Chapter 3

An Analysis of the Factors that Facilitate Persistence of Family Farmers in Agriculture on the Costa Rican Frontier

Abstract

Producing and selling food in modern, global markets is fiercely competitive and presents several challenges to family farmers. When family farmers are participating in this modern agrifood system, how they are participating or what alternatives they have found are critical to understanding contemporary agrarian livelihoods. These questions also inform the social and ecological implications of the partial process of capitalist incorporation of agriculture. This article focuses on the modernization of agricultural markets in the Sarapiquí region, located in Northern Costa Rica and demonstrates how farmers’ decisions to participate or not in these modern markets is related to structural and ecological factors and navigation of both individual and collective capital within particular agricultural sectors. We demonstrate our findings through descriptive, quantitative and qualitative analysis of surveyed farmers, and from interview data with producer organizations, agricultural policy makers and government representatives. We describe the market structure and collective organizations operating in three different agricultural product sectors (i.e. pineapple, pepper, cattle and dairy) that span modern and traditional markets. Real farmer and rancher profiles are compared to demonstrate the range of how family farmers construct their livelihoods in relation to these agricultural product sectors, collective capital and the crop or product’s characteristics. We find that, although agricultural production and markets have become more oriented towards export crops like pineapple for international trade, family farmers in the frontier region of Northern Costa Rica mostly are participating in domestic markets for traditional crops or
products. They make this decision based on reasoning that weighs the tradeoffs in cost, risk and market accessibility, with their individual capabilities and the characteristics of the crop or product and finally in relation to support from the state and producer organizations.

**Key words:** family farm, corporate food regime, Costa Rica, political economy of agrarian change, traditional markets

‘The farmer is unprotected. There is no future and no tomorrow. We grow [crops] without knowing if we are going to sell them or if there is going to be a good price. It is nothing more than a lottery... We are in defense that agriculture must continue. Today, we look for solutions or alternatives so that farmers can continue to produce. There are a million things that traumatize the farmer. So the farmer must resist [them] with the hope that one day will be the day.’

—Farmer and President of the farmers’ organization for Sarapiquí County

**Introduction**

Since 1980, the global agrifood system has changed dramatically while family agriculture has largely been neglected as an economic sector worthy of public investment (McMichael 2005, 2009, de Janvry 2010, Pehlaner and Ortero 2010). These combined factors have led to new challenges for the family farm. In the current global agrifood system, a number of factors have become especially critical to a family farmers’ ability to maintain an agrarian livelihood: market structure, national policies, the existence and effectiveness of cooperative organizations, and crop/product characteristics (Reardon and Flores 2006, Reardon et al. 2009, Berdegué and Fuentealba 2011).
However, the vast majority of smallholder development programs at the national and international levels, though designed to help the family farmer, have neglected addressing the generally hostile context for family farming across the world. The programs instead focus on improving individual assets of the family farmer or farm without addressing the contextual or structural barriers (Berdegué and Fuentealba 2011). Throughout this paper contextual or structural factors signify national and international polices, market structure, state support and intervention, producer organizations, local environmental conditions and crop characteristics. This definition excludes the individual assets of a farmer.

Producing and selling food has become fiercely competitive and often requires participating in an increasingly complex global marketplace. In response to this, farmers are increasingly being encouraged to see themselves as entrepreneurs to face the fundamental changes in global agrifood markets (Reardon and Flores 2006, Berdegué and Fuentealba 2011). Global competition combined with the unequal distribution of assets among farmers creates a sharp distinction between the successful and the failed farm, especially in frontier regions (Barbier 2012).

These frontier regions located geographically and socially at the margins of the national and global economy, are often characterized by a dualist, resource-based development process (Barbier 2012). In a dualist development process, the farmers find that agricultural production, markets and wealth become bifurcated between a modern entrepreneurial commercial class and a traditional subsistence or semi-commercial class of farmers. This
bifurcation naturally leads to growing rural inequality (Berdegué and Fuentealba 2011, Barbier 2012, Bernstein 2010).

At the same time, as countries pursue the full incorporation of family farms into the global economy they risk the disappearance of the traditional, subsistence class of farmers, thereby arguably losing the family farm in agrarian economies across the developing world. This structural transformation of agriculture is evident in developed countries where the percentage of income spent on food has declined with rising per capita income and gross domestic product while the agricultural sector has contracted and agribusinesses emerge as the major farming type while family farmers age out of the industry (de Janvry 2010).

