact. People have no or only limited control over the external environment and environmental effect which have direct or indirect influence on people's livelihood and accessibility of assets. These environmental effects are known as shocks, trends and seasonality and may (or may not) cause vulnerability. *Shocks* like crop and livestock diseases, fires, floods, war conflicts, etc. can cause damages or directly devastate assets and consequently make people abandon their land. *Trends* (e.g. population growth, climate change, inflation, unemployment) might be more harmless as they are more expectable. They have a high influence on rates of return for livelihood strategies. *Seasonality* in assets accessibility, prices, job opportunities, etc. causes severe problems in developing countries however its effects can be reduced by applied processes, e.g. facilitating trade by well-working market or by livelihood diversification (DFID, 1999; Ellis, 1999).

Livelihood outcomes are outputs achieved through livelihood strategies – higher income, sustainability of resources, food security, lower vulnerability, increased well-being, etc. The outcomes are influenced by all items within the livelihood framework (Babulo et al, 2008; DFID, 19

2.2. Living standard

There are many viewpoints and explanations of standard of living and there exist many indicators for its measuring. In general it is understood as a degree of prosperity in nation composed of numerous aspects such as income level, economic security, social security, quality of housing and food, access to health care, level of education and its accessibility, transportation, communications and others. On an individual level, living standard is a measure of the quality of life in such areas as housing, food, education, clothing, transportation and employment opportunities. Standard of living can be measured by number of different indicators such as poverty rate, inflation rate, gross domestic product, national economic growth, human development index, life expectancy, economic success (family income), economic security (cash and liquidity), independency on resources owner, food supply and food security, supply of water and housing, health conditions, education and qualification, social security and others (Doppler, 2006).

2.2.1. Economic success

One of the main aims of farmer is to generate high income, from both – farm and off-farm activities, as it is one of the most crucial factors that determines living standard of a family. The minimum family income has to cover the cost of basic family needs and requirements such as food, drinking water, shelter, clothes, schooling, transportation, etc. This minimum helps to define poverty line. Family income is equal farm-income plus off-farm income. Farm income is ability to profit from resources owned by family. It is calculated as farm revenue minus farm expenses. Off-farm income is composed of wages and salaries both agriculture and non-agriculture, remittances (an income received from a migrant family member), income from the forest products and trading (Doppler, 2006).

2.2.2. Economic security

Liquidity of farm or family means that its members can easily meet their needs either because the family owns, is able to generate or borrow cash without disrupting the production activities of business, in other words, an ability to generate cash. Liquidity has become very important particularly for the families using the modern energy sources as electricity and gas

since they need to have cash on time to purchase these and other inputs for farming activities. Where farm and family operate as one business unit their liquidity cannot be separated.

Liquidity can be expressed by family cash balance which can be calculated as family cash flow minus family cash outflows. Family cash flow is composed of cash savings, cash from farm products selling, off-farm income, loans and other revenues. Family cash outflow includes expenses on farm production activities, interests, repayments and household expenditures (Doppler, 2006).

2.2.3. Independency on resources owner

One of the issues a small-holder has to face is dependency on resources owners. Because of limited availability of own resources the family is forced to use external sources which creates the dependency on their owners such as landlord, moneylenders or external job opportunities. The effects of this dependency on family livelihood are mostly negative. To analyze the rate of independency on resources owner land, water and capital are used (Doppler, 2006).

2.2.4. Food supply and food security

Food supply and food security are severe problems that developing countries face. These terms refer to quantity as well as quality of the food derived from both the farm and the market. It is closely connected to size of the family, family cycle, degree of market orientation, the way of food storing and its preparation and food accessibility. Food supply and food security are also influenced by level of income as the food consumption per person is usually proportional to family income. Food insecurity is not only a problem of insufficient food production but more of household poverty and low income (Gladwin et al., 2000; Doppler, 2006).

2.2.5. Supply of water and housing

Water is one of the most crucial resources, important for farming where it determines the use of land and it productivity and also very crucial for health situation (human capital). The lack of drinking water, sanitation and convenient housing can cause outbreak of diseases and weaken household members' health. To evaluate the quality and quantity of water supply its

sources such as wells, streams, water tap, rainfalls and irrigation systems can be taken into account. Regarding evaluation of housing, the expenditures on the house operation, rent, energy etc. are usually used (Victora et al., 1987; Doppler, 2006).

2.2.6. Health conditions

Family health situation is measured according expenditures on health care compared to family income, percentage of family members who are ill, addicted or need a special health treatment in the hospital or undernourished children (Doppler, 2006).

2.2.7. Education and qualification

To evaluate the educational level of families indicators such as expenditures on schooling (like school fees and cost of learning materials), and school accessibility are measured. The percentage of family members with primary, secondary and tertiary education should be considered. Generally, expenses on education increase with higher educational level. Also for families living in remote areas have to spend more on schooling (Doppler, 2006).

2.2.8. Social security

Doppler (2006) considers social security as a security of the families in the future and uses family savings and value of assets as an indicator to measure it. These savings or assets can be use in time of scarcity or certain risk to ensure farm production as well as meet household and family´s needs and requirements.

2.3. Off-farm activities

Participation in off-farm activities can significantly contribute to household income, increase their welfare and reduce risk involved in agriculture production. Particularly to those farm households with some resources constraints such as limited farm size, low land fertility or credit and liquidity constraints, as participation in off-farm activities can make possible to make some investment in farms such as purchasing or renting equipment or financing skill training (Doppler, 2006; Shi et al 2005). Grimm and Bedi (2010) together with Babatunde (2010) pointed out that poor households more likely tend to rely on off-farm

income and usually evince higher share of off-farm income. Nonetheless, the poor households engage more in low-earning off-farm activities compared to the wealthier ones. Off-farm income is more frequent in lowland areas compared to mountain zones since there are more job opportunities. Off-farm activities can lower the pressure exerted on natural resources (Doppler, 2006). Off-farm activities are also a crucial source of savings that are used to obtain subsistence in time of scarcity. Off-farm income can be used as a mean to decrease income inequality and consequently reduce social and political tension (Reardon, 1998). Reardon´s assumption that off-farm income helps reducing income inequality is in conflict with finding made by Babatunde (2010) who claims that some households are disadvantaged in terms of education, poor infrastructure or limited natural capital have lower opportunities in participating in more remunerative off-farm activities. This can possibly increase income inequality.

Generally, non-farm income is a part of off-farm income, where non-farm refers to an income derived from wage-paying activities, self-employment in commerce, manufacturing and other services – activities that are not primary agricultural, forestry or fisheries; however it includes processing or trade of agricultural product, whilst off-farm income involves farm wages and migration earnings too (Reardon, 1998; Gordon and Craig 2001). We can name salaries, forest product collecting, non-timber forest product collecting, money lend out, trading, selling assets, servicing outside, pensions, government supports and gifts as examples of off-farm income.

However there are several definitions end explanations of off-farm activities. For instance Runsheng Yin defines off-farm labour as any kind of labour that is not on farm. He considers an individual to have an off-farm occupation if the person engages in wage-earning activities in an off-farm firm or a non-farm self-employment for at least seven days a year. On the contrary, Janvry and Sadoulet (2001) include also agricultural wages into off-farm income beside non-agricultural wages, self-employment and remittances. We can also understand household member working off-farm as a migrant – a person not living with other household members but working outside their provinces. Still they can be considered as household members since they keep close contact with other members and they usually send their salaries back thus they significantly contribute to the household income. Migrants are also involved in household's decision-making process (Shi et al. 2006). Babatunde (2010) defines off-farm income as income from all non-agriculture activities together with agricultural wage labour. It

includes agriculture salaries, non-agricultural salaries, self-employment income, remittances, pensions etc.

As mentioned above, reducing per capita land and significant contribution to household income are main reasons for increasing off-farm activities (Babatunde, 2010). Factors determining decision making on off-farm activities participation can be divided into two groups – 'push' and 'pull' factors.

A large income gap between rural and urban areas and preference of living more comfortable life in a city and working outside the farm belong among the 'pull' factors.
The 'push' factors that pressure farmer to find an off-farm occupation can be land constraints, inadequate farm output, risk in farm production, rural market failures, such as imperfect of missing insurance, consumption and credit markets (Shi et al, 2006; Reardon 1998). Grimm and Bedi (2010) say the poor households more likely participate in off-farm activities due to push factors while non-poor as their choice.

There is a positive relation between participation in off-farm activities and the household size as it permits labour distribution among family members. It is believed that off-farm income can help coping land constraints. However, Babatunde (2010) does not find any relation between small farm size and increasing off-farm income suggesting that engagement in off-farm activities is not primarily a response to land scarcity or lack of natural capital. Strikingly, he finds out, the off-farm income seems to increase with farm size as they complement each other.

There are only limited opportunities for off-farm employment and some special skills might be required for certain kind of jobs, higher education (human capital) is always an advantage for gaining a non-agricultural employment (Shi et al, 2006; Chang and Mishra, 2008). Nonetheless Shi et al. (2006) says the role of human capital to obtain an agricultural off-farm employment is smaller. On the contrary Chang and Mishra (2008) finds that individuals with higher educational level tend to work of the farm more likely. Therefore, the average salary rate is lower in agricultural sector (Babatunde, 2010). The probability of off-farm work decreases with increasing age of the farmer (Chang and Mishra, 2008).

2.3.1. Livelihood diversification

Ellis (1999) defines rural livelihood diversification as "process by which households constructs a diverse portfolio of activities and social support capabilities for survival and in order to improve their standard of living".

Since none of the livelihood strategies is able to sustain itself, its diversification and right choice of livelihood strategy is crucial for household's stability, adaptability and resistance. Diversified livelihood systems are more likely to adapt to the new circumstances which makes them less vulnerable (Gladwin et al., 2001; Ellis, 1999).

Working off-farm to diversify income sources is used as a part of risk management strategy undertaken by farm households in both developed and developing countries (Chang and Mishra, 2008). Ellis (1999) and Babatunde (2010) prove that rural households truly pursue in various activities and rely on assorted source of income. In Sub-Saharan Africa 30 – 50 % of households tend to rely on non-farm activities. The reliance on agriculture decreases as the income increases meaning that the more varied the income sources are the wealthier the household is.

