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**COMISSÃO INTERMINISTERIAL PARA A IMPLEMENTAÇÃO DA CONVENÇÃO-
QUADRO PARA O CONTROLE DO TABACO – CONICQ**

MINISTÉRIO DO DESENVOLVIMENTO AGRÁRIO – MDA

MINISTÉRIO DA SAÚDE



**METHODOLOGICAL GUIDELINES FOR THE
ANALYSIS OF TOBACCO GROWERS
LIVELIHOODS DIVERSIFICATION: REFERENCES
TO IDENTIFY ALTERNATIVE STRATEGIES
BASED ON PRELIMINARY RESULTS FROM A
CASE STUDY IN BRAZIL**

RESEARCHERS:

**Prof. Sergio Schneider (PGDR/UFRGS)
Prof. Paulo Waquil (PGDR/UFRGS)
Prof. Leonardo Xavier (PGDR/UFRGS)
Prof. Marcelo Conterato (PGDR/UFRGS)
Prof. Miguel Perondi (UTFPR)
Dra. Anelise G. Rambo (PGDR/UFRGS)
Msc. Carlise Schneider Rudnick (PGDR/UFRGS)
Msc. Tanise Dias Freitas (PPGS/UFRGS)
Bcl. Kayton Fernandes de Ávila (UnB)**

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Foreword

Brazil is one of the 174 countries that integrate the Framework Convention on Tobacco Control (FCTC), which is the first international treaty negotiated by the World Health Organization, concerning the reduction of the consumption and the diseases related to tobacco by-products worldwide.

The Articles 17 & 18 of the FCTC refer to the development of economic viable alternatives to tobacco growers, and the prevention of the negative impacts of tobacco growing and by-products on the environment and the health of the tobacco growers. These Articles concern with the countries that produce tobacco and protecting the health and livelihoods of the tobacco growers, who are the most vulnerable link in the tobacco economic chain.

The first FCTC's Conference of the Parties (COP1), held in February of 2006, incepted an Ad Hoc Study Group (SG) concerning these Articles, with the aim of identifying economic sustainable alternatives to tobacco. This SG held two meetings, in Brazil (2007) and Mexico (2008) and produced relevant contributions to these Articles of the Framework Convention.

At the COP3 in 2008 the Study Group was replaced by a Working Group (WG), with a mandate that include seven different tasks, which should produce the basis of the policy options and recommendations of this Group. This include elaborating a standardized analytical framework for comprehensive assessment of the viability and sustainability of tobacco growing and alternative livelihoods, including alternative cropping systems among other economic options, and taking into account health, social, environmental and economic factors. Since the inception of the WG the country parties have been pointing out the need of carrying out comparative research and studies, particularly in the countries that produce tobacco, with the aim of facilitating the implementation of the Articles 17 & 18.

The COP3 also gave to Brazil the status of the "Main Key Facilitator Country", along with Greece, India, Mexico and Turkey, as it has around 200 thousand tobacco producers and is

the second producer and first exporter of tobacco. As such, Brazil took the responsibility to develop an Analytical Framework of tobacco growers' livelihood, with the aim of contributing to the Working Group's policy options and recommendations concerning Articles 17 & 18. It created the Inter-Ministerial Commission for the Implementation of the FTCT (CONICQ), which includes 16 Ministries, with the aim of implementing the Framework Convention. This Commission is in charge of developing the Analytical Framework of the livelihood of tobacco growers, which is also relevant to the National Programme of Production Diversification on Tobacco Growing Areas, and is coordinated by the Ministry of Agrarian Development (MDA).

Various partners of CONICQ contributed to this enterprise. The Federal University of Rio Grande do Sul (UFRGS) and the Federal University of Technology of Paraná (UTFPR) contributed with their expertise, and the Ministry of Agrarian Development (MDA) and the Executive Secretariat of CONICQ with financial support.

This document includes the theoretical framework and research instruments developed during the last three years in Brazil. It was prepared for the third meeting of the Working Group that will take place on February of 2012, in Geneva, as a preparation to the COP5. It is expected that this proposal will be tested, adapted and effectively adopted by the countries producers of tobacco.

CONICQ/INCA/Ministry of Health

Ministry of Agrarian Development - MDA

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1. Introduction

The purpose of this work is to present a theoretical-methodological reference to tobacco growers' livelihoods analysis based on an experimental study conducted in the most important tobacco producer region of Brazil, the Rio Pardo Valley, in the state of Rio Grande do Sul.

The World Health Organization Framework Convention on Tobacco Control (WHO/FCTC), Articles 17 and 18, explicitly recommends the search for economically viable and sustainable alternatives to tobacco growers.¹ Brazil has signed the Convention and has been a facilitator in the Working Group on Articles 17 and 18. The main task for this working group is to identify economically viable and sustainable alternatives to tobacco production.

As an important tobacco leaf producer and exporter, Brazil has direct interest in finding economically viable and sustainable alternatives to over 150 thousand families that almost exclusively depend on this activity in the Southern region. In recent years, several efforts have been done in this direction, especially in regard to developing diagnostic methodologies and policy making for small farmers.

In this sense, the researchers who sign this document intend to contribute to this challenge. This document presents an analytical and methodological template that aims to help to make a diagnosis, to evaluate and give support to public policies propositions, contributing to the implementation of economically viable and sustainable alternatives to Brazilian tobacco growers, and perhaps for around the globe.

It is a preliminary proposal elaborated by a multidisciplinary group of researchers from the Post-Graduation Program on Rural Development (PGDR), of the Rio Grande do Sul Federal University (UFRGS). The Brazilian Agrarian Development Ministry (MDA) has requested it under the scope of the National Program on Diversification in Tobacco Cultivated Areas. This proposal will be

¹ **Article 17:** Parties shall, in cooperation with each other and with competent international and regional intergovernmental organizations, promote, as appropriate, economically viable alternatives for tobacco workers, growers and, as the case may be, individual sellers. **Article 18:** In carrying out their obligations under this Convention, the Parties agree to have due regard to the protection of the environment and the health of persons in relation to the environment in respect of tobacco cultivation and manufacture within their respective territories.

presented in the third meeting of the WHO/FCTC Working Group on economically sustainable alternatives to tobacco production, which will be held in Geneva on February 14th to 16th, 2012.

Following this short introduction, the next session outlines the debate on economically sustainable alternatives to tobacco production based on the findings and achievements of the previous Study Group and Working Group meetings. The third part shows the theoretical base that sustains the research. These are the Amartya Sen' theory on capabilities, which is based on the Frank Ellis' livelihoods diversification approach, as well as Angela Kageyama' contributions to it. The fourth session complains the methodology used, which is based on two instruments of inference. The fifth part presents the first analysis done on the outcomes from the case study conducted in the Municipality of Arroio do Tigre. The sixth part presents the final remarks on the study.

2. The context of the economically sustainable alternatives to tobacco growing

The findings and achievements of both previous Study and Working Group meetings on economically sustainable alternatives to tobacco growing, in relation to WHO/FCTC Articles 17 and 18, allows to identify a relative consensus among Parties, key facilitators, researchers and experts. The implementation of Articles 17 and 18 should have a holistic approach, including health, economic, social, institutional, political and environmental aspects.

In this sense, the search for alternative crops should not necessarily be based on monocultures. It should be a combination of crops or cropping systems. The farmers' income and crops profitability should not be the only indicator of successful alternatives, but all aspects related to farmers' subsistence. The development of alternative livelihoods models should take in consideration a holist approach to go beyond crops' profitability. It could serve as a tool to bridge academic recommendations and policy development. The livelihood approach was identified as the most appropriated to the implementation of WHO/FCTC Articles 17 and 18 (SCHNEIDER, 2010b).

The emerging challenge is to build a template that allows comparing livelihoods diversification, and to evaluate what could be their effects on tobacco growers living conditions.

3. Theoretical background

Theoretically, the proposal of this work (to build a template) is based on the *theory of capabilities*. This theory was elaborated by Indian economist Amartya Sen (1999; 2001), according to whom when development is wanted it is necessary to make people use their livelihoods to produce the living conditions they aim. Any restriction on freedom to exercise this possibility or capability, a person's actual ability to be or do something, implies a barrier to development the fullness of human condition. In this approach, the quality or conditions of life are not measured solely by the property of a set of goods or money, but they are measured by the capacity individuals have to make use of this goods, resources and money (which are the means) to obtain satisfaction or happiness (the ends) in their lives. For Sen (1999) a situation or position in which individuals, families or even nations have for income or access to money does not mean, *ipso facto*, that they are developed.

All of Sen's efforts is to change the focus on things or resources possession to invest on human welfare. The proposal aims, fundamentally, to change the focus of actions on ends or results, materialized in income indicators, goods possession or capital. Its focus is on strengthening ways and means that individuals have to deal with the contexts adversities they live. To strengthen livelihoods implies on the creation of mechanisms that allow to make options or to generate a portfolio of options and strategies for employment and income, stimulating farmers' resilience to deal with crises or their vulnerabilities.

To focus on livelihoods and living conditions became more important in studies and researches on development, especially on analysis on poverty, vulnerabilities and the precariousness of life. Nobel Prize in Economic Sciences, the pioneer work of Amartya Sen (1999; 2001) has been fundamental to reorient the focus on poverty and social precariousness in rural areas. Sen argues that the biggest fault of the studies on poverty and vulnerabilities is the fact they are focused

on income as the only unity for development. Or, that the access to income per individual or family would be a *sine qua non* condition to be recognized as non-poor.

The distinction made by Sen (2001) between means and ends is based on the concepts of *entitlement* (means) and *functioning* (effects). The means are related to a set of combinations of goods or merchandise that each person has. Food, for example, would be the most basic. The entitlements represent the means to achieve certain ends, the conditions to realize choices under legal, political and economic rules (KAGEYAMA, 2008; WAQUIL, *et.al.*, 2007).

The functionings (effects) are related to realizations, to the real opportunities of choice for possible ways of life. Although these are important aspects of human existence, they are not the only ones that represent welfare and living conditions. The capacity represents, therefore, a combination of functionings that an individual can perform, exercising the freedom to have a certain type of live or another. (SEN, 2001; KAGEYAMA, 2008).

