



Using an analytic hierarchy process approach to prioritize public policies addressing family farming in Brazil



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ABSTRACT

In Brazil, some see intensive, large-scale production of sugarcane-based ethanol, based on a model of capital and land concentration, as a threat to the survival of family farming. Family farmers are increasingly under pressure to sell or rent land to mills where sugarcane monoculture is expanding. In this context, the government is working to formulate or change public policies in order to support farmer livelihoods in sugarcane growing regions. The present study is based on research conducted in the municipality of Ipiranga de Goiás, Goiás State, Brazil. It employs the analytic hierarchy process (AHP) method, with participation of stakeholders at federal, state and municipal levels, to support public policy decision-making addressing family farming. The stakeholders prioritize environmental and economic benefits as the most important criteria requiring the attention of policy makers. Also, stakeholders agree that diversification of production is the most appropriate alternative for strengthening family farming. The AHP approach can be the starting point in the formulation of public policies. The approach helps ensure transparency, and it purposefully includes family farmer points of view. Policies derived from this process, therefore, may have a higher likelihood of being supported and accepted by farmers.

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1. Introduction

Agriculture in general, and family farming in particular, are among the most essential activities in the world. In addition to producing food, family farming is linked to food and nutrition security, preservation of agro-biodiversity, and sustainable use of natural resources. In Brazil, however, family farming has taken a secondary and subordinate role to large-scale agribusiness, which has been favored by agricultural policies designed to modernize and ensure its reproduction (Wanderley, 1995). Moreover, infrastructure and rural credit programs have favored cash crop production over food crops (Novo et al., 2010; Carvalho and Marin, 2011).

This situation began to change with the creation of Pronaf in 1996—The National Program for Strengthening Family Farming. This program signaled public concern about family farming for the first time. Until then, policies exclusively supported large-

scale agribusiness, which was considered the only viable form of production in the modernization of Brazilian agriculture (Sachs, 2001). Policy makers viewed family farming as an important generator of employment and income. As part of a larger package of rural development initiatives, Pronaf was originally structured into 4 parts: articulation of public policies for rural areas; installation and improvement of infrastructure and services; financing for family farming production; and family farmer education and training. From the beginning, the government chose the financing element—Pronaf credit—as the main instrument to promote sustainable development of family farming; the high cost and scarcity of credit for farmers was viewed as a major roadblock to family farm development (Aquino, 2009). Pronaf's rural credit provides loans with low interest rates to cover annual costs or long-term investment in family farming.

Law 11,326/2006 provided a legal definition for family farming in Brazil. This made it possible for (1) family farming-related activity to be included in official government statistics, (2) secured the legal grounds for public policies specifically addressing this sector, and (3) recognized family farmers as political actors and direct beneficiaries of public policy. According to that law, the family farmer

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is the one that meets all the following criteria: does not exceed the maximum area of landholding for the municipality or county where the farm is located¹; predominantly uses labor of his/her own family within the economic activities of his/her establishment; has a family income predominantly from economic activities tied to the establishment itself; manages his/her establishment with his/her family. Though Pronaf helped make the family farmer a focus of policy, other issues have remained. The Brazilian government still has not developed a census properly characterizing the specific and diversified livelihood strategies of this social group to help track progress in the sector; agricultural censuses still focus only on production data (Neves, 1995). Family farming and family farmers also remain relatively invisible in studies and discussions about bioenergy and decision-making in development. Family farmers are often viewed instrumentally, as mere producers, rather than as rural actors with their own distinct voices and views about rural development (Rossi and Hinrichs, 2011).

Brazil is seen as a major world player in the production of biofuels (mainly in the form of sugarcane), backed by strong rhetoric and discourse about the positive role of biofuels in promoting sustainability. Many researchers and policy analysts believe that biofuels could offer an opportunity for agricultural and rural development. Some initiatives have emerged as an attempt to integrate family farming systems into sugarcane ethanol production (Wilkinson and Herrera, 2010; Agostinho and Ortega, 2012; Maroun and La Rovere, 2014). Small-scale production and cooperative efforts could contribute to economic stability and improve livelihoods, if farmers maintain control of their crops and land (Dauvergne and Neville, 2010). Others have argued that sugarcane production potentially reduces global greenhouse gas emissions, creates jobs, and increases income. Moreover, the availability of underutilized land, abundant water, and other favorable climatic conditions allow for the growth of both food and fuel crops, without promoting deforestation (Wilkinson and Herrera, 2010; Novo et al., 2012). However, after the initial euphoria defending so-called “sustainable” ethanol from sugarcane in the international biofuels debate, fundamental questions arose concerning negative environmental, social, and economic impacts of biofuel production. In Brazil, sugarcane ethanol is being intensively produced at a large scale, increasing corporate control of production and distribution, resulting in capital and land concentration in such a way that it is unclear whether the sector can benefit family farmers. In addition, others are concerned that sugarcane production has led to competition with food production and negative land use change impacts, such as loss of biodiversity and deforestation (Dauvergne and Neville, 2010; Novo et al., 2010; Maroun and La Rovere, 2014). Brown et al. (2014) addressed the difficulty of tracking shifts in agricultural area dedicated to food versus fuel production in Brazil. Regional hot spots were identified where major shifts toward or away from staple crop may be occurring, but without empirical studies at finer scales, it is difficult to determine to what degree food production is being replaced by sugar cane.