Modern agrifood systems are rapidly maturing in developing countries like Costa Rica. Recent research has begun to document how small farmers participate in or are excluded in this transformation of agrifood systems or what McMichael (2005) calls ‘the corporate food regime’ across Latin America (Escobal and Avero 2012, Eakin et al. 2014, Birner and Resnick 2010, Carletto et al. 2010, Ruben and Sánez 2008, Challies and Murray 2011, Fold and Gough 2008, Reardon and Flores 2006, Berdegué et al. 2005). Most of these studies demonstrate that integration into increasingly modern markets can sometimes be a better or more successful arrangement for family farms than what is attained through persisting in traditional sectors and markets by increasing income but it is not necessarily so. Moreover, often inclusion has negative indirect impacts especially on smaller scale family farmers who become increasingly marginalized. They demonstrate that inclusion and its economic returns are often heavily conditioned by structural factors such as international aid, substantial state
involvement or the formation of producer organizations. Still, questions remain regarding how we might define family farm inclusion or success in relation to these modern markets as well as how we could decide upon an appropriate timescale to evaluate inclusion or success (Carletto et al. 2010). Furthermore, there is a need for studies researching how small farmers persist in marginalized, traditional sectors, despite modernization of markets and massive global restructuring in the corporate food regime (Bernstein 2010). My analysis will focus on understanding the persistence of farmers in predominantly traditional sectors or domestic markets and the strategies they use to find alternatives to these modern markets.

To understand the causes and consequences of modern agrarian change scholars call for research that uses agrarian political economy approaches that address state-society interactions embedded within the everyday politics of rural livelihoods (Borras 2009, Bernstein 2010). I will use this relational multi-scaled approach to reveal the complexity of how farmers piece together their livelihoods and find a way to persist and sometimes prosper through optimal use of state support, markets, producer organizations and crop characteristics.

The Sarapiquí region, within the San Juan La Selva Biological Corridor, in northern Costa Rica provides a case for examining how farmers persist within and on the margins of the modern agrifood system because this region is a recent agricultural frontier of Costa Rica. In the past 30 years, the region has experienced a highly compressed development process and has only begun incorporation into the national and international economy. Sarapiquí is rapidly becoming a modern agricultural export production and processing zone (mostly of pineapple) characterized by a diversified rural economy and a contracting smallholder agricultural sector.
(Shaver et al. 2014). The small family farm stands in sharp contrast to the region's increasing number of modern agribusinesses (i.e., mostly contract producers for Del Monte and Dole). Agricultural land use and agrarian livelihoods are under competing pressures within two divergent development narratives; one narrative emphasizes biodiversity conservation and multifunctional agriculture (Harvey et al. 2008) while the other characterizes rural development as modern agricultural export production (Conroy et al. 1996). Under these narratives, in this region, small family farmers, defined as farmers with 2-30 hectares of land, also retain considerable forest cover and therefore are expected to bear that burden of conservation (Morse et al. 2009). Their most valuable assets are land and they subsist from agricultural based income, but they are largely unable to compete in export crop production or the global marketplace. In this sense, family farmers in our study region are stuck in the middle of these competing pressures of dominant development narratives.

This article will focus on the modernization of agricultural markets in the Sarapiquí region and demonstrate how farmers’ decisions to not participate in modern export markets is related to political economic change, availability of capital, bargaining power and personal objectives. I will first describe the market structure and collective organizations operating in three different sectors that span modern and traditional markets (i.e. pineapple, pepper, cattle and dairy). And finally, I will demonstrate how family farmers make a living in relation to these markets, organizations and the product’s unique characteristics.
Theoretical Framework

The family farm and the potential roles it can have in economic growth and development has been a controversial and evolving issue in rural development theory. Roles and theories of the family farm have changed along with the political, economic and social conditions of the family farm. Early theories of rural development in the 1950s were heavily influenced by modernization theory, the dual economy model (juxtaposing the urban and rural economy), and conceptions of peasants as ‘lazy’ and family agriculture as ‘backward’ and economically irrational (see review by Ellis and Biggs 2001). An important development in the late 1960’s repositioned the family farm as the principal unit and engine of agricultural economic growth and industrialization. These scholars identified family farmers as highly efficient rational economic actors but still focused on the idea that farmers just needed to take advantage of the opportunities in the agricultural sector through implementing new technology and becoming more educated (see review by Ellis and Biggs 2001).