This theoretical background dialogues with the *livelihoods diversification approach*, elaborated by Frank Ellis (2000) to analyse poverty situations and vulnerabilities in rural areas. The interface between both theories is the idea that the strengthening individuals and rural families capabilities can be performed through diversification of production and economic organization. Which implies that the greater the diversity in the unity of production or family, the greater are the opportunities they may have regarding options of choices. In a greater portfolio of choices is essential to establish strategies to fight different vulnerabilities (weather, diseases, prices) in which farmers are subjected to, strengthening their resilience.

Based on these remarks, it is considered that the implementation of economically viable and sustainable alternatives to tobacco production can be inspired in those theories. The focus on livelihoods can be useful and adequate given the lack of methodologies that allow diagnostics and evaluations to policy making in support to rural development.

The livelihoods approach shows that to think about alternatives does not mean a simple switch from crops, as it was easy to substitute the commercial tobacco production by other crops. This overcomes the mere comparison between crops, which mostly put tobacco production in prime condition to other cash crops,

according to the conditions in which such production is carried out, with a strong technological and commercial apparatus, and political support and cultural legitimacy. The focus on livelihoods implies enlarging options beyond the economic and productive dimensions, and it also offers an insight to argue in favor of actions and policies that go on direction to the WHO/FCTC Article 18, which refers to the environment and people's health protection, in relation to tobacco production activities.

In the next session, the Frank Ellis' approach will be presented as a way to explore and use it as a toll the Amartya Sen' propose.

3.1 Livelihoods Diversification – an approach to implement economically sustainable alternatives to tobacco growing

To understand tobacco growers' livelihoods it is necessary to identify resources they have or access, and to capture perceptions that they have of their own living conditions. The livelihoods of an individual or families are a set of assets they have and ways to access and use resources. The livelihoods and ways to access define the ways of life of a person or family.

If it is not sufficient to have knowledge of capitals (goods) that families have, it is also not sufficient to have solely knowledge on the perception they have on their own living conditions. So, when elaborating diagnostics and evaluations that aim to support public policies to improve tobacco growers living conditions and/or diversify the production, it is necessary to recognize that the focus should be on the livelihoods and the ends people pursue for their lives.

The study on livelihoods has the merit to expand the focus of the development to dimensions beyond income or economic gains. In this view, it is considered that individuals and/or families have good or adequate living conditions if the means (capitals) they have to produce and develop a certain way of life offers them a suitable economic return (monetary gains and non-monetary). But it should not compromise other aspects that influence their welfare and quality of life, such as, the land and production equipments that have (physical capital), the mental and physical health (human capital), the social relations and interaction with the social

group in which they live (social capital), as well as the biodiversity and environmental resilience of plants and animals that are mobilized to produce (natural capital).

The analysis of livelihoods of a social group and understanding of the effects organizing forms they use to reproduce these means, suggests an analysis of the diversity of these livelihoods and processes of diversification that are promoted. Diversification may be understood as a condition that takes place when individuals, families or even enterprises have access to different capitals, as money, technologies, knowledge, land property, or natural resources, such as water, seeds, wood, among others. Diversification requires knowledge on the processes of production and reproduction of the diversity of resources and capitals. This implies to understand the way diversity is created by distinct, heterogeneous and various forms of livelihoods. So, livelihoods diversification implies a process that Ploeg (2008) named “constant fight for strengthening the base of available resources”, which is taken by farmers and their capacity to “constantly fight for autonomy and freedom”.

To diversify does not mean only to organize differently the phases of production, expand quantity of activities executed by farmers in their unities of production, or to adopt crops rotation techniques.

In this sense, the diversification is related to a process that requires the extension of labor and productions opportunities. The reduction of dependence and vulnerabilities, the increasing of quality of life, the establishment of food security bases, strengthening farmers’ intersectoral competitiveness and activities. To think diversification beyond crops substitution implies to postulate the need to search for economically viable and sustainable alternatives that can contribute to poverty reduction and to surpass the social vulnerabilities in rural areas.

The possibility to use a livelihood approach to follow the diversification process in tobacco-cultivated areas could not be restricted to productivity aspects. Or, most precisely, it could not be restricted to the tobacco production dimension. Diversification in the livelihood approach implies to think “beyond the farms’ gate”, which means to reflect on the conditions and possibilities that can be inserted in the farmers’ economic and social environment, their community or municipality.

Diversification aims at the promotion of rural development *per se*, what requires the extension of access to agricultural and non-agricultural work and production conditions that may reduce farmers’ dependence on a single crop,

production system or source of income. Diversification implies the extension of the bases of local economy, to generate aggregated effects at the local space in which this process occurs. It may generate a dynamic that stimulates other sectors and productive activities, allowing for the diversification of the territory and the rural space as a whole.

The economically viable and sustainable alternatives to tobacco production need to be capable of acting on improving aspects of farmers' way of life. This means that the profitability of productive activities is one important aspect to be considered, but it is not sufficient to generate the aimed quality of life. This implies to accept that tobacco production diversification by small farmers may not occur only or exclusively based on economic and financial issues. Farmers that produce tobacco may be willing to diversify or even reduce their production based on health issues, work conditions or, simply, because they realize that even being profitable, it is in general a harmful activity made under stressful and painful conditions.

In this sense, strategies to livelihoods diversification that aim to implement economically viable and sustainable alternatives to tobacco production may be considered as initiatives, actions, activities and policies that aim to change (qualitative change) and to transform (quantitative change) cultural and economic aspects of tobacco growers. The cultural strategies aims at changing and transforming the understanding of farmers' cognitive schemes that attach them to beliefs and representations they are subjected to throughout their long tradition as tobacco growers, or by the marketing ideology of tobacco agribusiness companies. The economic strategies comprise a broad set of initiatives and actions that seek to provide viable and specific alternatives (capable of generating and maintaining the level of income) to farmers so they feel stimulated and encouraged to reduce or abandon the cultivation of tobacco.

Nevertheless, diversification of livelihoods is not only a set of policies and practical actions. It also demands an institutional process (formal and implicit) that is rooted in the farmers' cognitive, mental and cultural structures, and the population as a whole, including public managers and government institutions. It is, therefore, acting on the symbolic aspects in which the actors themselves seek new values and references to legitimize and enhance their work and their activities. The more

democratic and participatory control mechanisms and institutionalization of this process are the better is for sustainability.

Based on these benchmarks, the execution of this work was performed by preparing two research instruments (questionnaires), which propose to consider both the means and the ends of development.

4. Methodology

The methodology of this work is based on the elaboration of two instruments of empirical inference. Those consist on questionnaires, the first designed to apprehend and diagnose livelihoods of tobacco farmers, specifically resource availability and access (information on household production, production activities, family, etc). The second instrument is related to living conditions. It aims at capturing how tobacco growers perceive the effects of resource availability and access.

Both, apprehension of livelihoods and effects on living conditions were done using multivariate indicators. Livelihoods were accessed by the actives that compose what we call *capitals* (instrument 1), those are: natural, physical, human, financial, social and, in the second, case a symbolic effect.

The natural capital is considered to be the land, the water and the biological resources used by people to generate ways for survival. Such resources may be located in spaces with greater gradients of diversity (mountain regions) or not (plains) and be identified as renewable or not. Physical capital is considered to be what has been created by the economic process of production, such as property improvements and machinery, all subject to deterioration. Such resources, when serving as a family residence, for example, maybe considered nonproductive, however, they become productive if the house has rooms for rental. Human capital is the available domestic labor, influenced by the following variables: education, abilities and health. It is a capital that grows as investments on education and training are done, as well as the expansion of the capacity of one or more productive labors. Financial capital is considered to be the liquidity that the domestic group has to accomplish its strategies. This is one capital that can be maximized with access to a subsidized credit line or grants. Finally, social capital is a term that captures individual and

domestic group bonds with the community, in the broader social sense, and the possibility of belonging to a virtual social group with varied capacity of social inclusion (DFID, IDS, 1999; ELLIS, 2000).

The table bellow presents the capital composition that design the actives of livelihoods:

Capitals	Components
Natural	Water, soils, flora preservation.
Human	Education, health and nutrition
Social	Individual bonds, community bonds and cultural activities.
Financial	Income and productive activities.
Physical	Housing and infrastructure.

Table 1 – Actives of livelihood means
Source: Based on Ellis (2000).

It is important to highlight that for each capital there is a corresponding question in instrument 2 that captures living conditions, exception is on the case of symbolic effect. In the pilot research, the instruments showed a capital and a symbolic effect. However, the symbolic effect is difficult to measure due to its subjective nature. Therefore, the symbolic is kept as an effect, considering that individuals (or families) guide themselves (sometimes more, sometimes less) at the decision-making moment based on collective representations (mental structures). Thereafter, the symbolic effect will not compose the index calculation, but those can be correlated to questions raised with the symbolic.

In researches that aim at understanding how tobacco farmers family resources interfere on living conditions it is necessary to search for questions related to culture, such as values and symbols that are appropriated by them due to costumes, beliefs, identities and tradition. Even though the symbolic aspect is not present in the references brought by Ellis (2000), it is understood that it's important to consider the influence of symbolic resources on the conduct of tobacco growing families; this is the reason why the symbolic is present on the effects. Morality, culture, ethnicity, religion and trust, for example, are elements that turn beliefs,

values and emotions on elements that may influence family decision making in the context analyzed in this research.

Related to living conditions (instrument 2), the analysis focus on effects from property use or the use families do of capitals or assets. Property or access to certain capitals, as well as its intensity and quality, causes effects on living conditions. Therefore, in order to understand how tobacco growing families live it is needed to capture and systematize information on how access to capital (instrument 1) and how those cause an effect on living conditions of tobacco farmers (instrument 2). Both research instruments (questionnaires) are closed and questions have multiple choices answers. The answers are structured in a scale of evaluation, which varies from negative or low values to positive or high values on capitals and their effects on living conditions. The applied instruments gave origin to general indexes – Livelihood Index (LI) and Living Conditions Index (LCI), as well as indexes for each capital and their effect.

The LI (Livelihood Index) results from the simple average of capitals and the LCI (Living Conditions Index) results from the simple average of effects. Both, capitals and effects have the same weight in the general average composition of the index. The corresponding index that each capital or effect has is also a result of the simple average answers got, all the questions had the same weight.