Chang and Mishra (2008) associates diversification of income by working off the farm with higher and more stable income and food consumption. Gladwin (2001), who pursued the food security of African female-headed households, recommends application of multiple livelihood strategies in order to increase food supply and food security. He says that farmers aiming to increase the subsistence crop production might not be effective and suggests expanding for non-farm activities and agriculture labour and focusing on cash cropping and income generating activities. Likewise Hishamunda and Ridler (2005) emphasise the potential of aquaculture for the region of Sub-Saharan Africa. They advise to increase the fisheries production, not only for self consumption, but also to provide employment opportunities. Off-farm work allows a better labour relocation and efficient balancing of negative price effect on household food security (Chang and Mishra, 2008). Diversification of livelihood strategies can also help households to overcome a shortfall of natural capital as a consequence of drought, floods, storms, earthquakes and other natural disasters that cannot be affected and often even predicted by people (Reardon, 1998).

Migration which can be a major part of off-farm employment reduces the pressure on generating income from agriculture labour (Shi et al, 2006; Janvry and Sadoulet, 2001). Presence of children in the family can prevent participating in migration employment, while the migration can be stimulated by land deficiency, possibility of lending land out, higher level of education or presence of an elderly person in household. An elderly family member often overtakes the responsibility for children so the parents can engage in non-agricultural off-farm or migration employment. Land scarcity can lead to non-agriculture employment (Shi et al., 2006).

2.3.2. The role of off-farm activities in Sub-Saharan Africa with special regard to Nigeria

Off-farm sector in Sub-Saharan Africa deserves an extra attention since Africa's fast population growth the role of off-farm income should not be underestimated. However a clear strategy to promote off-farm work is lacking and agricultural off-farm employment is relatively minor among off-farm activities in Africa. Migration is less important than local non-agricultural wage employment (Babatunde, 2010; Shi et al, 2006). African households diversify their income sources through both non-farm and farm activities. Surveys have shown that agricultural is the main source of income of African rural households but not the only one. Still there exist evidences that people in rural areas use some alternative cash generating activities to stimulate cash flow and food security such as handcrafting, shop keeping, petty trading, vegetable production, processing and selling, food sale, reparations, fishing, education, construction, manufacturing, administration and other local services. (Grim and Bedi, 2010; Gladwin et al., 2011). Approximately 65% of households in Nigeria rely on some type of off-farm income where non-agricultural and farm activities each account for roughly 40% of overall income even though non-agricultural wage employment only contributes with 6% to total overall income. Self-employment, which is the most predominant source of off-farm income, makes up almost one-fourth of total income. On average, off-farm income creates 50% of overall household income. The average farm size is positively related with overall income coming from both farm and off-farm activities. It might be because of the fact that households with higher income find easier access to land thus they can increase their agriculture production. Because the lack of natural capital is not the main constraint preventing the increase of agricultural production. It is rather the capital the households are lacking that obstructs buying farm inputs or hiring external labour. The smaller

farms tend to earn more from agricultural wage employment and remittances than larger farms. The better-off tend to derive higher share of income from off-farm activities, especially self-employment, as starting an off-farm activity usually requires initial investment (Babatunde, 2010).

The crop production decreases with increasing level of education since farmers with higher education more likely find employment opportunities in non-agricultural sector which are more remunerative. The quality and good access to infrastructure helps finding opportunities in off-farm sector and increasing income. Infrastructure also reduces migration from rural to urban areas as the local markets are easily accessible. But simultaneously better infrastructure increases the income from remittances. It is not surprising as the amount of remittances received is negatively related to economic opportunities and living standard (Babatunde, 2010; Grimm, Bedi, 2010).

Off-farm income facilitates capital constraints and improves living standard in multiple ways. Oseni and Waters (2009) who ran a survey in Nigeria found out that off-farm income can help coping liquidity constraints and showed that liquidity is more often used to obtain basic production than cash crops. Babatunde (2010) proves contribution to higher food production and positive effects of off-farm income on food security and nutrition and in Nigerian households. There is lower incidence of children underweight, malnutrition and stunting in families engaged in off-farm activities than in households with no off-farm income.

Off-farm income and non-farm activities in particular, can help to cope with the time of scarcity of natural capital. As shown on case from West Africa, households involved in non-farm activities were able to overcome the drought more easily and could afford to buy food and had higher overall incomes than households without possibility to supplement their farm incomes (Reardon, 1998). Generally, the 'push' factors seem to be as important as the 'pull' factors in Nigeria (Babatunde, 2010).

3. OBJECTIVE OF THE THESIS

The importance of off-farm activities has been increasing across the developing countries over the last two decades. However, driving forces differ from region to region, based on natural resources, structure of the economy, decision-making of local government etc. advantages and disadvantages of off-farm activities on household economy, agricultural production or impacts on the environment in both rural and urban areas have became a centre of interest of both scientific and development community. Particularly Nigeria, a developing country in sub-Saharan Africa with rapid population growth and less diversified rural and peri-urban economy is worth of our interest.

Thus, the objective of this thesis is to analyze living standard criteria of households occupying rural and semi-urban areas with special regard to off-farm activities.

4. MATERIALS AND METHODS

4.1 Study area description

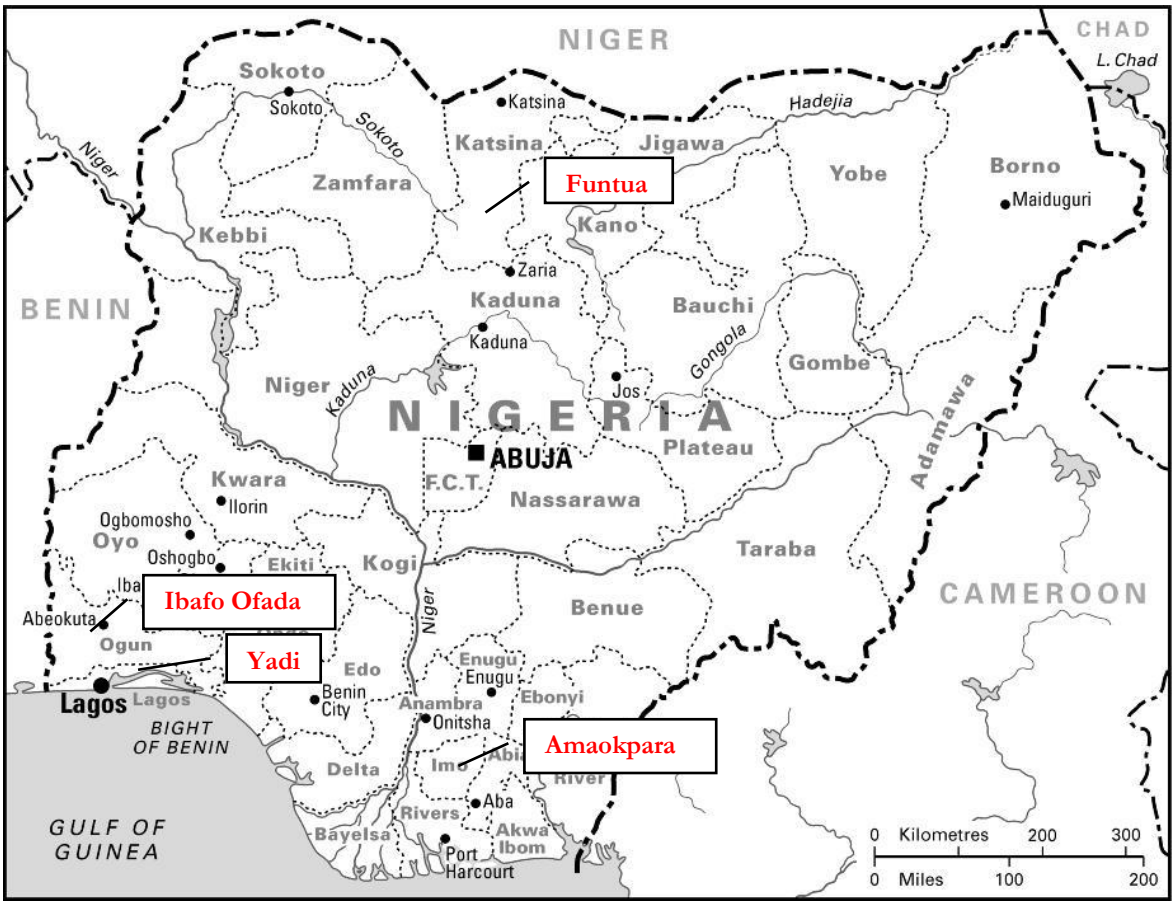

Figure 3 Map of Nigeria

Source: Africa-confidential (2012)

Ibafo Ofada, Ogun state

Ogun state is located in the south west of Nigeria on the state border with Benin in close proximity to the coast. The climate is tropical, moderately hot with humidity of 65%. The dry season lasts from November to March, the rainy season lasts from April to October. During the dry season the temperature is quite high with the mean of 30°C. During the rainy season the temperature decreases to approximately 24°C in average. The rainfall distribution varies from 1,000 mm in the west to 2,000 mm in the east (UNDP, 2006; CIA, 2012).

Its GDP 619.3 USD lower than the national which is 1,222 USD. HDI of Ogun state is 0.126 while national HDI is 0.278. Adult literacy rate is only 41.8% compared to 61% of national adult literacy rate. Life expectancy at birth 37.4 years is also very low compared to national average of 51.9 years (UNDP, 2006).

Since Ibafo Ofada village is situated in close proximity to Abeokuta, the capital of Ogun state, it has a good accessibility to markets and descent infrastructure. The population consists of 84% Yoruba people, 5% Hausa people and 11% of other ethnics. The soil is mainly sandy and low quality and faces high pressure of increasing population growth and intense farming. The main crops are cassava, yam, maize, cocoa and vegetables. Livestock production includes poultry, cattle, goats, pigs and fisheries (UNDP, 2006; CIA, 2012).

Yadi, Lagos state

Lagos state is located on three islands on the south west coast of the Gulf of Guinea. The city of Lagos is an important seaport. It is the most populous state of Nigeria which features high rural-urban migration. The climate is coastal with high humidity of 75%. The temperature is generally high with annual mean of 30°C. The rainfall ranges from 2,800 to 3,000mm (UNDP, 2006; CIA, 2012).

Its GDP is 2,304.7 USD significantly higher than the national which is 1,222 USD. HDI is 0.489 while national HDI is only 0.278. Adult literacy rate of 65% is similar to 61% of national adult literacy rate. Life expectancy at birth is 61.4 years and it is slightly higher than the national average of 51.9 years (UNDP, 2006).

Yadi is situated in peri-urban area at outskirts of the state capital Ikeja, which has become an agglomeration of Lagos city. Its population consists of 40% Yoruba people, 40% Hausa people and 20% of other ethnics. The potential for agriculture is strong considering the favourable agro-ecological conditions with alluvial soil. Despite these advantages, the agriculture production is not sufficient. There is a lack of arable land due to its high purchase price. The main crops are cassava, maize and yam. Livestock production is only composed of poultry and goats (UNDP, 2006; CIA, 2012).