The focus then turned toward maximizing the efficiency and productivity of family farms through the green revolution, which included methods such as technological transfer, mechanization and agricultural extension and education (see review by Ellis and Biggs 2001). This was called the Alliance for Progress in Latin America and was the impetus for the formation of the Ministry of Agriculture (MAG) and extension services designed to transfer knowledge from the US to the developing world (Nystrom and Haverstock 1966). Increasing the role of the state was central to this paradigm; the state coordinated rural development through land reforms, para-statal producer cooperatives, stabilizing prices, and by providing access to credit and subsidies (de Janvry 2010). However, during this period, the terms of
trade were unfavorable to agriculture and resulted in underperformance in the agricultural sector (de Janvry 2010).

In the 1970’s, a political economic critique of these arrangements gained strength and argued for agrarian change (see review by Bernstein 2010). This critique highlighted the structural disadvantages that distort equitable resource distribution and terms of trade that minimize the power of individual family farmers to participate in the global economy. Latin American theorists in particular criticized the focus on individual or farm system improvements, without addressing what they saw as the larger structural inequalities that systematically marginalized family farmers, rural regions and peripheral countries (see review by Gwynne and Kay 2004). The shift toward studying the structural context affecting agriculture in developing countries that began in the 1970's was not long lived. Since 1980, mainstream development economics literature, with some notable exceptions (e.g. Chambers et al., 1989), has neglected family agriculture as it has become increasingly marginalized in the corporate food regime and neglected politically through disinvestment (de Janvry 2010, McMichael 2005). Agricultural or rural poverty is often analyzed and discussed in dominant development discourse as a product of traditional culture and unchanging preferences, advocating for technological advancement and entrepreneurial development to transform them into commercial farmers. However, this perception disconnects rural livelihoods from their relationship to the state and society, and from the development in other agricultural sectors, in other economic sectors and from the world system that are directly related to their ‘underdevelopment’ (de Janvry 2010). For this reason, in this chapter, we draw from this earlier structural critique and highlight the
structural factors that influence farmer performance, and have gained importance in the context of the corporate food regime.

Generally speaking, in the corporate food regime, rural economies are characterized by 1) dismantling of state support agencies and protective agricultural policies, 2) liberalization and modernization of agricultural markets and promotion of non-traditional exports for global trade, 3) the rise of the agri-industrial production systems and decline of the smallholder production systems, and finally 4) rural livelihood diversification and increased rural inequality (Edelman 1999, Kay 2008, Reardon et al. 2009).

Under the corporate food regime, the global, structural conditions for agricultural growth have changed dramatically: the modernization of agricultural markets and globalization of the food system, climate change and resource scarcity, and a call for agriculture to provide environmental and biodiversity conservation services (McMichael 2005, 2009, Harvey et al. 2008, de Janvry 2010).

Rural space, specifically the frontier, has repeatedly been the geographic container of populations that exist on the margins of the global and national economy. Agriculture is a natural refuge for marginalized populations and land use change and degradation are more pronounced and evident in the periphery as there is often an intersection with social and ecological marginality (Carr 2009, de Janvry 2010). The neglect of the agricultural sector and the family farm has resulted in serious social, ecological and economic crises including food security issues and persistent global rural inequality and poverty. These repercussions are only
beginning to bring family agriculture back to the forefront of international development. A renewed appreciation for the important role of family farms in alleviating rural poverty and addressing food security in rural economies prompted a recent effort in academia and development scholarship to expanded their definition of agricultural development beyond the individual and technological transfer and towards addressing the structural conditions of agricultural growth (de Janvry 2010, Berdegué and Fuentealba 2011).

The expanded definition of agriculture exemplified in the work by de Janvry (2010) allows us to explore how family farmers can become more integrated and more economically successful in the corporate food regime or maintain agrarian livelihoods in non-incorporated, traditional or marginal sectors of the agricultural economy (Escobal and Avero 2012, Eakin et al. 2014, Carletto et al. 2010). These inquiries explicitly focus on a more holistic analysis of the factors, both individual and structural that enables family farmers to persist and prosper in agrarian livelihoods (Borras 2009, Bernstein 2010). Our research contributes to this area of research. Part of understanding why and how farmers are persisting in traditional or marginal markets is related to understanding the barriers they face to become commercial farmers and participate in modern markets. These are summarized in the following section.

*Individual-Level Decisions and Characteristics*

Overall, farmers in the developing world have among the lowest measures of social wellbeing, and the economic gap between them and the rest of the rural population engaged in other sectors of the economy is widening. When compared to other Latin American countries, Costa Rica has the widest gap (Berdegué and Fuentealba 2011). Individual characteristics of
farmers that limit their entrepreneurial or commercial capability such as low educational attainment, low asset endowments, or agro-ecologically marginal landholdings are the same characteristics that result in low levels of social wellbeing (Berdegué and Fuentealba 2011).