Figure 2 shows the purpose of the work and the relations between theoretical references and instruments of empirical data assessment:

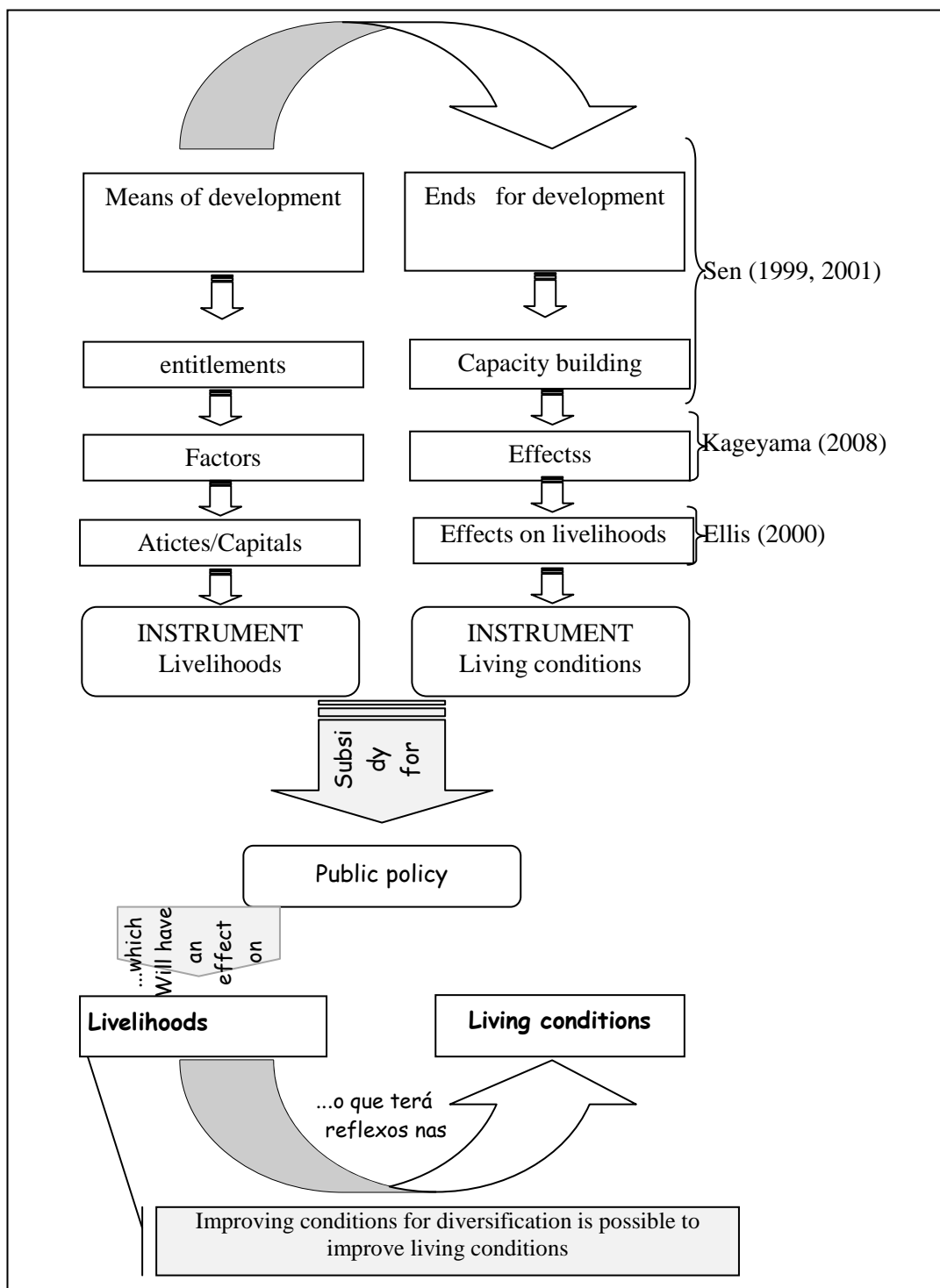


Figure 2 – Theoretical base

Source: Author’s design.

Both of the designed research instruments are attached at the end of this document. After an exploratory research in one municipality, which served as a test for the proposed approach, the instruments were discussed by a panel of specialists

and redesigned in order to become more objective and capture effectively the necessary information to the study on livelihoods and its effects on living conditions.

Based on these instruments it is aimed to diagnose available capitals for each household that produces tobacco and verify if there are observable effects of these capitals on living conditions. We aim at giving subsidies to public policies that will result on improving livelihoods, which can be felt on living conditions. Therefore, public policies can influence livelihoods, which may, consequently, improve live conditions.

Even though this is an exploratory research, it is thought that the analytical and methodological references presented has the potential to be applied in other contexts and even in different countries where tobacco is grown. It is based on instruments that capture the situation of livelihoods and reveals the effects on living conditions.

Therefore, special care was taken in order to assure fast and easy application questionnaires, respecting different realities among tobacco farmers. The same care was taken for data compilation, which has an electronic platform designed for it and allows for typing and biograms (graphic representation of results) generation for better data analysis.

4.1. Object of analysis: the household

The household has been defined as the most appropriated object to studies on strategies of small farmers reproduction. For this research, the household is appropriated because it allows identifying relations between individuals; “face to face” relations within the family structure, as well as the relations between the household and the collective, the community. From analysis on families or households it is possible to identify norms, values and rules that influence individual’s actions and even their conduct in designing individual and family strategies for improvements on living conditions.

In accordance to the theoretical proposal of this work, Ellis (2000) affirms that the household is the most appropriated object of analysis for the approach on

livelihoods, considering that within the household intense and interdependent social and economic relations occur. It is important to notice that the term household differs from family *per se*: it does not include solely consanguineous relations, but social relations, members of the household do not have to have necessarily a consanguineous relation and may live permanently in the residence. Ellis (2000), when in use of the term “family” as an analytical object in the approach of livelihoods, searches to define the social group that lives in the same place, share the same meals and make decisions of “strategies for the family” in a joint manner, be it on resource use or property planning and organization. The author emphasizes that it is from the family unit that it is possible to understand relations of trust, conflict, reciprocity, ethnicity and communitarian, all of which cannot be individually understood.

Even though many critiques have been made to family group analysis, Ellis (200, p.21) points that “[...] the term ‘household’ continues to be used as the main shortcut to describe the residence social unit, it can be extended to migrants and other people that bring temporary or regular improvements to the family’s wellbeing”.

4.2. Typologies for living conditions and means

It is possible to define two typologies that can be useful in the analysis on the relations between livelihoods and living conditions. One typology refers to the degree of diversification and the other, more specifically, to the relation between capitals and effects, in other words, between livelihoods and living conditions.

Regarding livelihoods diversification, Ellis (2000) affirms that it refers to the process in which rural families build a diversified portfolio of activities and abilities of social support in order to survive and improve living conditions.

Therefore, diversification is understood as the creation of a strategy portfolio that allows to diminish dependence and instability in the process of reproduction caused by some faults in the course of production activities, such as losses of harvest due to climate hardships, droughts or floods, and by variability and seasonal income throughout the year. Thereafter, livelihoods diversification allows for building

strategies so producers have greater autonomy in face of environmental vulnerabilities be it by external shocks or crises (PERONDI, 2009).

Further, the concept of diversity manifests itself through different incomes, activities, occupations, systems of production, work conditions, productive dependency, etc. In the words of Schneider (2010a, p.8):

[...] diversification is inserted in the promotion of rural development *per se*, which implies amplifying conditions of access to labor forms and agricultural and non-agricultural productions that reduce the dependence of farmers to one type of harvest, system of production or income source. Diversification implies, in the expansion of local economy, which causes aggregated effects on the local space where the process occurs, causing a dynamics that adds other sectors and activities in the productive arena, which allows to diversify the territory and the rural space as a whole.

In this present study, diversify means to have less dependency on external factors, less dependency on controlled resources by external actors and the maximization of activities inside and outside the property. Diversification becomes a key factor in the development of livelihoods because it gives social actors the possibilities of having greater autonomy and possibilities of choice.

Regarding tobacco farmers the idea of diversification implies thoughts on the conditions production is done. In Brazil, like some other countries, there are studies that show that many tobacco farmers stay within this activity due to monetary reasons; they say that this culture is more profitable than other cash crops productions. In some sense, this is explained by the intensity of land, capital, labor and inclusion of growers in circuits of inputs acquisition and production sale to tobacco industries.

But some tobacco farmers recognize the precarious and vulnerable production conditions to which they are submitted to and commonly complain their loss of autonomy over their own process of production and the loss of control over productive factors that become controlled by the industries that sell inputs and buy the tobacco production. Studies show that general conditions of tobacco production affect growers' health (green tobacco sickness, depression, neurological problems), the environment (water is contaminated by pesticides and deforestation from wood

used to dry leaves), opening up a predisposition on some growers to shift or at least reduce their dependency on tobacco growing.

Nevertheless, capacities and means available to these producers force and pressure them to be strongly dependent and subordinated to tobacco production. Therefore for these types of growers the diversification process implies building a portfolio that allows growers to exercise their right to options. Options may vary and imply a spectrum that goes from those that choose to remain dependent and specialized in tobacco growing, those that reduce tobacco growing without abandoning it and finally those that decide to leave tobacco growing and invest in other crops.

In this sense, diversification consists in a process of building opportunities, raising grower's capacity in order to have options and power of decision. Diversification refers to producer's autonomy, which consists on generating conditions of possibilities so they have freedom to decide what they want in the way they wish. The condition of growers' autonomy will allow them to decide what and how to produce, it will depend on the available livelihoods they have.

In order to define the degree of diversification of tobacco farmers it is necessary to establish an operational definition that is heuristically viable, but is also faithful to the theoretical definition brought above.

We propose to consider two independent variables: relative value of tobacco growing *vis a vis* total production (agricultural and non agricultural within and outside the unit of production), and the amount of time spent on tobacco production by the family in relation to other productive activities that they might practice. The first variable refers to the gross value of tobacco production in a household as a variable that will determine the total amount that tobacco represents in the total income of productive activities (agricultural and non agricultural within and outside the unit of production). The second variable, time of work spent in tobacco growing refers to the amount of work spent by the family on tobacco in relation to the real total time spent in productive activities².