The increase of federal government support to biofuels in the early 2000's resulted in considerable land use changes in central Brazil, with the expansion of intensive sugarcane-monoculture, which led to pressures on family farmers for selling/renting land to the sugar mills. Renting land is an attractive low-risk option for farmers, compared with other land use options. The sugarcane

industry also incentivizes renting via long-term contracts and the opportunity for monthly payments for the land lease. This new scenario could cause significant impacts on family farming production, including a decrease in food production and extinction of local food markets, landscape change, and an overdependence on income from the sugar mills; farmers might even quit agriculture altogether. Moreover, rural extension and technical assistance services could lose their importance in supporting family farmers, who find themselves stripped of their status as food producers, inserted in the middle of a sea of mill-cultivated sugarcane.

The government, therefore, needs to formulate or modify public policies in sugarcane producing regions to support farm livelihoods and income. Research on family farmer interactions with the sugar mills concerning land use, sustainability, and income, among other issues, can help form the basis for policy-making. For example, Frate and Brannstrom (2015), using the Q method, explored tensions between agrarian reform settlements—specifically with respect to food security and safety and sugarcane mills. The authors revealed patterns of views among diverse key actors, views that complicate the notion that tensions fall along dichotomous small-scale versus agribusiness-oriented interests.

Many observers are calling for more direct participation by family farmers in development and policy-making processes to achieve agricultural development that truly values family farming. It is believed that better social and environmental outcomes are achieved when local development programs are discussed and negotiated among all stakeholders involved in the process, with the municipality or a group of municipalities as the territorial unit, in which family farmers are key actors (Sachs, 2001). It is often the problem, however, that small farmers lack the power and political channels to participate in political debates and influence public policies in the first place (Guanziroli et al., 2013). One aspect of the Pronaf program, however, provided space for the creation of Municipal Councils for Sustainable Rural Development (CMDRS). The councils have the potential to bring farmers into the political arena, because they provide an appropriate space for farmers to express their interests within a democratic decision-making body. The councils have control over municipal-level, public resources and allocations, and they serve to adjust federal and states policies to municipal needs.

In this context, it becomes necessary to determine objectively what are the policy priorities of family farmers in areas affected by the expansion of sugar cane. Knowing these priorities is an essential step policy makers must take to arrive at policies that have a high likelihood of being accepted by farmers, implemented, and then assessed for whether they achieved intended social and environmental outcomes. The analytic hierarchy process (hereafter AHP) is a well-established methodology that deals with multi-criteria decision-making and allows for the participation of multiple stakeholders. Using the AHP, policy makers are able to incorporate important human dimensions of decision-making, by quantifying and deriving measurements for subjective as well as group preferences. AHP works as a link between the field of debates and the field of practical actions by public managers. It is a tool that can help policy makers take people's desires, expectations, and wishes and translate them into beneficial public policies. This article presents an application of the AHP in a study of family farming in the municipality of Ipiranga de Goiás, in Goiás State, Brazil, an area of intense sugar cane expansion.

2. The analytic hierarchy process

In human decision-making, a variety of subjective and objective criteria are taken into consideration. In fact, making a choice is rarely an objective action, and it usually involves a certain degree of

¹ In Brazil, the limit is 4 módulos fiscais (literally, tax modules), and this unit of measure attempts to represent the minimum area required for a farm to be economically viable. The size of the tax module varies from 5 to 110 ha, depending on the municipality, and the size is set by the National Institute for Colonization and Agrarian Reform—Incra. In Goiás, a tax module varies between 7 and 80 ha. In Ipiranga de Goiás, the tax module is 20 ha (Landau et al., 2012).

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