Scholars have noted, that there are two broad classes within the farming population of Costa Rica participating in two different agricultural economies: the commercial farmer in the modern market and the semi-commercial or subsistence farmer who is rooted in the traditional market (Schelhas and Sanchez-Azofeifa 2006, Ruben and Sánez 2008). Family farmers throughout this paper are defined as farmers that produce between 2-30 hectares of land and/or run their farm based primarily on family labor and management (Ruben and Sánez 2008).

The failure of the family farmers to participate in modern markets is often attributed to individual deficiencies in character. Scholars tend to cite the lack of necessary skills for organization, and upward mobility such as education, entrepreneurial vision, financial capacity and management skills as the key reasons why farmers do not participate in modern markets (Hellin et al. 2009, Seunuke et al. 2013). However, different types of farmers are constrained in different ways structurally and have multiple objectives, both economic and non-economic, that drive their ambitions and land use decisions. For example, when classifying dairy farmers in Costa Rica, Solano et al. 2001 found that farmers were very heterogeneous in their objectives even within the same sector and locale, weighing both economic and non-economic factors. Research suggests that generally farmers in developing countries, if they are compelled to participate in modern market systems, base decision on
several factors: 1) the relative price of the product 2) the cost of technology needed to compete and 3) the risk of participating in these markets (Reardon et al. 2009). Threshold investments, both financial and non-financial, in non-land assets have been shown to be critical for inclusion in the modern agrifood system (Reardon et al. 2009). Furthermore, the capacity of a farmer to make the necessary investments to compete in modern commercial agriculture systems is determined by their household characteristics, assets, their collective capital, or affiliation with a producer’s organization, and by their access to state or non-governmental help (Reardon et al. 2009). In general, family farms tend to prioritize inheritance, survival and autonomy over risk taking and increasing economic gain or growth (Seunuke et al. 2013).

To analyze farmers it is important to understand the diversity of objectives potentially operating in their decision-making. Entrepreneurship, if that is the farmer’s primary objective, is facilitated in different ways, by different contexts. A one-size-fits-all, liberalized, global context for agricultural production and marketing may not encourage entrepreneurship in the same way that a more protected state led sector did (Bernstein 2010). Some scholars, such as Harvey 2005, go on to contend that blaming the individual for not adapting to and taking advantage of global political economic restructuring is an ideological construct of neoliberalism that downplays the structural factors that constrain and enable agrarian livelihood formation and success (Harvey 2005). Such conceptualizations further protect the concept of the free market as free despite considerable evidence that economic liberty and wealth creation are heavily conditioned by initial wealth and many more factors than just personal initiative (ibid.). Individual characteristics and objectives are fundamental to a
farmer’s ability to improve his economic situation however; individual capabilities should be assessed in relation to specific contexts and structural conditions.

**Producer Organizations’ Characteristics and Role in Facilitating Participation in Modern Agricultural Markets**

Producer organizations⁴, which are an important part of this study region context, operate within the agricultural sector as a way to build collective capital. They can reduce transaction costs through allowing bulk purchasing thereby reducing market entry barriers. Producer organizations can increase bargaining power, provide venues for the pooling of investment resources and provide access to quality information about markets and standards (Markelova et al. 2009).

Several factors, both internal and external, contribute to the potential success of producer organizations. Group characteristics, institutional arrangements and the types of products and markets in practice generally structure the success of producer organizations.

The capitals of the individual affiliates are directly related to collective capitals of any given producer group. Organizations that represent larger, more economically powerful interests tend to have more political and financial capital. Charismatic leaders also can garner collective political or social capital (Hellin et al. 2009). Organizations typically fare better when they not only have transparent and inclusive internal processes but also when they are supported through institutional arrangements with government or non-governmental institutions that provide continued long-term capacity building and financial support (Reardon

---

⁴ Producer organizations are groups of farmer who form co-ops or organizations to lobby on behalf of their interests, reduce transaction costs for market participation or share land or equipment.
et al. 2009). Such support can be provided by the private sector but evidence has shown that the private sector typically, with the exception of some contract farming cases (Grossman 1998), has not been effective at replacing governmental support for these kinds of organizations because there are high transaction costs and low profits earned for helping them (Hellin et al. 2009).