² As already mentioned, in accordance to Ellis Ellis (2000) diversification refers to the process in which rural families build a diversified portfolio of activities and abilities of social support in order to survive and improve living conditions. To capture this portfolio it is needed to consider all productive activities

From these two variables we are able to classify tobacco farmers in three categories that vary from diversified to specialized families, and the less diversified, as Figures 3 shows:

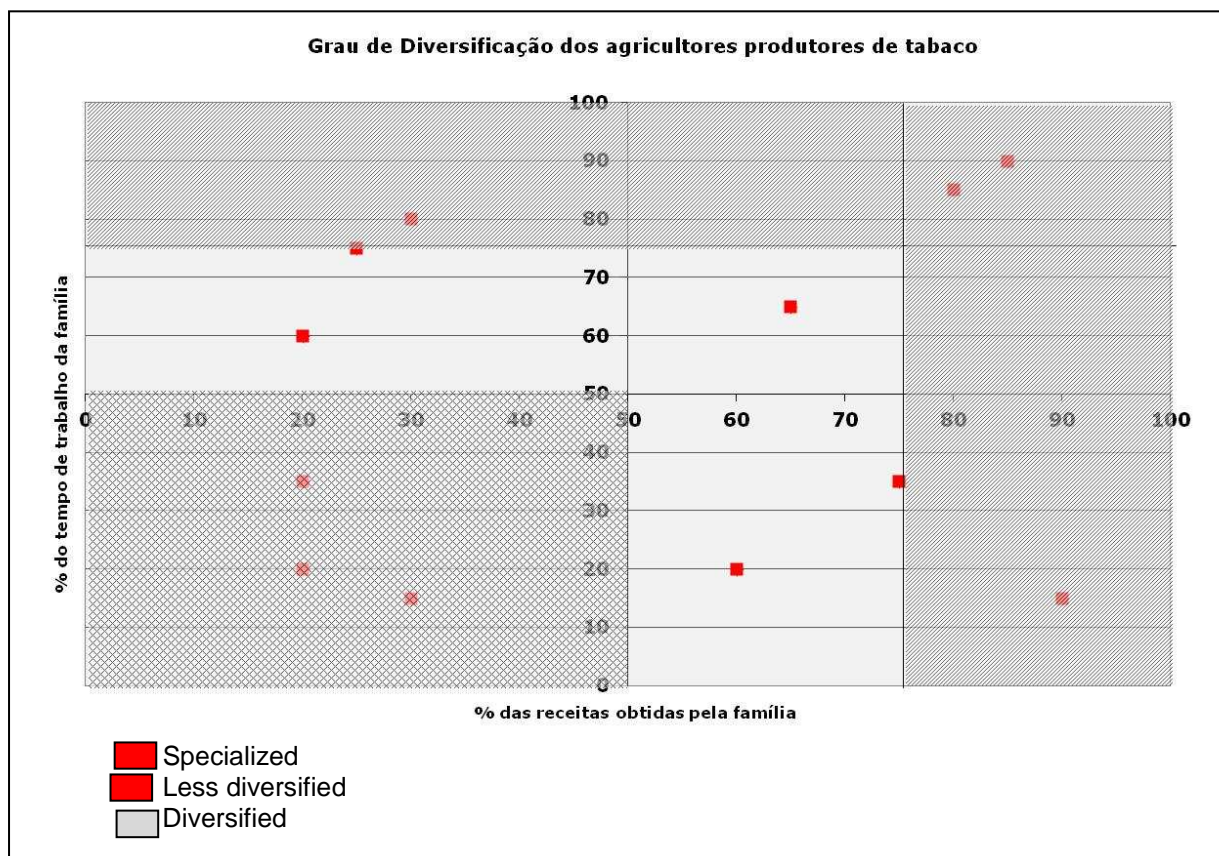


Figure 3 – Degree of diversification or specialization for tobacco farmers.

Source: Author's research data.

A second typology is necessary and will explore relations between actives that are present in the households (abilities) and the effects of those on living conditions. In other words, it is important to understand how tobacco farmers perceive and feel the effects of what they do.

In this case, the tobacco farmers' universe will be divided initially in four types. The first group refers to those families that have a good set of capitals

performed by the family – agricultural and non-agricultural, within and without the property – once it is them that characterizes each mean of living.

(means). These vary between those who have (1) a good perception on the capital's effect over their living condition; and those that present (2) a bad perception over their conditions. The second group corresponds to those families that present bad capitals (means), varying between (3) bad perception on their living conditions; and (4) good perception on their living conditions. Considering that the indexes go from a scale 0 to 1, the cutting point between groups is 0,5.

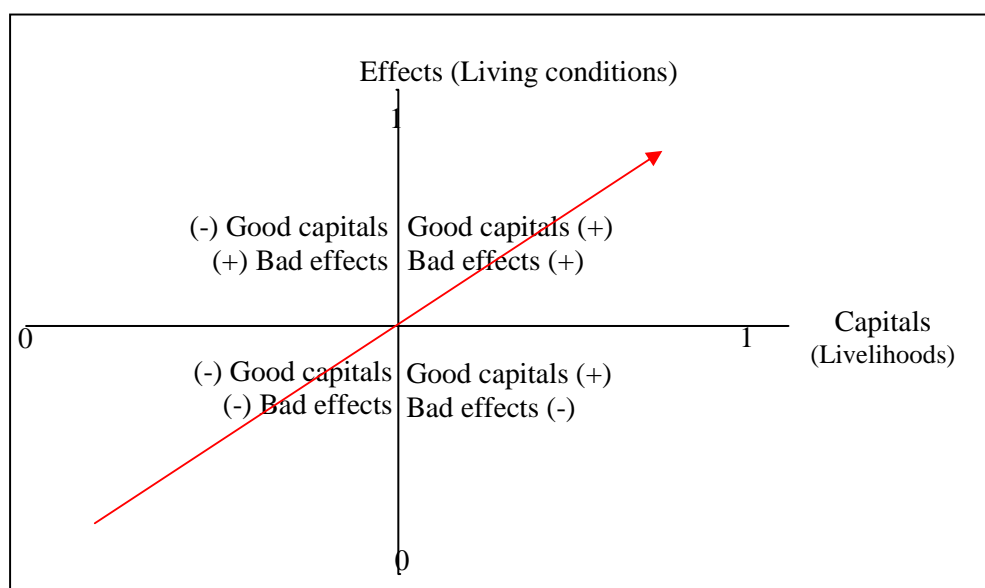


Figure 4 – Typologies considering the relation between actives and effects

Source: Author's research data.

From these typologies it is possible to relate diversification degrees, living means and living conditions. In operational and methodological terms, the work begins measuring and classifying the growers according to their diversification degree (percentage proportion of income and time spent working). Then an assessment on information that defines *factors that determine the possibility (or not) of diversification* will be done. These factors refer to actives (natural, human, social, financial, physical and symbolic capitals), dominance (or not) and use (or not) of those, which characterizes livelihoods. The third moment consists on verifying the effect these actives have on living conditions of different groups (diversified, less diversified and specialized). Each one of these groups will present two biograms (graphs in radar shape): one relative to livelihoods and other to living conditions. At the end each group (diversified, less diversified and specialized) will present different

combinations between capitals (means) and effects (ends), the prevalence of certain combinations may occur, such as it is shown in the following figure:

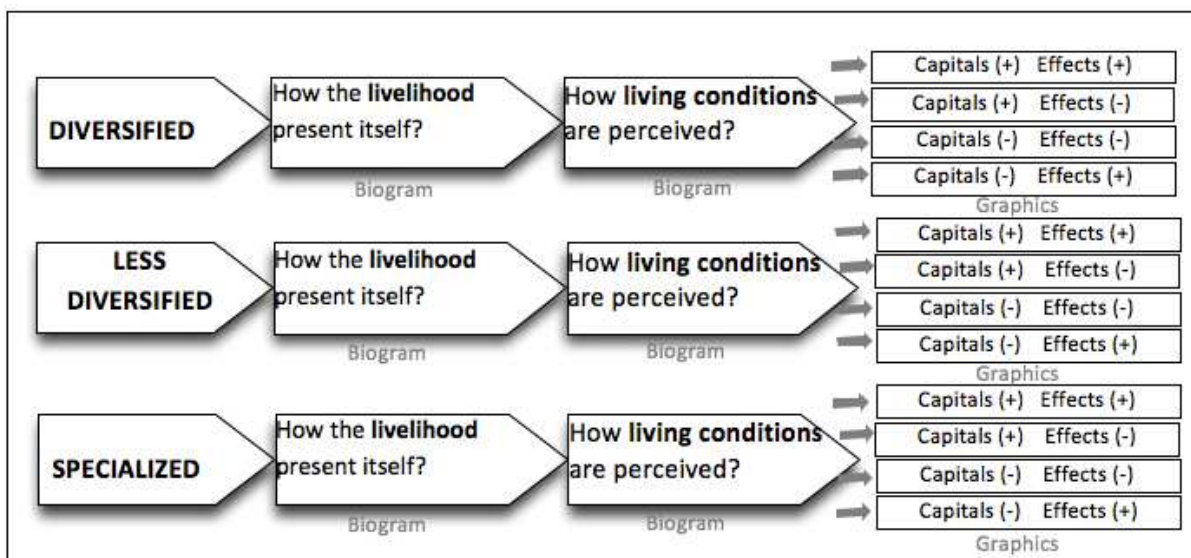


Figure 5 – Possibilities of combinations: degree of diversification, livelihoods and living conditions related to capitals and effects.

Source: Author's research data.

4.3 The platform for data compilation

The app used has the objective of collecting and systematizing data and presenting quantitative research results regarding the relation between livelihoods diversification with living conditions of tobacco growing families. These data are available in the shape of graphs (biograms) and tables that help in the interpretation and in decision making based on the given information. It complies the data collection environment, results presentation and a specific mode for users control.

Considering the diversity of the countries linked to the research, the app is structured in a multi-language platform, so the user may choose the language to be used. It is also capable of a web technology and can be accessed online from any location with Internet.

Bellow a brief description of the modes that are part of the system:

- **Data entry mode:** area to entry the data collected by the researchers with the questionnaires.