Amaokpara, Imo state

Imo state is located in the south east of the country close to the river Niger basin. Its population mainly consists of people of Ibo ethnicity (UNDP, 2006; CIA, 2012).

Its GDP is 1,341.1 USD and it is slightly higher than the national which is 1,222 USD. HDI is 0.466 while national HDI is only 0.278. Adult literacy rate of 75.6% is also higher than the national adult literacy rate 61%. Life expectancy at birth is 60 years which is very similar to the national average of 51.9 years (UNDP, 2006).

Amaokpara is located in lowland humid forest zone. The rainy season lasts from April to October with annual rainfall distribution from 1,500 to 2,200mm. The average humidity is 80% and average annual temperature is 20°C. The main crops are cassava, yam, maize, rice, vegetables and fruits. From livestock production prevail goats and poultry (UNDP, 2006; CIA, 2012).

Funtua, Katsina state

Location of Katsina state is noticeably different since it is located in the north highland areas. The climate is semi-arid continental with the rainfall distribution ranging from 800 to 1000mm and the humidity 35%. Average annual temperature ranges from minimum of 18°C to maximum 32°C (UNDP, 2006; CIA, 2012).

Its GDP is 876.4 USD and it is lower than the national which is 1,222 USD. HDI is 0.137 while national HDI is 0.278. Adult literacy rate of 30.8% is considerably lower than the national adult literacy rate 61%. Life expectancy at birth is only 37.8 years which is lower than the national average of 51.9 years (UNDP, 2006).

Due to its location Funtua has a high land availability however, low fertility of the soil. Therefore, the village focuses mainly on livestock production raising cattle, goats and poultry. The main crops are cassava, yam, millet, sorghum and maize (UNDP, 2006; CIA, 2012).

4.2 Data collection

A questionnaire based survey was carried out from February to March 2009 by Alena Mascot Novakova and her team in four villages of the Federal republic of Nigeria. Chosen states represent different farming systems, climate and agro-ecological zones. Total number of questionnaires collected was 80 (20 for each village). However, only 72 of them (90% response) were sufficient for the study.

The semi-structured (see Annex 1) questionnaire was designed to obtain information on farm production, human resources, land resources, assets and capital as well as on living standard criteria indicators, such as educational level, household economy, farm and off-farm activities, health care etc. (see Table 1).

For the use of this thesis the following indicators defined by Doppler (2006) were selected to measure the farmer's living standard:

Table 1 Indicators for living standard criteria assessment

Criteria	Indicator	Definition for use of this thesis	
Economic success	Family income	Total family income = farm income + off-farm income	
		Farm income - farm revenue minus farm expenses	Farm revenue - revenue from livestock and crop production
			Farm expenses - costs of livestock and crops, renting equipment, land rent, external labour hired
		Off-farm income - subsidies recieved from government, income from off-farm labour, credit received, savings, renting equipment	
Economic security	Family cash balance	Family cash balance = family cash flow - family cash outflow	
		Family cash flow - savings, farm income, off-farm income	
		Family cash outflow - farm expenditures, household expenditures	
Independency from resource owner	Expenditures on external use	Expenditures on external hired labour, expenditures on land rent, expenditures on renting equipment	
Food supply and food security	Market orientation	Share of food purchased on the market	
Supply of water and housing	Household expenditures per capita	Household expenditures devided by number of household members	Household expenditures - farm expenditures, running household, energy for household
Health conditions	Health care expenditures	Share of health care expenditures on total household expenditures	
Education and qualification	Education expenditures	Share of education expenditures on total household expenditures	
Social security	Family assets	Savings, value of equipment, value of family house, value of house equipment	

4.3 Data processing

The gathered data were put into MS Office Excel® and basic descriptive statistical methods were applied as arithmetic mean, median, modus, minimum and maximum value, and standard deviation. Firstly, the data were analyzed for each household separately, secondly together for each village. Then the results were transformed into tables and figures to facilitate its interpretation.

5. RESULTS

5.1 Household resources capacity and use

The average household size observed ranged from 3.84 to 4.21 with a noticeable majority of males over females. This superiority is apparent particularly in Funtua village.

Table 2 Family size

	MU	Ibafo Ofada (n=19)	Yadi (n=15)	Amaokpara (n=19)	Funtua (n=19)
Household size	pers.	3.84 (± 1.14)	3.13 (± 1.20)	4.05 (± 1.32)	4.21 (± 1.32)
Female	%	44	43	48	39
Male	%	56	57	52	61

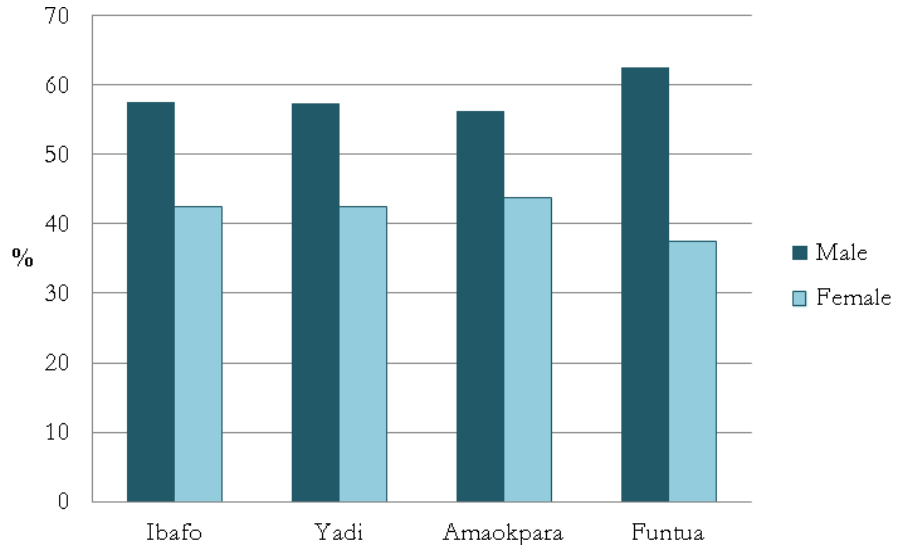

Figure 4 Gender composition

The average farm size ranges from 5.95 to 19.39 ha. The largest farm size has Funtua village where there are also the most noticeable differences as visible from the standard deviation. On the contrary in Yadi village the farm areas are the smallest.

Table 3 Farm size

	MU	Ibafo Ofada (n=19)	Yadi (n=15)	Amaokpara (n=19)	Funtua (n=19)
Farm size	ha	7.91 (± 6.91)	5.95 (± 3.44)	9.09 (± 6.78)	19.39 (± 14.95)

In terms of age the composition of population in surveyed households seems to be naturally balanced with approximately 70% of people in productive age from 15 to 59 years. The lowest number of individuals over 60 years old evinces Amaokpara village which on the contrary has the highest number of people in productive age. In Yadi village the number of people from 15 to 39 years old reaches almost 50% which is significantly more than in the other three cases but there is the lowest number of children till 14 years of age.

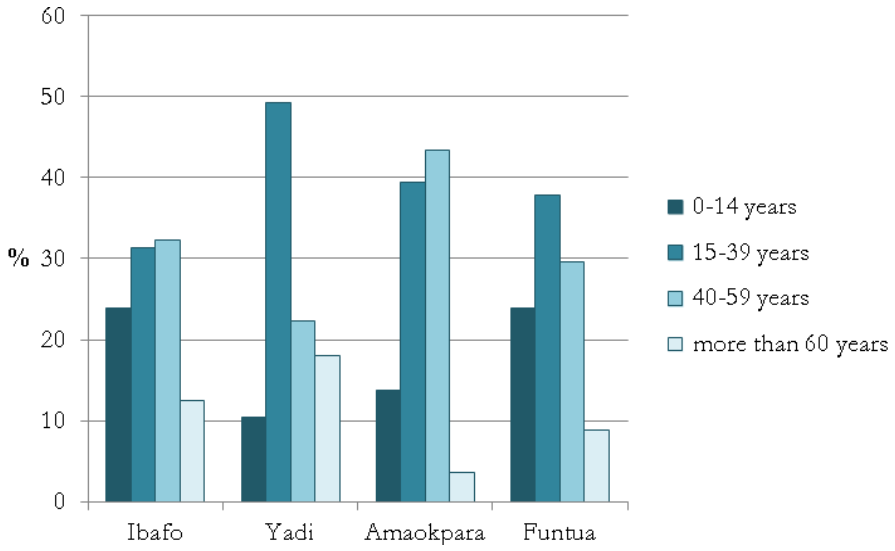

Figure 5 Age composition

5.2 Living standard

5.2.1 Economic success

The average farm revenue is significantly higher in the case of Ibafo Ofada and Funtua villages compared to Yadi and Amaokpara. However, the two villages with the highest farm revenue

also show the biggest differences among component households while in case of Yadi and Amaokpara the farm revenues of each household seem to be more balanced.

Table 4 Farm revenue

	MU	Ibafo Ofada (n=19)	Yadi (n=15)	Amaokpara (n=19)	Funtua (n=19)
Revenue from crop production	´000 NGN	187.33 (± 236.45)	144.10 (± 65.19)	154.38 (± 166.54)	130.39 (± 86.11)
Revenue from livestock production	´000 NGN	728.37 (± 963.56)	66.56 (± 130.45)	135.05 (± 323.02)	807.55 (± 703.01)
Farm revenue	´000 NGN	915.70 (± 1,027.34)	210.66 (± 144.70)	289.43 (± 449.02)	937.93 (± 696.44)

All surveyed villages were engaged in both crop and livestock production. Villages Ibafo Ofada and Funtua evince the highest share of livestock production while the farm revenue of the two remaining villages comes mainly from crop production. Whilst almost all surveyed households is engaged in cropping (apart from 1 household in Funtua village and 3 households in Ibafo Ofada), in every village there are several households with no livestock production: 8 households in Ibafo Ofada, 10 households in Yadi, 13 in Amaokpara and 2 in Fintua village. Regarding livestock production the majority of farmers who engage in it raise cattle, goats and poultry. In Amaokpara village rabbit breeding was indicated and in Ibafo Ofada village some of the farmers are involved in fishing. From crop production cassava, yam, millet and maize are the most common crops. In Ibafo Obada and Funtua villges moreover a few farmers are engaged in grass cutting.