Structural Factors That Facilitate Family Farmer Inclusion and Organizational Success

Family farmer inclusion and the potential success of a producer organization are partially determined by structural factors unrelated to either of them. For example, market sectors dominated by smallholders tend to source agricultural products from smallholders more and sectors dominated by large holders typically source products from large holders (Reardon et al. 2009). This preference can naturally include or exclude small farmers. In some cases, wholesale companies will provide resource provisions to producers that enable smallholders to participate by subsidizing their production. In other cases, despite market modernization, there may be little or no effect transferred to smallholders because these farmers continue to rely mainly on a traditional market system (Reardon et al. 2009). In this case, the small holder can be isolated from market modernization and is not forced to compete in those markets. This is the case for some of the surveyed farmers portrayed in the results because they only operate in traditional markets. In some cases this isolation results in lower economic earnings but is nonetheless protective of an agrarian based livelihood, as their costs and levels of production would be uncompetitive in the modern sector and likely require support from non-agricultural sources of revenue.
The external environment, the markets in practice and the product also determine if the creation of a producer organization is a viable path for entering into the commercial agricultural market. If the markets in practice present high transaction costs for small farmers to participate then the incentive to organize is higher (Hellin et al. 2009). Generally, the longer the value chain is, the more disadvantages smallholders face and thus the more incentive for collective organization. More successful organizations operate where transaction costs to participate in markets are high enough to incentivize organization. Products that are intensively produced typically require specialized technology or knowledge, and are higher risk or require high investment; these factors can be reduced through collective action (Markelova et al. 2009).

**Study Site**

The study region is located within the Huetar Norte region in the counties of San Carlos and Sarapiquí. The terrain is slightly hilly in upper elevation areas, while the lowlands are alluvial terraces and flood plains that range from 0-400 m in elevation (Sesnie et al., 2009). This region falls in the wet tropical life zone and secondary and old growth forests cover just under half of this region (sensu Holdridge et al., 1975, Morse et al. 2009, Fagan et al. 2013). Soils are acidic (pH ~4.5) primarily Inceptisols and Ultisols and the lowland terrain provide are well suited for cattle grazing and the cultivation of crops, like pineapple, that require well-drained acidic soils (Sollins et al., 1994). The most common pineapple variety planted in the study region, MD2, grows well in soils with 4.5 to 5.5 pH and slopes < 15% (Barrientos and Porras, 2010).
This region illustrated in Figure 1 is the agrarian frontier of Costa Rica and was the site of a government sponsored settlement and colonization program led by the Institute of Agrarian Development (IDA) for family farmers. Settlement of this region was at its height in the 1980s and many poor land seeking households migrated here especially during the years after the debt crisis of 1980 (Schelhas and Sanchez-Azofeifa 2006, Cruz et al. 1992). This period, furthermore, coincided with the changes in agricultural policies characteristic of the nascent corporate food regime period. By 1980, under policies of import substitution, Costa Rica found itself in the worst economic crisis in over 50 years and was the first Central American
country to default (Brockett 1998). Wars in Nicaragua and El Salvador created regional
instability, increased migrants to Costa Rica and decreased the productivity and power of the
Central American Common Market. Costa Rica fell into a deep recession and accepted the
first of three structural adjustment programs over the next 3 years (Edelman 1999).

Between, 1983-85 Costa Rica received 592 million dollars from USAID with major strings
attached to liberalize the agricultural economy (Edelman 1999). Such aid reoriented
agricultural state incentives away from traditional or domestic production (especially basic
grains) towards non-traditional export production of fresh fruits and vegetables for
international export (Edelman 1999). Structural adjustment also resulted in a 28% decrease in
the government and a 64% decrease in funding for the Ministry of Agriculture, the largest cut
in Central America from 1979-1988 (Lee 2010). The shift from statist to market oriented
economic systems was occurring across the world and the conditions of agricultural
production changed dramatically after structural adjustment. Many of the reforms directly
targeted and re-oriented the incentives and support away from small and medium producers

However, in the decade after the debt crisis, agriculture was the only economic sector that
grew and Costa Rica became an export agricultural development success story (Edelman
1999). Export agriculture continues to be a growing economic sector accounting for 37.9% of
all exports (SEPSA/MAG, 2011). Despite this growth at a national level, the study region
evolved two different agricultural economies that developed unevenly: the traditional, non-
capitalist sector, which is subsistence-oriented or operates predominately in traditional
markets; and the modern, capitalist sector, which is export market-oriented and follows the logic of profit maximization (Sanchez-Azofiefa 2006, Ruben and Sánez 2008,). This uneven process manifested itself in the development of two farming classes, the capitalist commercial farmer class and the semi-capitalist, the subsistence or traditional farmer class (Ruben and Sánez 2008).