- **Compilation mode:** routine to apply available formulas and automatic tabulation (without the need to use statistical software's such as SPSS) of the questionnaires to calculate indicators.
- **Mode to present and analyze indicators:** this area has the objective of making graphic representation available for the indicators generated from data compilation in the shape of graphics (biograms) and tables.
- **Mode for user's control:** used to guarantee the integrity of the information put into the app. Beyond, basic data from the users this area allows for privilege access, for each area and the function the user may develop.

5. Preliminary results: a case study on livelihoods of tobacco growers in the municipality of Arroio do Tigre/RS

The choice for the municipality of Arroio do Tigre (Figure 6) for this exploratory research was not random. The criterion of choice was based on access to a municipality that had typical characteristics to other tobacco growing areas of southern Brazil. According to the last agricultural and livestock census, the municipality of Arroio do Tigre presented in the year of 2006, 2.025 agricultural establishments, 1.950 (96,3%) were family establishments and 75 (3,7%) not. Besides, from the total of agricultural establishments, 1.504 (74,3%) produced tobacco in 2006, even if the establishment was or not a family establishment, showing that 3 in 4 establishments produced tobacco.

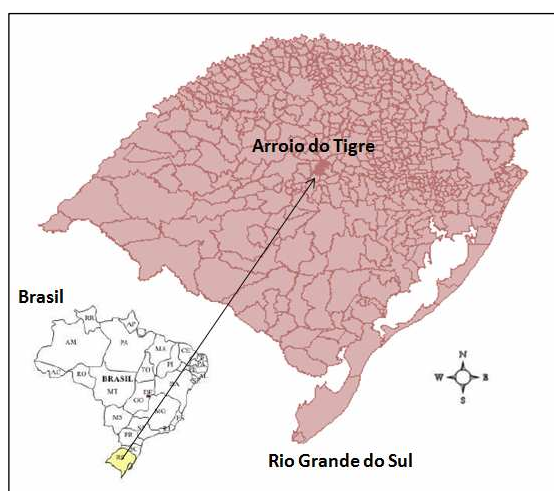


Figure 6 – Municipality of Arroio do Tigre in the state of Rio Grande do Sul/Brazil
Source: Author's elaboration.

In terms of economic sectors structure, data from the Foundation of Economy and Statistics (*Fundação de Economia e Estatística*, in Portuguese) indicate that in 2009, agriculture and livestock was responsible for 46,4% of all wealth generated within the municipality, this percentage is equal to the 46,6% of service's sector, industry shares only 6,8%. This data show the weight of agriculture and livestock for the municipality's economy.

It is also possible to identify the contribution of tobacco production. Plant products were responsible in 2006 to 80,6% of the total agricultural production value, the rest was divided between animal production (11,5%) and agroindustries (7,8%). From the value of agricultural and livestock, 93,1% came from temporary crops in 2006, where tobacco production fits. From the corresponding value of temporary crops, tobacco growing reached 73,3% of the total amount in 2006, showing hegemony in monetary terms.

In quantitative terms, tobacco growing was responsible for 56,6% of the total agricultural production in 2006 in the municipality of Arroio do Tigre. The data is clear in the indication of the degree of the municipality's dependency, which takes us to extend it to tobacco farmers. These sets of information were very important on the definition of the empirical universe to be investigated. It is worth mentioning that in demographical terms, the Demographic Census of 2010 indicates that Arroio do Tigre had a population of 12.648 inhabitants, being 6.686 (52,8%) rural and 5.962 (47,2) urban. The data show a prevalence of rural population.

5.1 Fieldwork

During the 04 and 05 of January 2012 in the municipality of Arroio do Tigre the instruments were applied; those, as explained earlier, had the purpose of apprehending and relating diversification of livelihoods to living conditions, including indicators that interfere in diversification processes and consequently in the living conditions of tobacco farmers. This section will present the possibilities of analysis and associations within the data that can be done based on the described methodology.

A total of 38 tobacco-growing families from Arroio do Tigre were interviewed. No criteria of statistical representation were established even though the number of establishments was known. The choice of the households followed a subjective criteria defined a priori, such as attempt to capture the diversity of tobacco farmers profile in technical and productive terms, among others that could bring out the possibilities experienced by the growers regarding availability and organization of actives or capitals.

This allowed for a typology of interviewed establishments regarding the diversification degree. The interviewed families were classified in *diversified*, *less diversified* and *specialized*. Regarding the criteria of time spent on the work of tobacco growing and tobacco's contribution to the total income, the diversified families (those who dedicate up to 50% of their working time to tobacco and obtain up to 50% of their income from tobacco production) represent 13% of the total interviews. Less diversified families (those who dedicate from 51% to 75% of their working time to tobacco production and have 51% to 75% of their income from tobacco production) correspond to 26% of the total interviewed families. The specialized families (those who dedicate more than 75% of their working time to tobacco and obtain more than 75% of their income from tobacco production) represent 61% of the interviewed families. This result shows a considerable degree of specialization of tobacco farmers in the municipality of Arroio do Tigre.

The set of interviews showed a Livelihoods Index (LI) of 0,626 and a Living Condition Index (LCI) of 0,615. This result points that the interviewees' perceptions on living conditions are worse in relation to their capitals or livelihoods. In analytical

terms, this difference is important because it indicates that tobacco farmers may express an understanding of their living conditions (captured by the growers perception) that differs from their livelihoods (captured by objective information). The non-equivalence between livelihoods and living conditions maybe an important piece of information in the identification of aspects that directly affect these families living conditions.

Considering the diversification degree, the diversified growers present a better LI (0,670), followed by the specialized (0,623) and by the less diversified (0,620). Even with with small statistical difference between the first and the last group (0,05), the average LI expresses the instrument's potential and of the index in capturing the differences related to livelihoods by tobacco farmers, in this case considering the criteria on the group definition (working time spent on tobacco production and tobacco's income proportion related to the total income). In this case the presented difference takes us to think the relation between degree of specialization and existing livelihoods. In some sense, not taking into account the statistical difference of 0.05 points, it is possible to consider that diversified growers present better livelihoods, particularly in relation to the specialized.

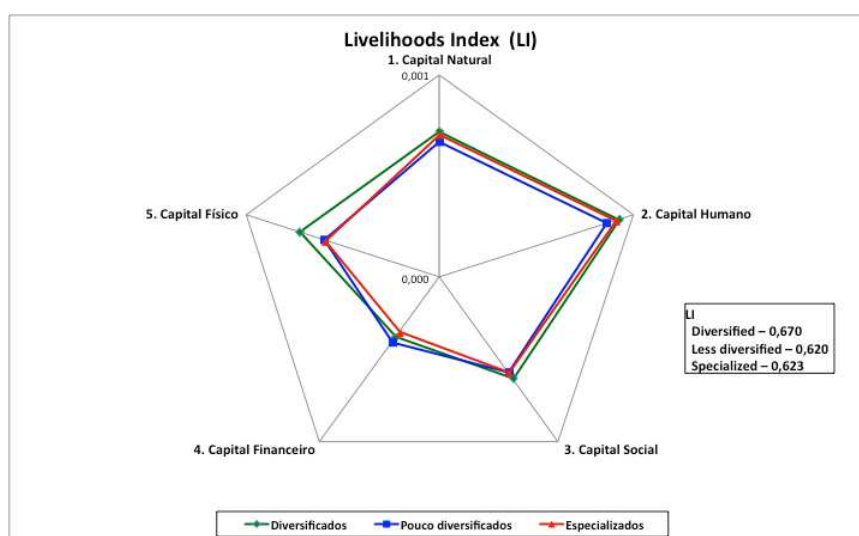


Figure 7 - Biogram representing the Livelihoods Index active
Source: Author's research data.

Regarding the Living Condition Index (LCI), again the diversified growers showed a better index 0,669, followed by the less diversified (0,623) and specialized (0,597). The difference between the diversified and specialized groups was 0,072,

greater than the difference observed in the graph for livelihoods, indicating relatively distinct perceptions regarding living conditions. Such difference, especially between the two groups, indicates possible implications of a greater or smaller dependency of growers in relation to tobacco in their living conditions, in this case through their perception, such as shown on Figure 8 where diversified growers have a better perception of their living conditions.

It is important to mention that, the greater the area in the graph, the greater is the equilibrium between each capital or dimension, better is the index. In the graph below, it is possible to visualize that for the most part of capitals and effects, diversified growers present better indexes.

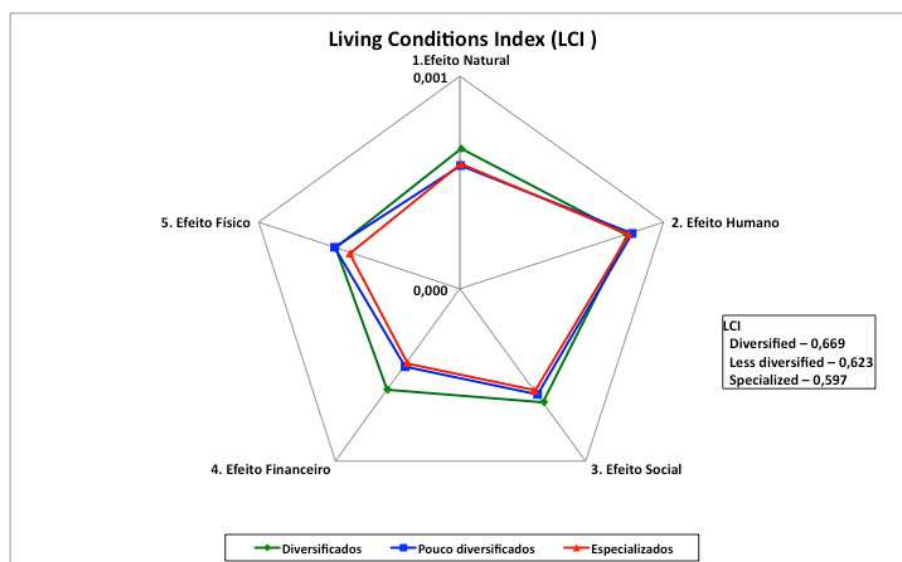


Figure 8 – Representative Biogram of Living Conditions Index
Source: Author's research data.

The following graph presents a more objective relation between capitals that families have and their perception on the effects those capitals cause in their living conditions.