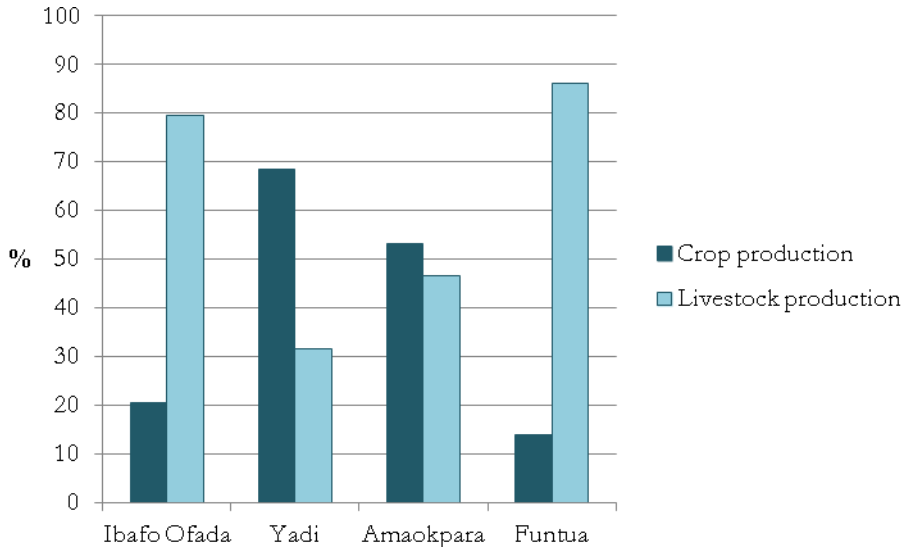

Figure 6 Farm production

The farm income is significantly higher in villages Ibafo Ofada and Funtua. The largest differences among farm income of households are in Ibafo Ofada village while in Yadi village the farm income is more balanced among all households.

Table 5 Farm income

	MU	Ibafo Ofada (n=19)	Yadi (n=15)	Amaokpara (n=19)	Funtua (n=19)
Total farm revenue	´000 NGN	915.70 (± 1027.34)	210.66 (± 144.79)	289.43 (± 449.02)	937.93 (± 696.44)
Total farm expenses	´000 NGN	146.21 (± 109.49)	124.47 (± 68.49)	144.18 (± 125.81)	183.16 (± 109.70)
Farm income	´000 NGN	769.49 (± 996.22)	86.19 (± 144.77)	145.25 (± 385.46)	754.78 (± 663.51)

Ibafo Ofada village shows the highest figure of total farm income with significant differences among its households that are caused mainly by variable off-farm income. Funtua village also has considerably high farm income. The lowest family income evinces Yadi village nonetheless, it this case the family income is fairly balanced among households.

Table 6 Family income

	MU	Ibafo Ofada (n=19)	Yadi (n=15)	Amaokpara (n=19)	Funtua (n=19)
Farm income	´000 NGN	769.49 (± 996.22)	86.19 (± 144.77)	145.25 (± 385.46)	754.78 (± 663.51)
Off-farm income	´000 NGN	658.82 (± 1753.10)	186.53 (± 194.34)	417.32 (± 424.61)	226.08 (± 454.34)
Total income	´000 NGN	1428.31 (± 1889.23)	272.73 (± 223.31)	562.57 (± 606.06)	980.85 (± 749.01)

All surveyed villages show some off-farm activities however there are comparatively considerable differences. The share of off-farm income on total family income is significantly higher in Amaokpara village whilst Funtua village displays the lowest off-farm income share. Apart from one household in Yadi village all surveyed households (98.6%) have some off-farm income, however there are differences in its amount. This difference is most apparent in Ibafo Ofada village. In Yadi village, on the contrary, the off-farm income distribution among households is more equal.

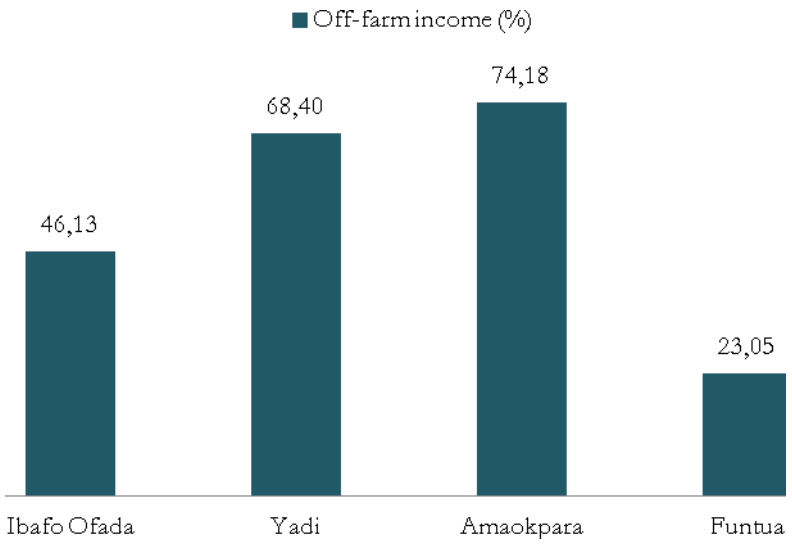

Figure 7 Off-farm income

The share of farm expenditures on total household expenditures is highest in Yadi village and lowest in Amaokpara village.

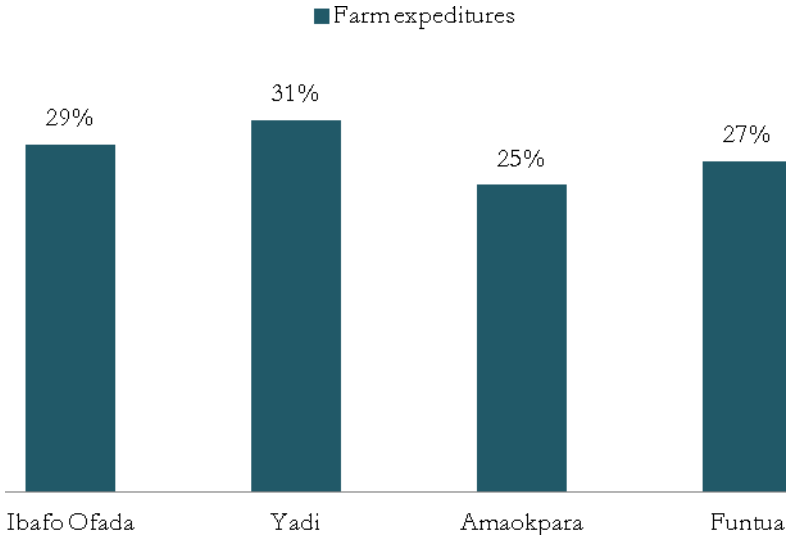

Figure 8 Farm expenditures

Amaokpara village has the highest level of household expenditure while all the remaining villages show a parallel level of expenses in total. There are significant differences of total household expenditures among households in Amaokpara village.

Table 7 Household expenditures

	MU	Ibafo Ofada (n=19)	Yadi (n=15)	Amaokpara (n=19)	Funtua (n=19)
Household expenditures	´000 NGN	234.79 (± 133.46)	194.46 (± 106.00)	368.37 (± 354.58)	231.63 (± 132.16)

Amaokpara village shows the highest figure in terms of market orientation. Funtua village, on the contrary has the lowest share of market orientation.

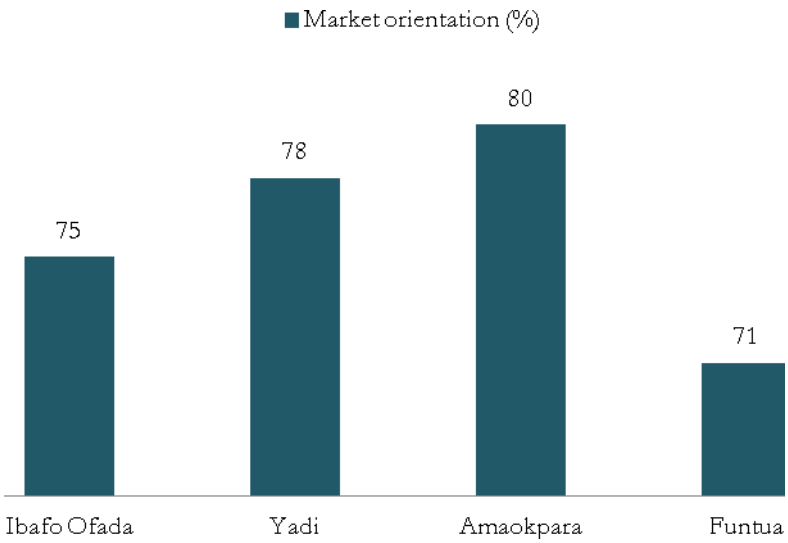

Figure 9 Market orientation

5.2.2. Economic security

In terms of economic security there are significant differences among the surveyed villages. Ibafo Ofada village is the most successful in generating cash but also has the largest differences in cash flow among its households. Yadi and Amaokpara have the lowest cash flow however, the differences were not found to be that substantial.

Table 8 Family cash flow

	MU	Ibafo Ofada (n=19)	Yadi (n=15)	Amaokpara (n=19)	Funtua (n=19)
Savings	´000 NGN	159.68 (± 450.70)	43.20 (± 44.78)	64.32 (± 73.10)	167.50 (± 451.06)
Farm income	´000 NGN	769.49 (± 996.22)	86.19 (± 144.77)	145.25 (± 385.46)	754.78 (± 663.51)
Off-farm Income	´000 NGN	658.82 (± 1753.10)	186.53 (± 194.34)	417.32 (± 424.61)	226.08 (± 454.34)
Family cash flow	´000 NGN	1588.00 (± 2270.78)	315.93 (± 252.12)	626.88 (± 662.18)	1148.35 (± 1038.23)

Amaokpara village shows the highest cash outflow with highest variances among its households. The lowest cash out flow evinces Yadi village where the lowest differences were also found.

Table 9 Family cash outflow

	MU	Ibafo Ofada (n=19)	Yadi (n=15)	Amaokpara (n=19)	Funtua (n=19)
Farm expenditures	´000 NGN	67.21 (± 78.67)	59.60 (± 62.36)	93.26 (± 90.94)	63.11 (± 81.15)
Household expenditures	´000 NGN	234.79 (± 133.46)	194.46 (± 106.00)	368.37 (± 354.58)	231.63 (± 132.16)
Family cash outflow	´000 NGN	302.00 (± 201.43)	254.06 (± 152.42)	461.63 (± 416.86)	294.74 (± 197.02)

The family cash balance is in favour to Ibafo Ofada village which has the highest figure. On the contrary, the cash balance of Yadi village is very low.