Since 1986, the area dedicated to the production of pineapple has increased from 482.5 ha. to 22138.9 ha (Shaver et al. 2014). This growth entails the replacement of pasture and smallholder crops with large-scale pineapple plantations (Fagan et al 2013). The expansion of pineapple is representative of the expansion of non-traditional agricultural exports for global trade and the expansion of a modern agricultural market. It is a sector dominated by an elite class of farmers, which take the form of agribusiness, and is an indicator of the process of capitalist incorporation of the frontier.

Since 1996 due to the Forestry Law (no.7575) that prohibited land use conversion of natural forest, the rate of deforestation has slowed, signaling some forest transition and recovery (Morse et al. 2009). Even though this region accounts for just under half of the national land area in pineapple, fragmented tropical rainforest, privately owned by ecotourism reserves, farmers and ranchers, still covers 47.2% of this landscape (Shaver et al. 2014). For this reason, this region is a priority area for the payments distributed through environmental services programs, market based conservation programs that compensate farmers for retaining forest or for engaging in agroforestry or reforestation (Morse et al. 2009). Furthermore, this region forms a critical link, the San Juan La Selva Biological Corridor, within the larger
Meso-American Biological Corridor initiative that seeks to protect fragmented forested land in a connected corridor from Mexico to Columbia.

Agrarian change within this region is tied to larger regional changes signaling the decline of the family farm. Within the larger Huetar Norte region (Figure 1), which encompasses the study region, the number of people participating in the agricultural sector has decreased by 17.3% and farmers working their own farms have decreased by 30%. Although agriculture still accounts for 46% of regional employment, half of the people in the agriculture sector support themselves from participating in other economic sectors (Rodriquez and Avnedaño 2005). Rural households in Costa Rica have responded to declining agricultural viability by diversifying their livelihood portfolios to include, wage labor, informal micro enterprises, and migration (Edelman 1999, Sick 1997, Kull et al. 2007). In this context, households, especially farming households, are increasingly differentiated from each other and the rest of the non-farming rural population by household characteristics (e.g. age, education, family size, dependency rate), production scale, resource endowments, spatial location, and access to infrastructure and market characteristics (Ruben and Saenz 2008, Schelhas and Sanchez-Azofeifa 2006). The differences among households demonstrate the heterogeneous nature of family farmer profiles.

The Sarapiquí region in northern Costa Rica illustrates patterns of agrarian change typical of tropical frontier regions transitioning from smallholder or familial farming systems towards large-scale agribusiness production systems. Furthermore, this region aptly represents a paradox of modern rural landscapes where the consequences of globalization on agriculture
and biodiversity conservation are in full contrast. Farmers and ranchers are increasingly exposed to riskier modern agricultural markets, with declining state support, while bearing heavy conservation burdens (i.e. land in forest) critical to maintain the biodiversity of these tropical rural landscapes (Hecht 2010).

Methods

Field research was conducted from 2011-2013 over a period of 12 months. We utilized a sequential mixed method design (discussed in Creswell 2009), which includes participant observation, and ethnographic field methods, community workshops, a household survey and semi structured in-depth interviews. Each method is used to inform the following method, capture missing or inadequately detailed data in previously employed methods. The sequential design is used to maximize the strengths of each method (i.e., generalizability and in-depth analysis) in a complementary fashion to gather data at multiple scales from the household, community and larger regional and national scales. For example, ethnographic fieldwork and community workshops were fundamental to designing the interview guide, identifying key informants, and developing the survey language, questions, and anticipated responses.

From September 2011 to May 2013 we conducted thirty-five semi-structured interviews. Participants in our sample were selected to include a wide range of individuals and organizations involved in agricultural production, policy and collective organization in the study region, including agricultural producers’ organizations, large landholders, and regional and national agricultural government officials. Interviews lasted between 1-2 hours and were conducted in both Spanish and English. The interviews were digitally voice-recorded, fully
transcribed and then coded in ATLAS Ti for themes drawn from the theoretical framework presented above. Each transcript underwent two rounds of coding, the first being preliminary and raw coding, based on sensitizing concepts (migration, agrarian reform, and the community development process, socio-economic mobility etc.) and captured in situ codes that arise directly from the participant’s speech. This first round is done quickly and bins quotes into large themes. The second round of coding was more focused and conducted line by line to unpack the sensitizing concepts into sub categories and capture a more in depth interpretation of the range and variability within each theme (for a full discussion of this method see Charmaz 2014). Demonstrative quotes were selected to illustrate major themes and the range of perspectives.