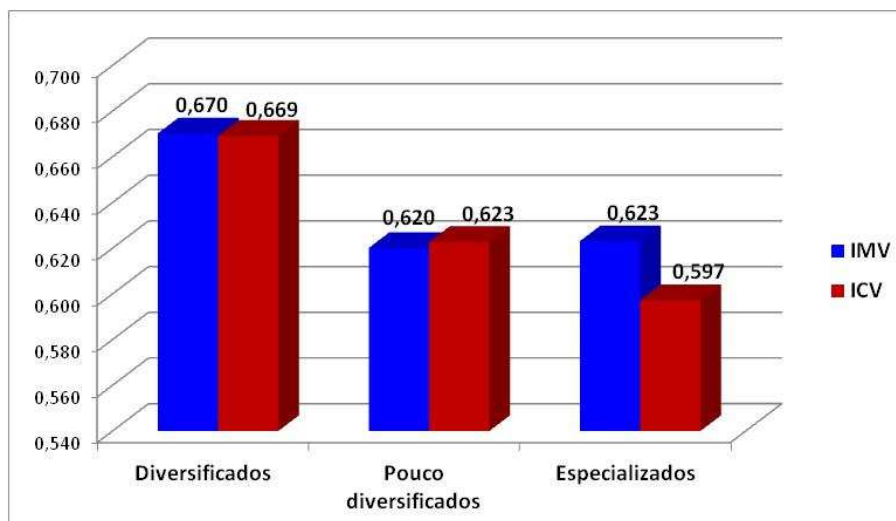


Figure 9 – Comparison between LI and LCI of tobacco farmers of Arroio do Tigre.

Source: Author's research data.

In the case of diversified growers, it is possible to observe that means and living conditions reach almost the same index. While the LI corresponds to 0,670 the LCI is 0,669. In the same way, less diversified growers also showed that their perception on living conditions (0,623) is also closer to LI (0,620). Even though the difference is of little significance, in this case, the effects on living conditions are better than the capitals themselves.

Different from the diversified growers, the specialized growers are less satisfied with their living conditions. While their capitals generated an index of 0,623, their living conditions reached 0,597, which means that the effects are worse than the capitals themselves.

It is also possible to specify the above data by capitals and conditions for each group of growers: diversified, less diversified and specialized.

The biogram bellow puts into evidence that within the diversified group, the natural (0,720), human (0,927) and physical capitals (0,722) are better placed in relation to the perception of their effects. These effects present an index of 0,660; 0,820 and 0,620 respectively. The contrary occurs with social (0,615) and financial capitals (0,722), which conditions represent 0,658 and 0,588 respectively.

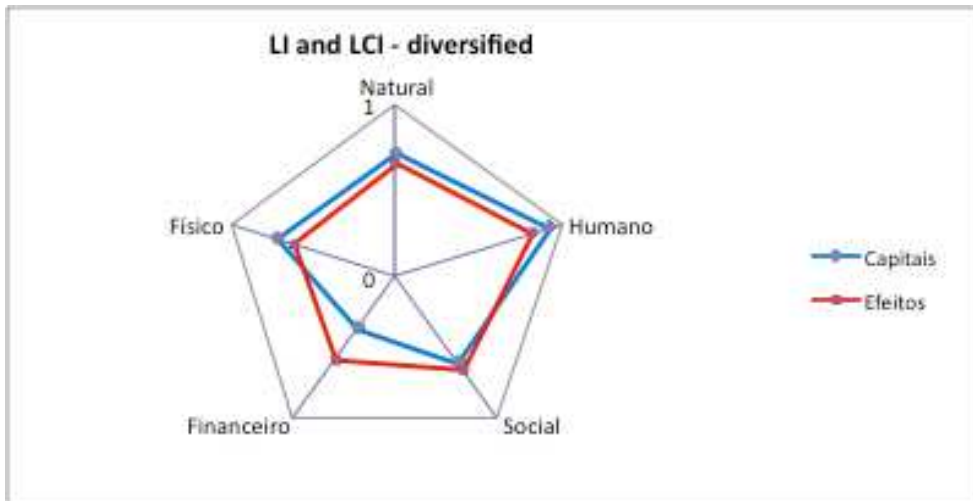


Figure 10 – Comparison between LI and LCI of diversified tobacco farmers of Arroio do Tigre. **Source:** Author’s research data.

In the diversified group, the financial capital and effect represent the worse indexes, but human capital and effect are responsible for the best indexes in this group. Regarding the less diversified group, only natural (0,670) and human (0,863) capitals are better placed in relation to their effects on living conditions. These effects present indexes of 0,580 (natural) and 0,845 (human). Other capitals have an index lower than the effect on living conditions: social capital corresponds to 0,578 and its effect on living conditions is 0,613; financial capital represents 0,394 while its effect is of 0,451 and physical capital is 0,596 and has an effect of 0,625.

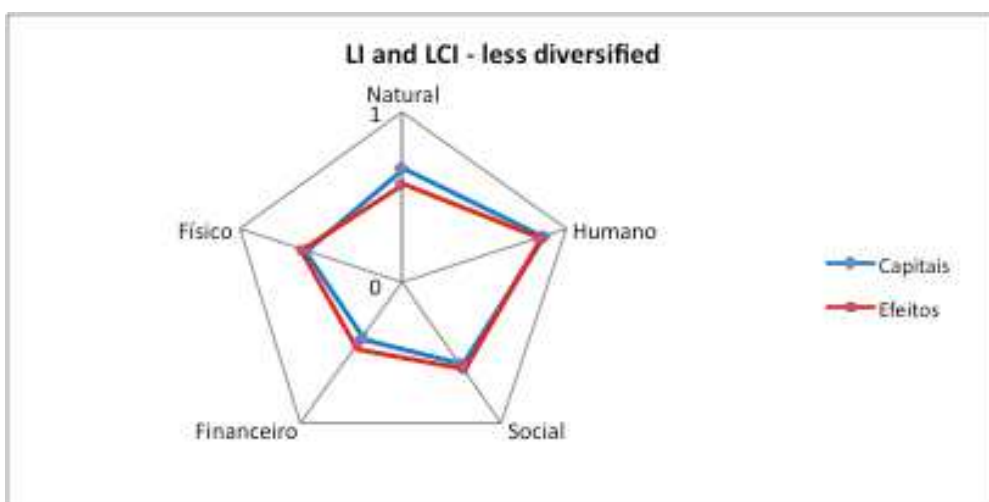


Figure 11 – Comparison between LI and LCI of less diversified tobacco farmers of Arroio do Tigre. **Source:** Author’s research data.

Like the diversified group, the less diversified present in financial capital and effects the worse index and human capital and effect showed the best indexes.

Finally, regarding the specialized growers, this group, like the diversified, presented natural (0,705), human (0,911) and physical capitals (0,590) better than their effects. Such effects translate to the following indexes: 0,588 (natural); 0,829 (human) and 0,550 (physical).

The effects are better than capitals in financial and social conditions. The financial effect corresponds to 0,431 while capital corresponds to 0,331. The social effect represents 0,588 and its capital 0,579.

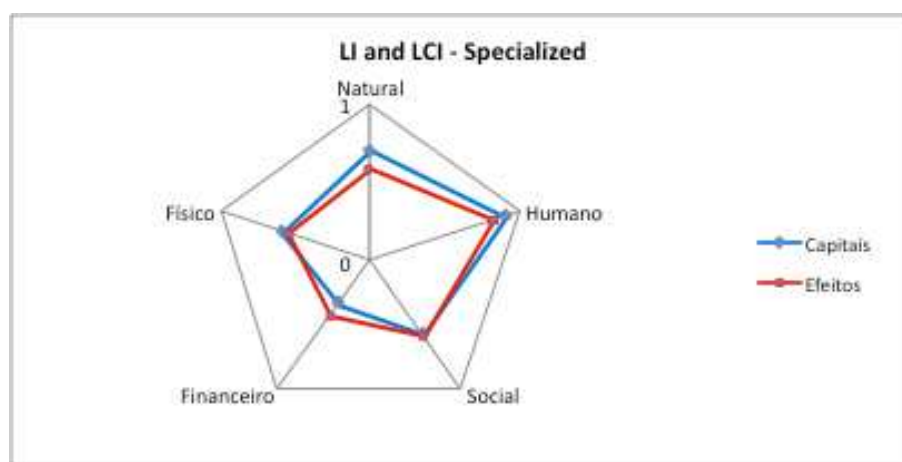


Figure 12 – Comparison between LI and LCI of specialized tobacco farmers of Arroio do Tigre.
Source: Author's research data.

Not different from other groups, financial capital and effect represent the worse index and human the best.

What is important to observe is that the diversified group have better natural, human, social and physical capitals in relation to the less diversified and the specialized groups. Regarding financial capital, the diversified group are better placed in relation to the specialized, however the less diversified present the best index among the three groups, such as can be observed in figure number 13.

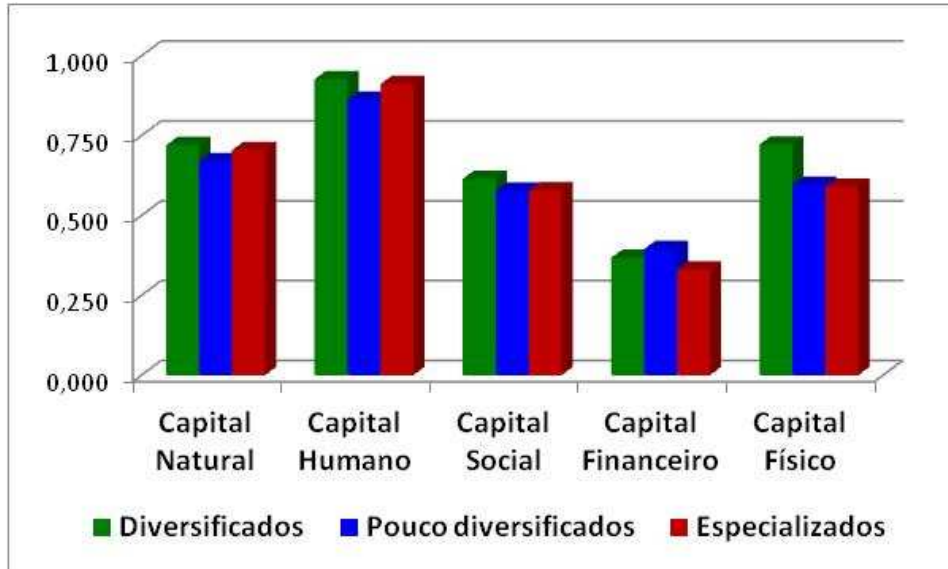


Figure 13 - Comparison regarding diversification degree and capitals
Source Author's research data.