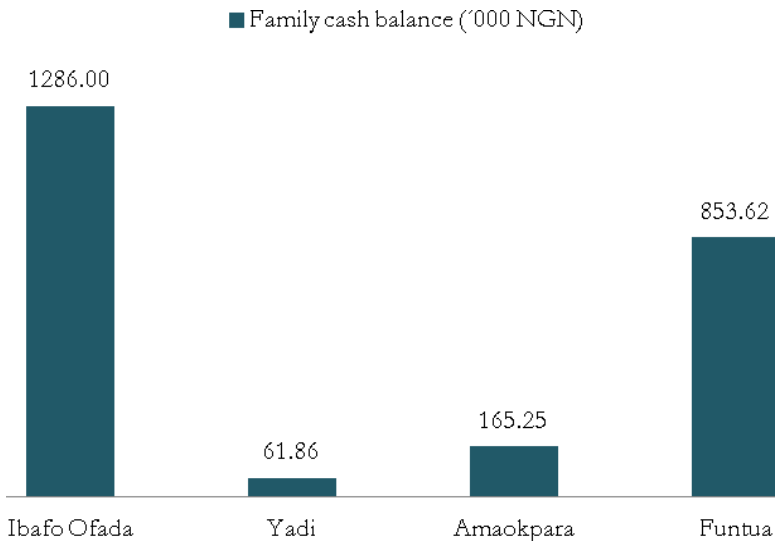

Figure 10 Family cash balance

5.2.3 Independency on resources owner

All surveyed villages are somehow dependent on several external resources. The expenses spent on these are highest in Amaokpara village which is where the highest variances among households were found.

Table 10 Farm expenditures

	MU	Ibafo Ofada (n=19)	Yadi (n=15)	Amaokpara (n=19)	Funtua (n=19)
Ext. hired labor	´000 NGN	49.37 (± 54.66)	41.53 (± 45.93)	71.68 (± 59.10)	44.00 (± 48.24)
Land rent	´000 NGN	4.00 (± 8.92)	4.33 (± 7.96)	8.05 (± 12.50)	6.32 (± 4.25)
Renting equipment	´000 NGN	13.84 (± 28.36)	13.73 (± 26.20)	13.53 (± 22.45)	12.79 (± 24.81)
Total farm expenditures	´000 NGN	67.21 (± 78.68)	59.60 (± 62.36)	93.26 (± 87.28)	63.11 (± 59.45)

5.2.4 Health conditions

In terms of health care the surveyed villages were found to have very similar figures. The highest expenditure on health care is Ibafo Ofada village while Amaokpara shows the lowest numbers.

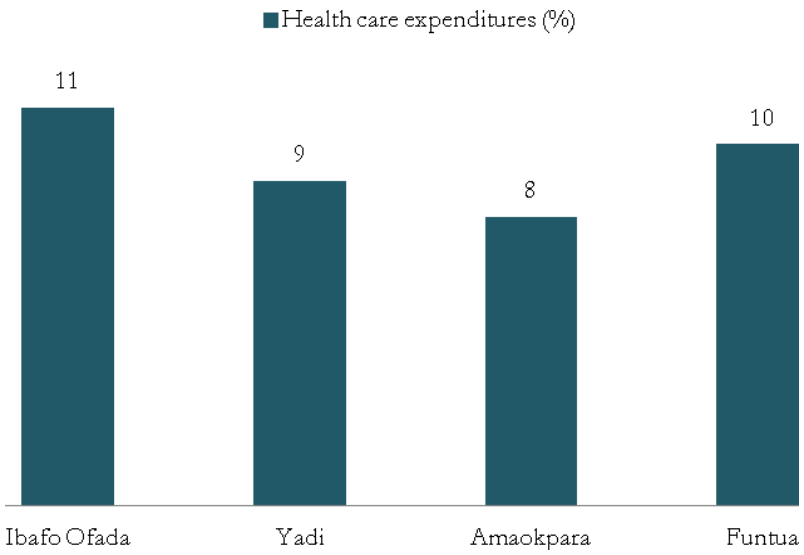

Figure 11 Health care expenditures as percentage of total household expenditures

5.2.5 Education and qualification

The highest share of expenditure on education was found in Amaokpara village. The figure is considerably higher than in the remaining cases. The lowest share of education expenditure shows Yadi village.

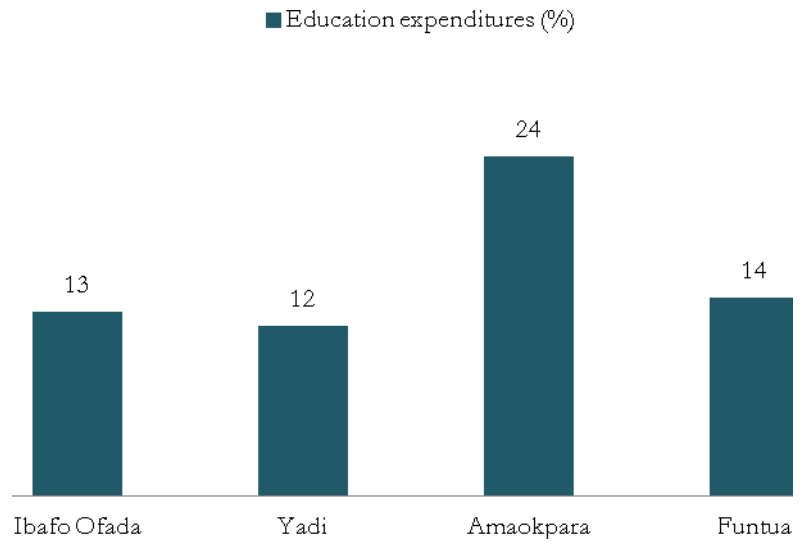

Figure 12 Education expenses

There are only negligable differences among villages regarding the level of education. Almost 100 % of the sample evinces primary education. It is only in Funtua where some cases of illiteracy were noticed. In all surveyed villages there are some people who have more than 13 years of schooling. This figure is lowest in Yadi and highest in Ibafo Ofada. In terms of secondary education, the figures are also very comparable. The lowest number of individuals with 8 – 12 years of education is in case of Amaokpara village. The highest, on the contrary, was indicated in Ibafo Ofada.

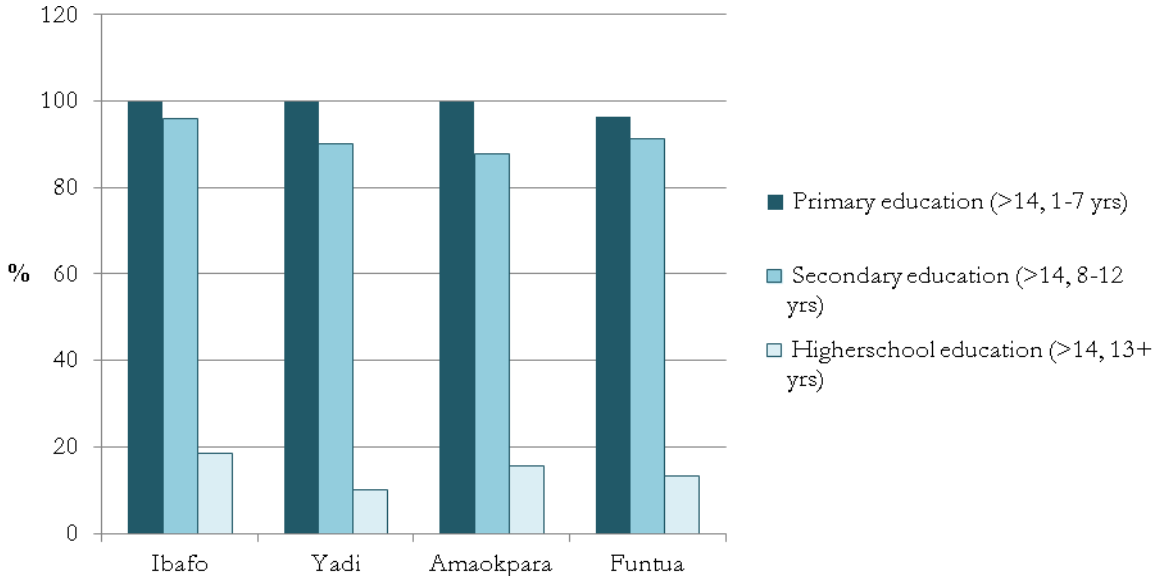

Figure 13 Education level composition

5.2.6 Social security

All the surveyed villages were found to have a certain amount of assets that can be used in case of need (cash scarcity). Villages Ibafo Ofada and Funtua both have a similarly high amount of savings and comparable in the value of house and equipment. The remaining two villages have significantly lower savings, a lower value of equipment and family house value while they posses more valuable house equipment. It is villages Ibafo Ofada and Funtua that have the highest value of assets.

Table 11 Family assets

	MU	Ibafo Ofada (n=19)	Yadi (n=15)	Amaokpara (n=19)	Funtua (n=19)
Savings	´000 NGN	159.68 (± 440.29)	43.20 (± 44.78)	64.32 (± 73.10)	167.50 (± 451.06)
Equipment worth	´000 NGN	201.68 (± 280.73)	99.67 (± 94.09)	65.46 (± 85.00)	210.21 (± 292.27)
Family house worth	´000 NGN	431.42 (± 898.47)	155.33 (± 57.84)	190.42 (± 84.32)	447.74 (± 892.97)
House equipment worth	´000 NGN	31.84 (± 43.87)	53.50 (± 33.69)	57.05 (± 55.94)	36.05 (± 42.51)
Total assets	´000 NGN	824.63	351.70	377.25	861.50

5.3 Quantitative assessment of living standard

Table 12 Quantitative assessment of living standard criteria in focused villages

Criteria	Indicator	Villages							
		Ibafo Ofada		Yadi		Amaokpara		Funtua	
		mean	%	mean	%	mean	%	mean	%
Economic success	Family income	1,428.31	100	272.73	19	562.57	39	980.85	69
Economic security	Family cash balance	1,286.00	100	61.86	5	165.25	13	853.62	66
Independency from resource owner	Expenditures on external use	67.21	72	59.60	64	93.26	100	63.11	68
Food supply and food security	Market orientation	75	94	78	98	80	100	71	89
Supply of water and housing	Household expenditures per capita	61.14	67	62.13	68	90.96	100	55.02	60
Health conditions	Health care expenditures	11	100	9	82	8	73	10	91
Education and qualification	Education expenditures	13	54	11	46	24	100	14	58
Social security	Family assets	824.63	96	351.70	41	377.25	44	861.50	100

Ibafo Ofada village is the most successful from surveyed villages in terms of economic success, economic security and health conditions. Regarding social security, food security, food and water supply and quality of housing the figures show very satisfactory findings even though not the best from the sample. Education is the only field in which this village needs some improvement. Generally, the living standard of Ibafo Ofada village is very high compared to the remaining surveyed villages and the chosen indicators show very balanced conditions.