The survey lasted between 30 minutes to an hour. It was conducted in person in an ethno-survey method (Massey 1987, Masey and Zenteno 2000). Between my field assistant and me, one person took notes and observations as the other administered the survey to allow for the simultaneous collection of qualitative, ethnographic and quantitative data. The survey has 4 major sections that address: 1) socio-economic/demographic 2) land 3) migration and 4) environmental factors. These factors are synthesized to form profiles of farmers that are slightly modified from real cases to protect identities and confidentiality but are representative of the major patterns in household characteristics, land use decisions, and circumstances evident in the data. Survey data presented on farmers (Table 2) is drawn from a sub sample of the sampled population that is 30 participants who self-identified as farmers.
Three villages were selected to focus the sampling of the household surveys. These villages spanned the area of the biological corridor, representing a gradient of urbanization or economic development, a gradient of forest cover and a gradient of extension of pineapple cultivation, the last of which was used as a proxy for agricultural modernization. El Roble is the most populated village and has the lowest forest cover (38%) in the surrounding area with the largest amount of hectares in pineapple cultivation. Pangola has moderate levels of each factor, and the village of Boca Tapada, which lies very close to the Nicaraguan border, is very rural - with largely intact forest cover (67%). Pineapple cultivation is only just starting to expand into the area surrounding Boca Tapada. My sample represents people that live and work in this landscape. There is a population of absentee landowners that are not captured in this sample, in part due to the logistical complexity of sampling them and due to the fact that research questions are focused on agricultural producers actually living in this region.

Households were identified with aerial photos and handmade maps, assigned random numbers, and then randomly sampled. We sampled 6% of the El Roble region, 23% of Boca Tapada and 22% of Pangola. In total, 139 households or almost 10% of the households within the three focal villages were sampled. We had 6 refusals. The data presented here is from a subsample of 30 households of self-identified family farmers and 35 semi-structured interviews from agricultural and rural development experts, producer organizations and large landholders.

**Findings**

Even though the modern agrifood system is maturing in Costa Rica and is evidenced in the growth of the pineapple sector, the majority of farmers in our sample participated in the
traditional sector, producing lower value crops for the domestic market. In this section we will first review the individual characteristics of the farming sample. We will then discuss the pineapple market sector, characteristics of the main producer organization, and then will compare 2-3 real farmer profiles. This same sequence will be used to then discuss the pepper sector and finally the cattle and dairy sector. Findings will end in a comparison of the sectors and their advantages and disadvantages for the diversity of family farmers exhibited in the farmer profiles.

Out of a random sample of 139 households, only 30 household heads stated that they were farmers. This low number and the fact that only ten farmers (Table 1) are able to earn their principal income from farming, indicate the declining state of the family farm, even on the frontier where agriculture is a prominent economic sector and source of regional employment. Key population characteristics are further outlined in Table 1.

Consistent with the above discussion of major changes in the political economy of agriculture, farmers in the study region demonstrate that these changes have made it more difficult to maintain agrarian livelihoods for many farmers. The majority of research participants believe it has gotten harder to live from farming (Table 1). Cited reasons for the difficulty include “little financing and too much paperwork to apply for credit”, or “you have to buy very expensive inputs and then have to sell your products very cheap”, and “its difficult to find markets for products because of too much importation and low prices.” Many see a pessimistic future for farmers in this region saying, “there is no future”, or “disappearance”. While others see the future is promising in “exportation” and “if you work hard you can get
ahead”. Most want their children to inherit the farm but only 6 households think their children want to become farmers (Table 1). Farmers would like to see “loans with low interest”, “that they [the government] take into account the small farmer, and provide technical assistance and accessible financing”, and more “support from the state” in general.

**Table 1: Characteristics of Surveyed Farmers (N=30)**

<table>
<thead>
<tr>
<th>Principal Source of Income (Frequency)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Farm or Livestock</em></td>
<td>10</td>
</tr>
<tr>
<td><em>Transfers</em></td>
<td>8</td>
</tr>
<tr>
<td><em>Non Farm labor</em></td>
<td>7</td>
</tr>
<tr>
<td><em>Farm Wage Labor</em></td>
<td>5</td>
</tr>
<tr>
<td>Any farm based income currently or anticipated? (Frequency)</td>
<td>20</td>
</tr>
<tr>
<td>Average farm size (Median Ha.)</td>
<td>7</td>
</tr>
<tr>
<td>Own Land % (Inherited, bought from IDA or person)</td>
<td>83.3</td>
</tr>
<tr>
<td>Secure Land Tenure %</td>
<td>73.3</td>
</tr>
<tr>
<td>Had previous knowledge of agriculture %</td>
<td>53.3</td>
</tr>
<tr>
<td>Became first time land owner %</td>
<td>60</td>
</tr>
<tr>
<td>Affiliated with an association related to agriculture (Frequency)</td>
<td>4</td>
</tr>
<tr>
<td>Agro ecological practices (Frequency)</td>
<td>22</td>
</tr>
<tr>
<td>Quality of soil (frequency who said very fertile)</td>
<td>15</td>
</tr>
<tr>
<td>Perceive that to live from agriculture has become harder (Frequency)</td>
<td>24</td>
</tr>
<tr>
<td>Want their kids to inherit the farm (Frequency)</td>
<td>23</td>
</tr>
</tbody>
</table>