Another possibility of analysis is given by the following graphics, where is possible to visualize the relation between capitals and their corresponding effects expressed on living conditions.

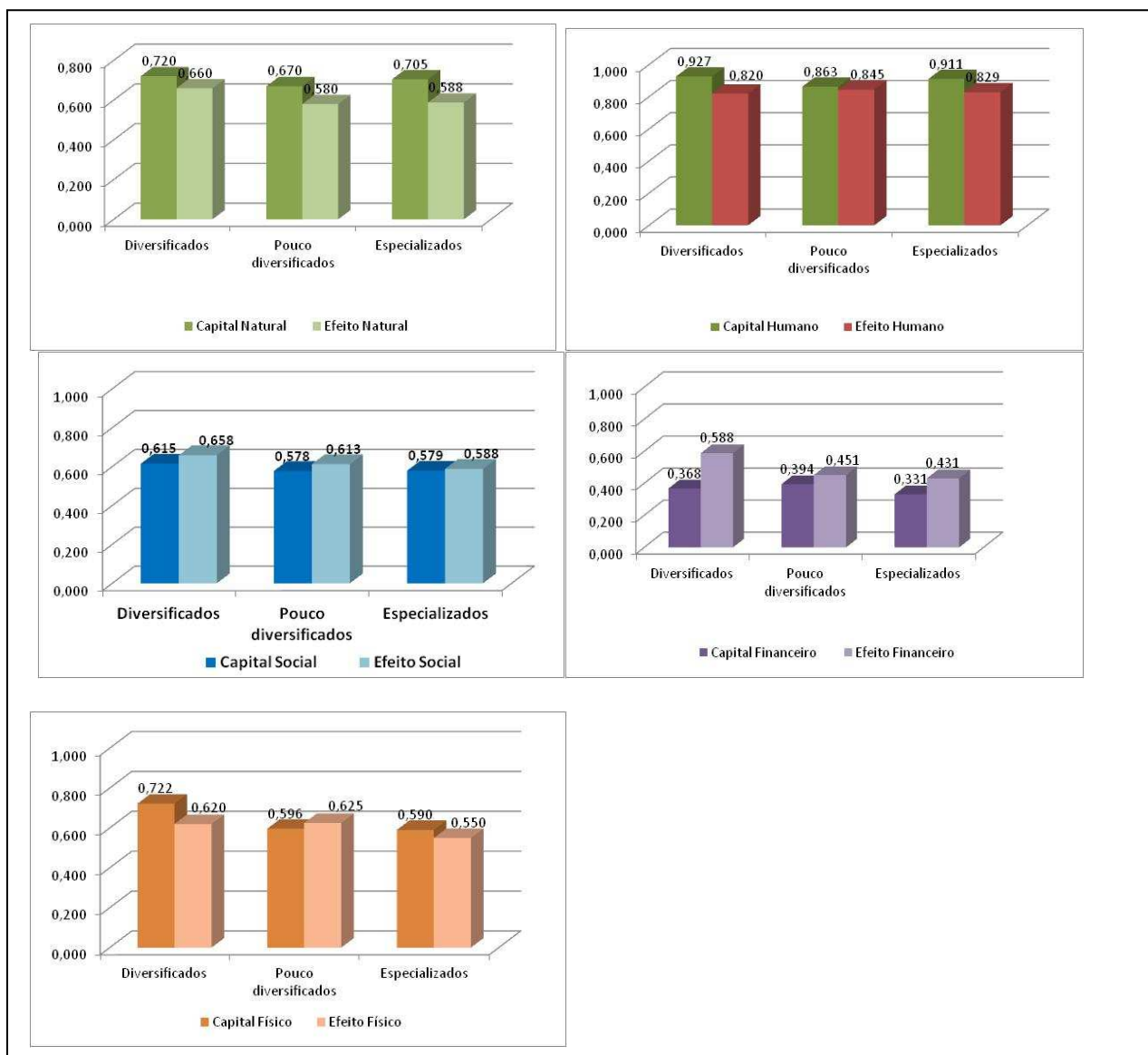


Figure 14 - Comparison between capitals and effects
Source Author's research data

In the above figure is possible to verify the most vulnerable capitals for each group of tobacco farmers. This information can orient governmental actions directed to these capitals that are in a greater degree of vulnerability.

The vulnerability of each capital is related to the perception of the interviewees on effects capital has on living conditions. This is relevant once perception influences decisions taken by growers on their livelihoods.

In the figure above it is also possible to visualize that financial capital and effect are below the indexes average. However in the three groups the financial effects are perceived as best in relation to financial capital.

In an individual way, this can put into evidence small propulsion of growers in diversifying incomes, due to the understanding that the effects are better than the capitals themselves.

Looking in a different manner, physical and capital effects are the ones that present the best indexes. However, effects on living conditions are perceived as worse in relation to the capital itself. In this case, *a priori*, growers are more propelled to implement action on natural capital.

6. Final Remarks

This exploratory study sought to present the theoretical and methodological bases that constitute a preliminary proposal for instruments that can be used to perform diagnostics and assessments for the implementation of sustainable economic alternatives for farmers producing tobacco. These are initial results of an exploratory research conducted in the State of Rio Grande do Sul in a small area that is characterized by the production of tobacco.

Some of the observed results can be highlighted:

1. The proposed methodology offers an approach that goes beyond the issue of income and profitability of tobacco cultivation compared to other cash crops because it focuses on other aspects related to the livelihoods of farmers such as natural, human, social and physical;
2. The proposed methodology allows to capture both capitals (resources families have or access) that provide families and their effect on identified living conditions;
3. The approach allows a quick and easy application of the instruments, considering the diversity of realities among tobacco producers and the complexity of the subject in different producing regions;

4. The methodology developed a platform for compilation and systematization of the data collected at fieldwork. This database is organized in a way that can be used remotely and on-line;
5. The methodology allows for the comparison between capitals and effects and based on this it is possible to make associations between available livelihoods and living conditions desired by tobacco producers;
6. The developed proposal may be an important tool for diagnosing and situational assessments of tobacco producers as well as serve as a reference for the development of public policies that assist in the implementation of WHO/FCTC Articles 17 and 18.

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ANNEX 1

1. TOOL FOR SEIZURE OF MEANS OF LIFE

N° Do not fulfil

IDENTIFICATION DATA

Interview N° _____ Interviewer _____ Date ____/____/____ Time at the beginning _____
--

1. Addresses: a) Country _____ b) Province _____
c) Municipality _____ d) Community _____

2. Unity of production status: () renter () owner () sharecropper
() other _____

3. Area Occupied: a) Total area _____ ha
b) Productive area _____ ha
c) Tobacco cultivated area _____ ha

4. Type of tobacco cultivated:
() Air cured () Flue cured () Other _____

5. How many tobacco plants are cultivated each season? _____

6. How long have you been producing tobacco? _____

7. Has the family a contract with any tobacco agribusiness company?

0.No	1.Yes, with one company	2. Yes, with more than one company	
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8. Composition of the family group living in the household:

N°	Kinship ^(*)	Gender	Age	Main work place ^(**)	Schooling (years completed)	Still going to School ^(***)
1.	Interviewed					
2.						
3.						
4.						
5.						
6.						

Name of the interviewed _____ (Note: just in the case he/she has identified himself/herself, or want to do so)

(*) In relation to the interviewed, for example, father, mother, grandparents, brother, sister, spouse

(**) 1. In the farm/unity of production 2. Out of the farm/unity of production

3. Just studies or do not work because is a child, elder or unable for any reason

(***) 1. Yes 2. No 3 No, but it is in scholar age 4 No, because do not achieve the scholar age

9. Ethinc background of the family group *: _____

[Note: To point all the ethinc background that the interviewed considers important.]

(*) Descendant of German, Italian, English, Portuguese, Dutch

DIVERSIFICATION LEVEL

Total cash earnings from tobacco:	1. Up to 25% ()	2. From 26% to 50% ()	3. From 51% to 75% ()	4. More than 75% ()
Total working time related to tobacco:	1. Up to 25% ()	2. From 26% to 50% ()	3. From 51% to 75% ()	4. More than 75% ()

(*) To consider the income (cash income of the family) of productive activities: agricultural and non-agricultural, inside and outside the property. Here it is excluded pensions, income Isfrom transfer programs.

1. NATURAL CAPITAL

1.1.1 Is there native vegetation around springs or streams (slopes, streams, paved, rivers...) on your farm? [Note: Do not give the “None of the above” option to the interviewed. Check it in case of no springs or streams in the area of production.]

0. No	1. Yes	99. None of the above	
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1.1.2 Do you use any pratice for soil conservation (no-till farming, green cover, terracing) in your unit of production?

0. No	1. Yes	
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1.1.3. The wood used for drying tobacco is:

0. Acquired	1. Part acquired/part purchased	2. Owned	3. Do not use wood*	
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[Note: it may be due to air cured tobacco]

1.1.4 Usually, how are pesticides used in your unit of production (considering crops in general)?

0. According to personal experience	1. According to prescription	2. Do not use pesticides	
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2. HUMAN CAPITAL

1.2.1 Regarding health, over the last year:

Someone in the family had skin problem?	0.No	1.Yes	
Someone in the family had vomiting after harvesting tobacco?	0.No	1.Yes	
Someone in the family had fainting after harvesting tobacco?	0.No	1.Yes	
Someone in the family had depression?	0.No	1.Yes	
A family member use prescription drugs?	0.No	1.Yes	
Has someone in the family had back pain that prevented him from pursuing work normally?	0.No	1.Yes	
Does the family receive visits from health professionals?	0.No	1.Yes	
Can the family access hospitals or emergence care?	0.No	1.Yes	
Is IEP used to apply pesticides?*	0.No	1.Yes	
Is IEP used to harvest?	0.No	1.Yes	
Does someone in the family smoke?	0.No	1.Yes	

Note: (*) If the interviewed answered that he/she use part of the IEP, or that use sometimes, please, sign NO.