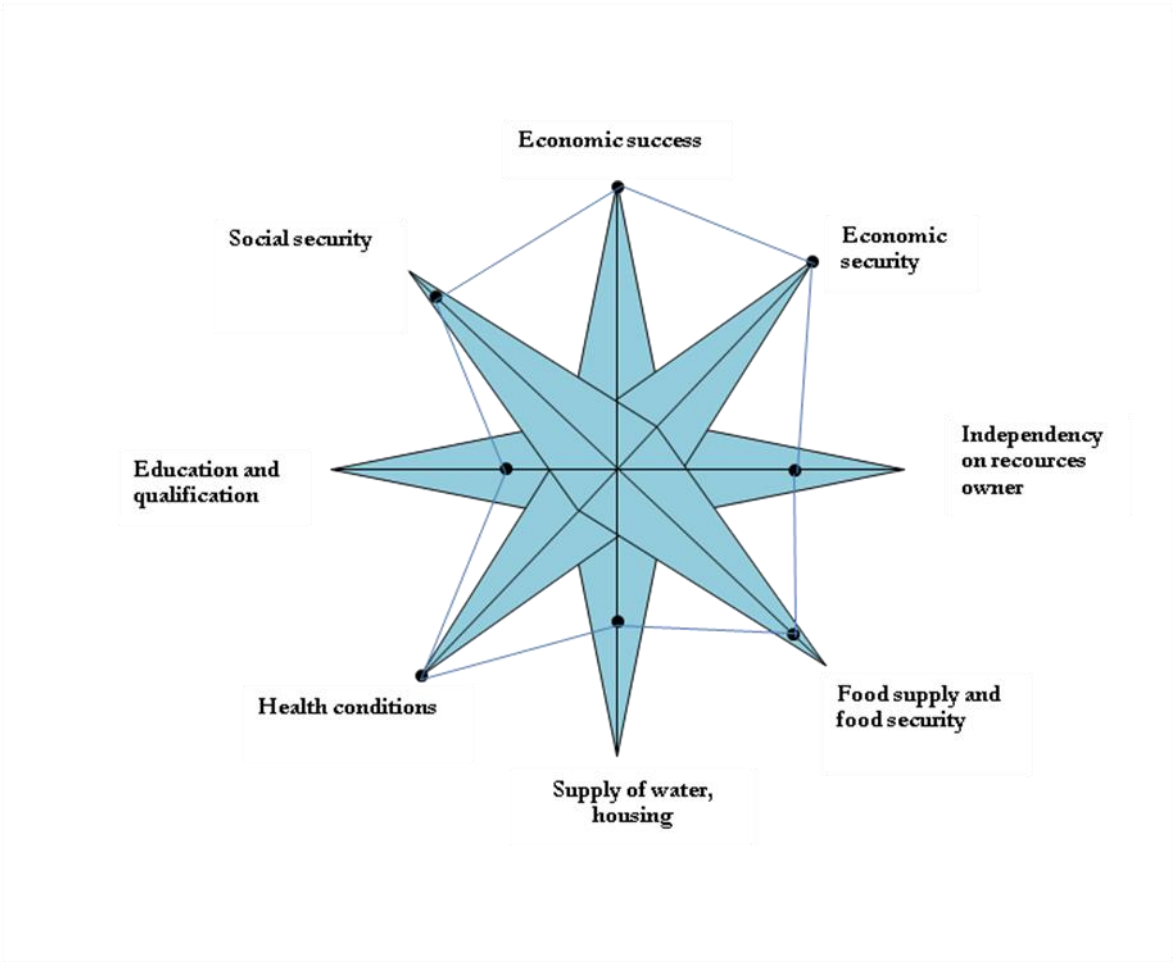

Figure 14 Quantitative analysis of living standard in Ibafo Ofada village

Yadi village does not stand out from the surveyed villages in any of the chosen indicators. The living standard seems to be very unbalanced. Quite high, although not the highest, is the food supply and food security. The supply of water and housing, the independency on resources owner, education and health conditions are all at a satisfactory level. However, in terms of economic success, economic and social security Yadi village evinces the lowest level. In general, the living standard reached the lowest values among focused villages.

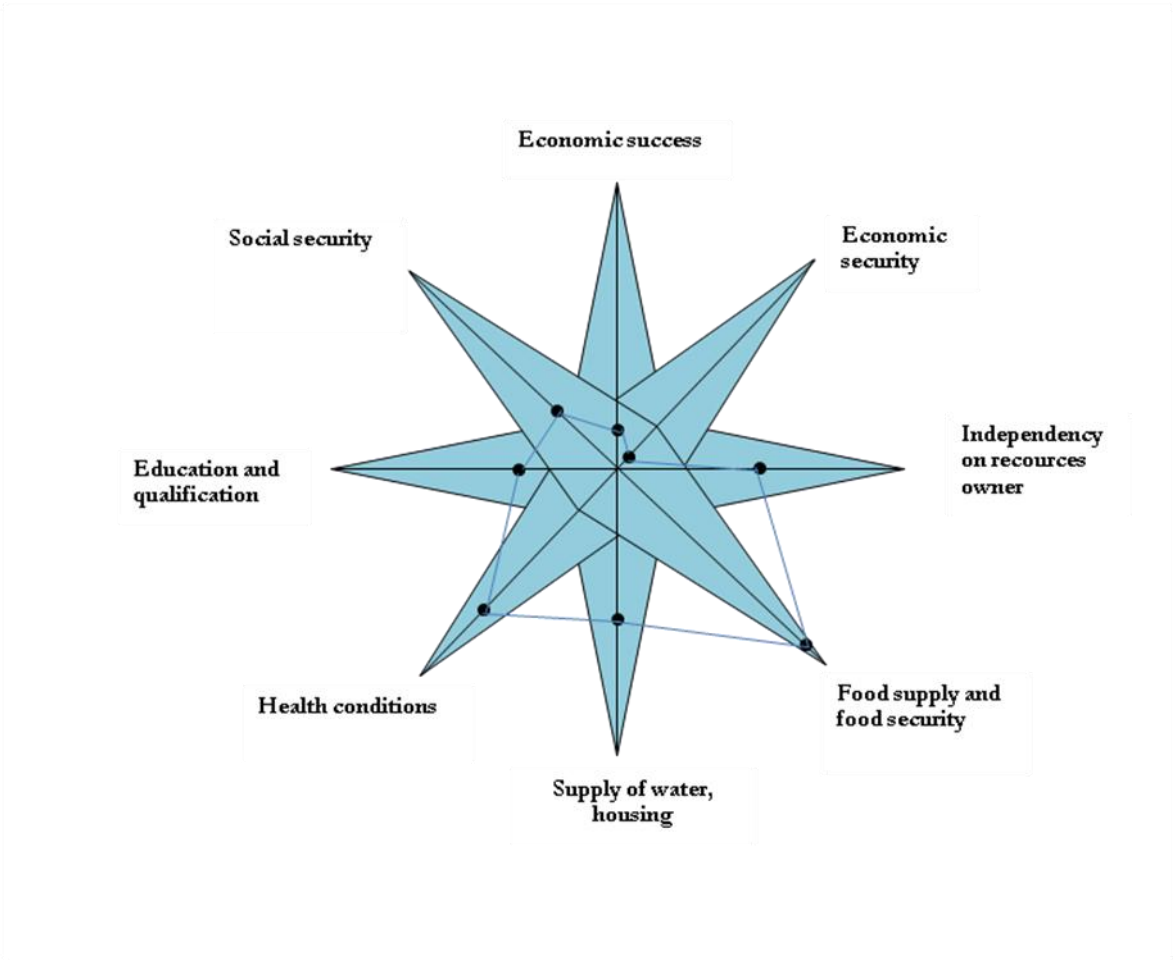

Figure 15 Quantitative analysis of living standard in Yadi village

Amaokpara village strongly stands out in the level of independency on resources owner, supply of food, water and quality of housing and education. These figures are the highest of the remaining villages. The health conditions are also at a very satisfactory level though not the best. However there is a significant leap in the remaining figures. Economic success, economic security and social security seem to be very low even though still slightly better than in Yadi .

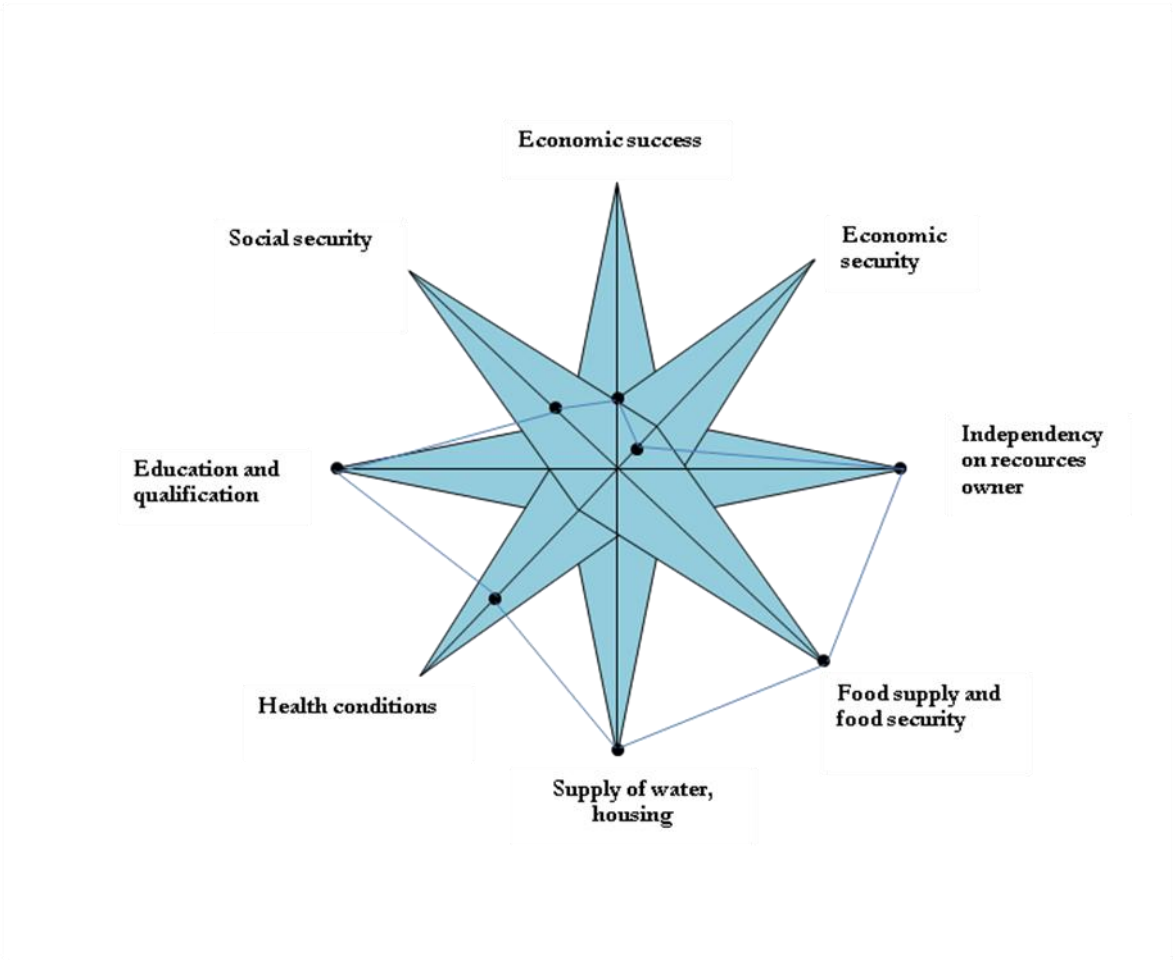

Figure 16 Quantitative analysis of living standard in Amaokpara village

The living standard seems to be very balanced in Funtua village. Even though it only reaches the highest possible figure at social security conditions, the other indicators are all at very high level. The health conditions are very good. The lowest but still quite satisfactory is the level of education, supply of water and housing. The rest of the indicators – economic success, economic security, supply food and food security and independency on resources owner - are at average level. Generally, Funtua can be compare to Ibafo Ofada in terms of the balanced level of living standard even though Funtua shows slightly lower figures.

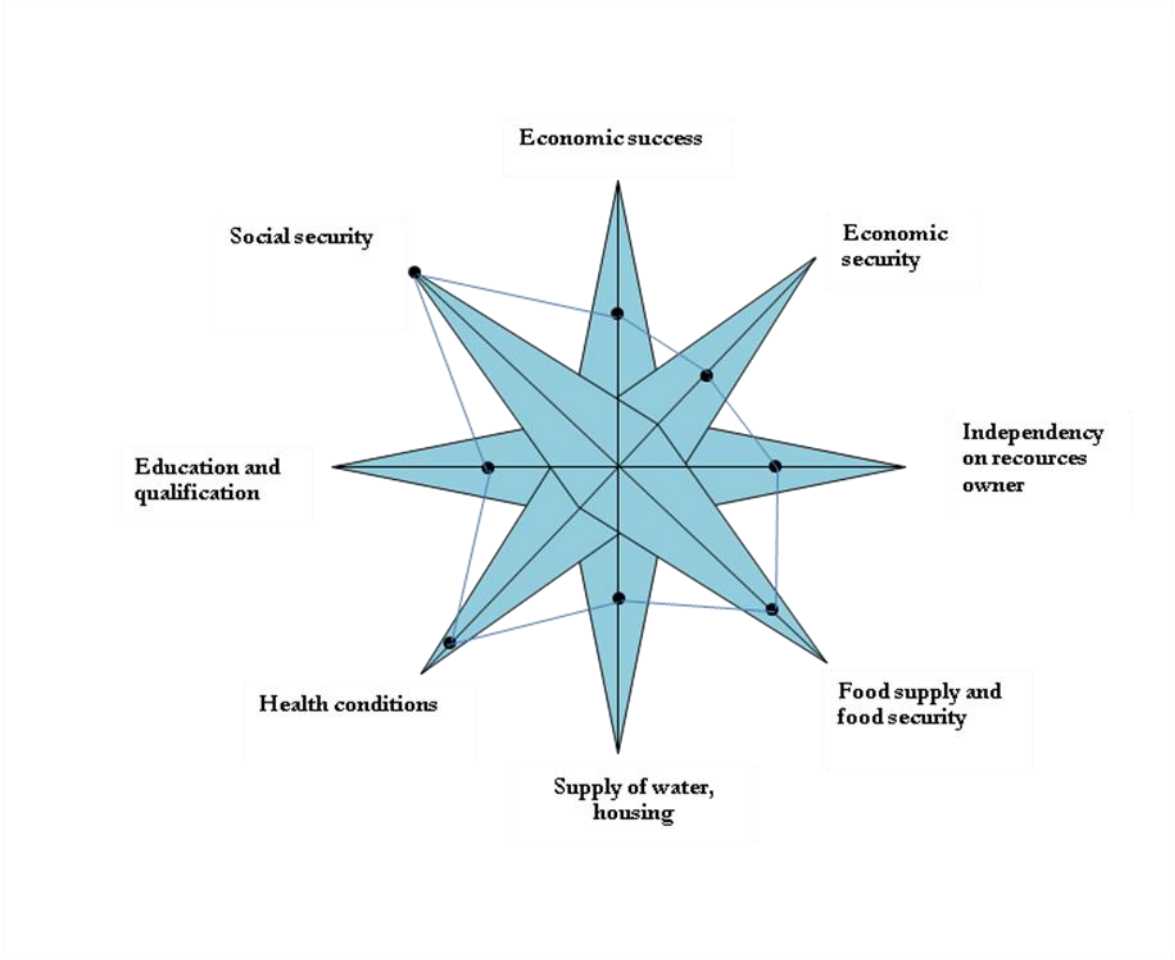

Figure 17 Quantitative analysis of living standard in Funtua village

6. DISCUSSION

6.1 Discussion of the most important findings

Villages Ibafo Ofada and Funtua have the highest family income. In the case of Ibafo Ofada it might be due to its advantageous location in close proximity to important markets, good accessibility to public services and land availability. The livelihood is diversified and its family income is composed from both farm and non-farm income as there are opportunities in off-farm activities as well as rich natural capital. In Funtua village on the contrary the income comes mainly from livestock production because of its natural capital. According to our survey figures, villages Amaokpara and Yadi have the highest share of off-farm income – both around 70%. It is considerably more than in two other cases. However, their economic security and social security are very low which is surprising considering the fact off-farm income is meant to help increase cash flow and create savings for the time of scarcity (Reardon, 1998). Nonetheless, the villages were both found to have the necessary cash available for their purposes. On the other hand the fact that the villages with lower income rely on off-farm activities is consistent with findings carried out by Grimm and Bedi (2010) who say that share of off-farm income is higher for poor households. In the case of Yadi village the high focus on off-farm activities is a consequence as they have a limited access to natural capital, primarily the land. This finding is consistent with Shi et al. (2006) who say farms with land scarcity tend to engage in non-agricultural employment.

Total expenses are very similar in all villages. This fact can be seen as a relative discrepancy when looking at the high diversity of farm revenues. The difference between the farm revenues of villages with the highest and lowest revenue is more than four times higher. While the difference in total farm expenses between these two villages is lower than 18%. This is most probably the result of economies of scale when the extent of expenses does not grow accordingly with revenues.

The survey shows that there is a link between off-farm income and the use of external hired labour. Amoakpara clearly has the highest share off-farm income and also employs external workers the most. This finding is consistent with Babatunde (2010) who proves that farms with higher off-farm income are more likely to hire external labour, use fertilizers and

pesticides and are able to earn almost 10 % more food outputs than families with no off-farm activities. Likewise Oseni and Winters (2009) say that off-farm activities help households to improve their farm production as they can afford to engage hired labour and invest in other inputs such as fertilizers, especially in South of Nigeria, where Amaokpara is located.

It has been proved by a number of surveys that education helps to improve living standards. Janvry and Sadoulet (2001) have found a relation between off-farm income and level of education. Considering the literacy rate in Nigeria is only 61 %, it is noticeable that the surveyed sample shows a break from this trend, with almost 100 % literate. It might be caused by the fact that every person over 14 years old who has at least one year of school is considered as literate. It is only in Funtua village where some cases of illiteracy were noticed. Babatunde (2010), who carried out a survey in rural Nigeria, also found education level slightly higher than the national average. He explains that the density of elementary schools is quite high in some rural areas. According to our survey Amaokpara, with the highest off-farm income, spends more money on education than the remaining villages. However, the relationship between expenditure on education and its level cannot be clearly proved as all the villages have a very similar level of education and literacy rate. The high expenditure on education might be caused by the higher cost of schooling in Amaokpara or complicated accessibility to schools.

Health care expenditure only shows slight differences among the sample villages. Nonetheless, the figures are higher than data published by the World Bank (2006) which indicated that average national expenses in rural areas of Nigeria are approximately 5%. Our figures range from 8 to 11%. This survey shows that there is a link between total family income and health care expenditure. The higher the income, the higher the expenditure on health care.

Babatunde (2010) says that participation in off-farm activities is positively related to household size. This assumption is consistent with our survey in the case of Amaokpara where the share of off-farm income increases with the number of family members. In the case of Funtua , on the contrary, the finding is in conflict with Babatunde's statement as the household size is the biggest there and they have the lowest share of off-farm income at the same time. Our sample shows a slightly lower size of households as the average number of household members in Nigerian rural areas is five.

The detected average farm size is significantly bigger than the national level which is two hectares (WB, 2006). According to Babatunde (2010) the off-farm income should be positively correlated with increasing farm size. It is consistent with our findings in the case of three villages – Ibafo Ofada, Yadi and Amaokpara. However, the figures show directly the opposite in the case of Funtua where the farm size is the largest. It might be because the farm production, in this particular case mainly the livestock production which households in Funtua village are especially focused on, is sufficient for their livelihood and the diversification is not that necessary. Babatunde (2010) also finds a positive relation between farm size and overall income. This finding is in conflict with our survey as Ibafo Ofada, with the highest family income, only possesses the second smallest land area. Nonetheless, in the case of Yadi the assumption is true as this village earns the lowest income and owns the smallest farm.

It is clear from the survey that the entire sample has access to the resources they need. However, on occasion, these vital resources are unobtainable due to a multitude of factors including cost and being withdrawn by the owner. Having said this, all farms from this particular study have their own coping strategies in place for such instances. These will include; drawing on savings, a change in farming pattern or the freeing up of assets. The use of equipment rent is fairly equal in the four villages shown. However, Amaokpara is distinctive in the fact that it possesses the highest level of hired labour from external sources whilst having the lowest share of land rent. It might be caused by the low efficiency of hired workers or growing plants that are more complicated. This could be a subject for further research.

6.2 Main livelihood strategies and future plans

All the surveyed villages have their own livelihood strategies to cope with risks and all evince some income diversification. However, having a closer look, the differences among individual households are apparent. The majority of households in all villages engage in crop production. However, high income is positively related to livestock production, therefore future development plans could be focused on livestock extension.