1.2.2 Has the family spent on drugs, consultations or examinations over the past year?

0. no spent	1. no spent because the family receives or accesses public health care	2. Have spent	
-------------	--	---------------	--

1.2.3 Considering all the family food consumption, your own production represents:

0. Nothing	1. Up to 25%	2. Up to 50%	3. Up to 75%	4. More than 75%	
------------	--------------	--------------	--------------	------------------	--

[Note 1.2.4: apply only question “a” and “b” to the interviewed. The answers “c” and “d” will be automatically generate by the system.]

1.2.4 Regarding education, the family:

a) Do you have or had a possibility to access an agricultural technical school?

0.No	1.Yes	
------	-------	--

b) Have you had a chance to attend school in the community where you live?

0.No	1.Yes	
------	-------	--

c) Are children and adolescents of school age attending school?

0.No	1.Yes	99.None of the above*	
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[Note: (*)None of the above: in the case that there is no child in scholar age]

d) Average number of years of study for the family (considering the ones that do not study anymore)

0. No one studied	1. Up to 5 years	2. Up to 10 years	3. Up to 15 years	4. More than 15 years	
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3. SOCIAL CAPITAL

1.3.1 Family members participate in community activities, as:

Parties	0.No	1.Yes	
Sport activities	0.No	1.Yes	
Religious Activities	0.No	1.Yes	

1.3.2 How does the family get information (in general):

Extention and technical assistance	0.No	1.Yes	
Television	0.No	1.Yes	
Radio	0.No	1.Yes	
Newspaper	0.No	1.Yes	
Neighbors/relatives/friends	0.No	1.Yes	
Internet	0.No	1.Yes	

1.3.3 The family exchanges its services with neighbors/friends

0.No	1.Yes	
------	-------	--

1.3.4 The family is associated to:

Cooperatives	0.No	1.Yes	
Rural Workers Unions	0.No	1.Yes	
Associations	0.No	1.Yes	

4. FINANCIAL CAPITAL

1.4.1 a) Does the family have earnings beyond tobacco?

Yes [If Yes, apply 1.4.1]

No [If No, mark 0 in 1.4.1 and go to 1.4.2]

1.4.1 Beyond tobacco, family earnings come from:

Other agricultural activities (cultivation of soy beans ..., dairy farming, cutting ...)	0.No	1.Yes	
Agricultural work for others (croppers, temporary ...)	0.No	1.Yes	
Non-agricultural work (services, commerce, industry)	0.No	1.Yes	
Turism (rural, environmental...)	0.No	1.Yes	
Processing goods (farm agroindustry)	0.No	1.Yes	
Renting lands to others	0.No	1.Yes	
Retirement or pension	0.No	1.Yes	
Social programs (Bolsa família)	0.No	1.Yes	
Other activities: which? ____	0.No	1.Yes	

1.4.2 Over the last year, the family sold any kind of product to:

Third parties (intermediaries, middlemen...)

0.No	1.Yes	
------	-------	--

Cooperatives

0.No	1.Yes	
------	-------	--

Direct sales to costumers

0.No	1.Yes	
------	-------	--

Sales to business

0.No	1.Yes	
------	-------	--

Institutional market (market stimulated by governments, like the Food Acquisition Program, National Program for School Meals)

0.No	1.Yes	
------	-------	--

1.4.3 The family took grants or loans over the past year:

0.No	1.Yes	
------	-------	--

1.4.4 How much of the family earnings are spent in the payment of financing / loans?

0.Nothing	1. Up to 25%	2. Up to 50%	3. Up to 75%	4.More than 75%	
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5. PHYSICAL CAPITAL

1.5.1 The family owns:

Brick house	0.No	1.Yes	
Electric power	0.No	1.Yes	
Water in the house	0.No	1.Yes	
Bathrooms in the house	0.No	1.Yes	
Refrigerator	0.No	1.Yes	
Phone (residential or cell)	0.No	1.Yes	
Computer	0.No	1.Yes	
Internet	0.No	1.Yes	
Television	0.No	1.Yes	
Car	0.No	1.Yes	
Motorcycle	0.No	1.Yes	

1.5.2 Regarding the machines (for production in general), the family has:

Tractor	0.No	1.Yes	
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Planters Machines	0.No	1.Yes	
Harvesters Machines	0.No	1.Yes	
Sprayer (for tractor or on wheels)	0.No	1.Yes	
Mowing	0.No	1.Yes	
Irrigation system	0.No	1.Yes	
Electric Ovens [ask just for those who produce fuel cured tobacco)	0.No	1.Yes	

1.5.3 Regarding the access:

a) How distance is from the production unit to town or to the markets?

0. Up to 10Km	1.Up to 30Km	2.More than 30Km	
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b) How are the roads to access the farm?

0. Land roads without government maintenance	1. Land roads with government maintenance	2. Paved roads	
--	---	----------------	--

c) Is there public transportation up to the unit of production?

0.No	1.Yes	
------	-------	--

1.5.4 How are stored empty containers of pesticides?

0. Somewhere in the farm	1. Somewhere in the farm for collection (by tobacco companies, e.g.)	2. According to government regulations	99.None of the above *	
--------------------------	--	--	------------------------	--

*None of the above if do not use pesticides

Time at the end _____

ANNEX 2

2. TOOL FOR SEIZURE OF CONDITIONS OF LIFE

--

Interview N° _____ Interviewer _____	N° Do not fulfill preencher
Name of the Interviewed: _____	
Time at the beggining _____	

2.1 NATURAL EFFECT

2.1.1 Regarding the preservation of springs and watercourses, in the farm, you are: [Note: if the answer to question 1.1.1 is NONE OF THE ABOVE, that answer should be repeted here]

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
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2.1.2 Regarding soil conservation, in the farm, you are:

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
-----------------	---------------------	--------------	-------------------	--

2.1.3 Since you started planting tobacco, the native vegetation in the farm:

0. Does not exist anymore	1. Decreased	2. Increased	3. Greatly increased	
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2.1.4 Since you started planting tobacco, the amount of pesticides used:

0. Do not use anymore	1. Decreased	2. Increased	3. Greatly increased	
-----------------------	--------------	--------------	----------------------	--

2.2 HUMAN EFFECT

2.2.1 Regarding your family health, you are:

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
-----------------	---------------------	--------------	-------------------	--

2.2.2 Regarding the access to health care services (hospital, emergency care, examinations...), you are:

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
-----------------	---------------------	--------------	-------------------	--

2.2.3 The tobacco [Note: do not mention to the interviewed the option “do not know”. Sign it just when the farmer does not express an opinion]:

0.Hampers food production	1.Stimulates food production	9. Do not know	
---------------------------	------------------------------	----------------	--

2.2.4 Regarding the education of your family, you are:

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
-----------------	---------------------	--------------	-------------------	--

2.3 SOCIAL EFFECT

2.3.1 Regarding the participation of your family in community activities (parties, sport activities, religious...), you are:

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
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2.3.2 Regarding the sources of information of your family, you are:

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
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2.3.3 In case your family needs help, are the neighbors willing to help?

0. Never	1. Almost never	2. Almost always	3. Always	
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2.3.4 Regarding the participation of your family in communitary organizations (associations, cooperatives, churches, social movements), you are:

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
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2.4 FINANCIAL EFFECTS

2.4.1 To produce tobacco in the farm: [Note: do not mention the option “do not know”. Sign it just when the farmer does not express an opinion]:

0. It is difficult to carry out other activities that generate cash income	1. It favors the performance of other activities that generate cash income	9.Do not know	
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2.4.2 To sale the production throught... [Note: to verify the opinion of the interviewed, even if he/she does not commercialize the production using some of these means. Do not mention to the interviewed the option “do not know”. Sign it just when the farmer does not express an opinion].

... third parties (intermediaries, middlemen ...):

0. Too bad	1. Bad	2. Good	3. Very good	9. Do not know	
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... cooperative:

0. Too bad	1. Bad	2. Good	3. Very good	9. Do not know	
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... direct sale to costumers:

0. Too bad	1. Bad	2. Good	3. Very good	9. Do not know	
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...sales to business:

0. Too bad	1. Bad	2. Good	3. Very good	9. Do not know	
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...Institutional market (market stimulated by governments, like Food Acquisition Program, National Program for School Meals)

0. Too bad	1. Bad	2. Good	3. Very good	9. Do not know	
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2.4.3 Regarding the governmental actions to support family farming, you are:

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
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[Note 2.4.4: if the answer to question 1.4.4 is Nothing, do not ask this one; sign NONE OF THE ABOVE and go to next question]

2.4.4 The financings/loans made by the family, they represents the possibility to:

0. Maintaining the productive unit	1. Improving or have new investments in the productive unit	None of the above	
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2.5 PHYSICAL EFFECTS

2.5.1 Regarding the conditions of the family's residence, you are:

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
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2.5.2 Regarding the equipments and machines the family owns in the farm, you are:

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
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2.5.3 Regarding access to the production unity (roads conditions), you are:

0. Dissatisfied	1. Fairly Satisfied	2. Satisfied	3. Very Satisfied	
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2.5.4 The destination of pesticides containers used in the farm is:

0. Not adequated	1. Fairly adequated	2. Adequated	3. Very adequated	None of the above*		
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*None of the above: If pesticides are not used

2.6 SYMBOLIC EFFECT

2.6.1 Is the family pleased (happy or satisfied) with the activity of producing tobacco?

0.No	1. Yes	
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2.6.2 From 1 to 5, how much you are confident:

In tobacco agrobusiness companies	1	2	3	4	5
In the technicians from tobacco companies	1	2	3	4	5
In cooperatives	1	2	3	4	5
Intermediaries (middlemen)	1	2	3	4	5
In Rural Workers Unions	1	2	3	4	5
In Churches	1	2	3	4	5
In government	1	2	3	4	5
In health care professionals	1	2	3	4	5

2.6.3 Regarding the contracts of buying and selling tobacco, the family usually signs it

0. Without reading	1. After a quick reading	2. After a detailed reading	
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5.6.4 Would you like that your children keep working on tobacco growing?

0.No	1. Yes	
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2.6.5 a) Who started to cultivate tobacco in your family?

0. You	1. Your parents	3.3. Your grandparents or older generations	
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Note: if the interviewed answered the options 2 or 3, follow to next question.

2.6.5 b) If you had not inherited the infrastructure and knowledge, would you be planting tobacco today?

0.No	1. Yes	
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Time at the ending _____