6.3 Implication for further research

Since there remains a number of questions and the topic is very broad the further research suggests itself. Firstly, the collection of data on education would be necessary with paying

special attention to specifying definition of primary, secondary and higher education to facilitate comparing the findings with data of international databases, other surveys and researches. Secondly, this survey only shows the health condition of the household in terms of expenditure on health care, although it would be more significant and specific if the survey was supplemented with data on the number of family members who are ill, disabled or need another special heath treatment, addicted household members or children with malnutrition. Regarding food supply further surveys could focus on the composition of food and its nutrition value. The water supply research can be more detailed, specifying the resources of water – tapped water, ground water, rainfalls etc. In terms of housing it would be useful to gather data on the family members´ opinion on it. Last but not least the possibility of subsequent research could include other Nigerian states.

7. CONCLUSION

In this thesis the living standard of households in rural and semi-urban areas of Nigeria has been analyzed. All of the surveyed villages have their own livelihood strategies for subsistence and all diversify their incomes. Almost 99% of household sampled have at least some off-farm income. On average, off-farm income account for almost 53% of total overall family income. A study of family cash balance was done and according to that all the villages surveyed were found to have the necessary cash available for their needs. Strikingly, the villages with the highest share of off-farm income show very low economic and social security. In these cases the off-farm activities can be considered as a component mean for dealing with shrinking farm income.

The survey shows a positive relationship between total family income and health care expenditures. The figures indicated are approximately 5 % higher than the national average. The linkage of education and off-farm income has been proved by numerous studies. Amaokpara village that has the highest share of off-farm income also spends the most on education. However, a clear relationship between education and off-farm income cannot be proved as all surveyed villages evince similar educational level and literacy rate.

On the basis of study results the villages can be divided into two groups as the villages show similar features. Ibafo Ofada and Funtua are villages with high family income and their share of off-farm income is below the average. The total amount of off-farm income in Ibafo Ofada is the highest of all villages however, it only accounts for 46% as their family income is high as well. The level of family income in Funtua is comparable to Ibafo Ofada, nonetheless, they participate in off-farm activities the least so their share of off-farm income is only 23%. These villages both mainly focus on livestock production. The indicators showing their living standard are fairly in balance.

In Yadi and Amaokpara, on the contrary, the living standard indicators are imbalanced. They both face difficulties in terms of low family income, economic and social security. On the other hand, they feature good conditions regarding the level of education, health, supply of water, quality of housing and food security. Their share of off-farm income is above the

average. They involve in off-farm activities due to their low farm income and use them as an alternative mean to cope with land scarcity.

Generally, the survey has shown that engagement in off-farm activities is primarily a mean to cope with lack of natural capital and as a complement source of income for poor households.

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ANNEX

List of annex

IDENTIFICATION — **Total number of questions: 9**

Q1 Questionnaire number

Q2 Name of Interviewer

Q6 GPS coordinates — N ____ E ____

Q3 Farmer's Name — Project beneficiary (yes="

Q4 Name of Village

Q5 Ethnic Group

Q7 What is the total area of your farm? ____ hectares ____ sao

Q8 When was farmer born? In the year

Farmer lives in Phong My since the year

Farmer runs his/her farm in Phong My since the year

Q9 Where was farmer (or his/her family) bo In the city (villag

In Province

If farmer was born in Phong My, than is necessary to know from which part of Vietnam did his/her family c
where the family lived before 1975.

HUMAN RESOURCES — **Total number of questions: 8**

Q1 Family members (farmer and his wife/her husband, children, farmer's parents, relatives)

	Family member	Male of female	How old is he/she	How many years he/she spend(-ed) at school	Working on farm (yes="**1**")	Has job outside farm (yes="**1**")	How man days of illness last year	How man days in hospital last year
1	farmer							
2	farmer's wife / husband							
3								
4								
5								
6								
7								
8								
9								
#								
#								

Q2 How much money you annualy receive from government? (retirement, suppor '000 VND

Q3 How much money your household annualy receive from jobs outside farm? '000 VND

Q4 How much you annualy pay for hired labor? '000 VND

January December

and when … ("**1**")

Q5 Extra money for Household and Farm:

What is total amount of your own savings from last year (in bank+at '000 VND

Do you get a credit from official bank? (yes="**1** For how many months

Do you borrow money from other people? (yes For how many months

What is total amount of credits you received (form bank+other peo '000 VND

For what purpose you borrow the mone? (yes="**1**")

Food and clothe — Buy inputs for farm (seeds, fertilizer — Education

Medicine, health ca — Investments (machinery, household — Paying back for other cre

Q6 Household Expenditures (appro1imately): #### (if you do not know in VND)

How much you annualy pay for education (scholarship, papers, books '000 VND

How much you annualy pay for health care (medicine, doctor, herbs … '000 VND

How much you annualy pay for running household (cloth, ta1es)? '000 VND

How much you annualy pay for energy for household? (electricity, woo '000 VND

Q7 What is farmer's opinion on labor capacity in area? (if yes, than "**1**")

Lack of family labor — Lack of e1ternal lab — E1ternal labor is too expe

Not enaugh work on farm (in agriculture) = a lot of free time

Not enaugh work opportunities to work in non-agriculture area

No problem with labor capaci

Q8 Number of family members who died in last 10 years. Write number of death into age interval:

<1		10-14		25-39		50-54		65-69		80-84	
1-4		15-19		40-44		55-59		70-74		85 >	
5-9		20-24		45-49		60-64		75-79			

FAMILY HEALTH SITUATION — **Total number of questions: 3**

Q1 Do you use any traditional medicine? (yes="**1**")

Q2 Do you call local mediciman if somebody is ill? (yes="**1**")

Do you call graduated doctor if somebody is ill? (yes="**1**")

Do you use any offerings and/or worship? (yes="**1**")

Q3 Opinion on health care (if yes, than "**1**")

doctor too far		too expensive		poor quality	
hospital too far		too expensive		poor quality	

Q4 If somebody is ill you usually put him into (yes="**1**"):

hospital		village infirmary		heal at home	

LAND — **Total number of questions: 6**

Q1 How much extra land you need in order to produce enaugh crops for hous ha sao

Q2 How much extra land you need in order to produce enaugh crops for mark ha sao

Q3 You want to change the land area because of (if yes, t

- market demand
- land quality is getting worse
- yields are getting lower
- not enaugh land for crops
- not enaugh land for animals
- following other people
- other

Q4 Do you think that there is still enaugh land for renting in Phong My? (yes="

Q5 Do you think that there is still enaugh land to rent/buy outside Phong My? (Where?

Q6 How much you annualy pay for land (rent, tax etc.) '000 VND

FOREST **Total number of questions:**

Q1 What is the size of your own forest? ha sao

Q2 Which products you usually collect from forrest? (yes="**1**")

Firewood		Medicine		Tree leaves	
Food for family		Flowers		Water (spring)	
Fruit		Mashrooms		Keeping animals	
Vegetables		Timber and bambo			

Q3 How much money you annualy earn from forrest? (selling forest pro '000 VND

WATER **Total number of questions:**

Q1 Drinking water for household

From which sources your family get water (yes="**1**")		Water quality rainy season 1- e1cellent 2-good 3-medium 4-poor	Water quality dry season 1- e1cellent 2-good 3-medium 4-poor	Distance fror household 1- < 5 min 2- 5-10 min 3- 10-20 min 4- > 20min	Acess to water for family 1-all year 2-9-12 months 3-6-9 months 4-< 6 months
wells					
tap					
stream					
piped from stream					
collecting rainfall					
buying in shop					
other:					

Q2 Amnout of driniking water for household is sufficient (yes="**1**")

Q3 Amnout of water for agriculture (crops and animals) is sufficient (yes="**1**")

Q4 How much you annualy pay for water (rent, tax etc.) '000 VND

CAPITAL — Total number of questions: 6

Q1 What kind of farm equipment and building you use for farming purposes?

	How much equipment and buildings for farming purposes you own?	What is the price or estimated value? '000 VND	How old is this equipment? years	For how long you think you will use it? years	I do not have any, but I would like to have (yes="**1**")	
tractor						
cart/vehicle						
plough						
spreyer						
power tiller						
other:						
other:						
stable						
animal wood-made shelter						
storage house						
small shop						
working room*)						
other:						
other:						

**) room, used by family for producing or processing non-agricultural (off-farm) goods (tailors, timberman,*

Q2 Is amnout of farm equipment sufficient for farming purposes? (yes="**1**") ☐

Q3 Is amnout of buildings sufficient for farming purposes? (yes="**1**") ☐

Q4 How much you annualy pay for renting machinery from other farmer ☐ '000 VND

For how long you annualy hire a machinery from other farmers? ☐ days

Q5 Do you borrow the machinery to other farmers? (yes="**1**") ☐

Q6 How much you annualy get from renting machinery to other farmers ☐ '000 VND

Q7 From which material is build your family house? (yes="**1**")

mainly concrete ☐ wood and concrete ☐ mainly wood/bamb ☐

What is the price of your family house? ☐ '000 VND

How old is your family house? ☐ years

Q8 Which household equipment do you have? (yes="**1**")

television	☐	radio	☐	computer	☐
satelite	☐	generator	☐		☐
cell-phone	☐	motor-bike	☐		☐

CROP PRODUCTION — Total number of questions: 7

Q1 What is your annual crop production and use? *)

Q2 How much money you spent on crop production du
the whole year? If not in VND than in %, or write dc
numbers according to their importance (1-most im
5-less important or not paid at all)

Planting crops	Total annual production kg	How much is for market kg (or %)	How much is used as fodder kg (or %)	Seeds '000 VNI	Ferilizers '000 VNI	Pesticide '000 VNI	Against insects '000 VNI	Machiner '000 VNI
Rice								
Peanuts								
Pepper								
Cassava								
Cassava leafs								
Yam								
Rubber								
Maize								

LIVESTOCK PRODUCTION **Total number of questions: 7**

Q1 Which animals you have on your farm? **Q2** For which purpose you breed the animal? (yes

Animal	Number of animals in years			Meat		Milk		Egg		Farm work	Using vete-rinary services (yes=**1**)	
	2007-08	2005-06	2003-04	Family	Market %	Family	Market %	Family	Market %	(draft, breed ...)	now	3yrs ago
Buffalo												
Cow												
Pig												
Pig - female												
Goat												
Chicken												
Duck												
Goose												

**) Howmuch of meat, milk or egg production is intended for market (appro1imately 20%, 33%, 50%, 75%*

Q3 How much money you annualy spent for extra fodder for animals? '000 VND

Q4 How much money you annualy spent for some fees dealing with ani '000 VND

Q5 How much money you annualy get for selling animal products? '000 VND

Q6 Is animal production sufficient for producing enaugh food for your household (

From where you get any extra animal products? (y Market Other farme Forest