*Transfers refer to retirement pensions, welfare checks, rent or child support.
Only 1 out of 30 of the farming families captured in the survey participates in the payments for environmental services program although most own forest ranging in area from .5-100 hectares. In other studies, landholders with higher dependence on farm income and non-absentee landowners were associated with the lack of participation in the payments for environmental services program (Morse et al. 2009). Largely negative farmer perceptions presented in the following sections regarding conservation or reforestation on their land via the PES program further validates this potential lack of recruitment of family farmers into that program. In the following profiles, several farmers see enrollment in PES as a loss of control of their land. The Forestry Law of 1996 already extended the reach of the national government onto private land by prohibiting land use change where natural forest occurs. Furthermore, the PES contracts are accompanied with several visits to the property by forestry engineers and do contain a legal easement that remains with the property where the owner transfers the rights of the parcel’s potential to reduce greenhouse gas emissions to the national government (see Sanchez-Azofiefa et al. 2007). This may explain, in part the negative perceptions of family farmers regarding conservation or reforestation payments and lack of participation in the PES program.

From these 30 surveyed farmers, we selected farmer profiles (Table 2) to demonstrate the dominant patterns of crops, household characteristics and circumstances evident in the farming population in this region. These profiles are useful to paint the picture of farming in the study region, the challenges farmers face, opportunities they take advantage of and the differences within the farming population among farmers of different crops participating in different markets. In the following sections, each one of these farmer profiles will be discussed in detail in relation to the sector they participate in and compared to other farmers
participating in the same sector and analyzed in contrast to the assumptions inherent in the dominant development discourse discussed in the theoretical framework section.

Table 2: Selected Farmer Profiles Based on Survey and Interview data

<table>
<thead>
<tr>
<th>Name</th>
<th>Market Type</th>
<th>Crop</th>
<th>Area in Crop Ha.</th>
<th>Forested Land Ha.</th>
<th>Total Landholdings Ha.</th>
<th>Monthly Income USD</th>
<th>Income Source</th>
<th>Recipient of PES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santiago</td>
<td>Modern</td>
<td>Pineapple</td>
<td>8</td>
<td>20</td>
<td>40</td>
<td>362</td>
<td>Farm</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(MD2 variety)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marco</td>
<td>Traditional</td>
<td>Pineapple</td>
<td>8</td>
<td>0</td>
<td>8</td>
<td>119</td>
<td>Farm</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Monte Lira variety)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sergio</td>
<td>Modern</td>
<td>Subsistence</td>
<td>6.5</td>
<td>0</td>
<td>6.5</td>
<td>217</td>
<td>Off Farm</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doña Myra</td>
<td>Traditional</td>
<td>Pepper</td>
<td>1.5</td>
<td>.5</td>
<td>6.5</td>
<td>1379</td>
<td>Non-Farm</td>
<td>Yes, agroforestry</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juan</td>
<td>Traditional</td>
<td>Pepper</td>
<td>2</td>
<td>10</td>
<td>22</td>
<td>821</td>
<td>Farm</td>
<td>No</td>
</tr>
<tr>
<td>Doña Licha</td>
<td>Traditional</td>
<td>Dairy</td>
<td>6.5</td>
<td>46</td>
<td>6.5</td>
<td>289</td>
<td>Farm</td>
<td>No</td>
</tr>
<tr>
<td>Gérman</td>
<td>Traditional</td>
<td>Cattle</td>
<td>70</td>
<td>100</td>
<td>170</td>
<td>1987</td>
<td>Non-Farm</td>
<td>No</td>
</tr>
</tbody>
</table>
The pineapple sector in Costa Rica has both a traditional market and modern export market. The export market is only for the MD2 genetic varietal. Within this market, 60% of export goes to the United States and 30% goes to the European Union (Faure et al. 2006). The export market structure is called a bilateral oligopoly (Lee et al. 2013) characterized by a high degree of vertical integration and dominance of a few mega firms. In Costa Rica, two transnational companies indirectly control 85-90% of all pineapple export production, transport and trade (Vagnerorn et al. 2009). To sell to European and American markets, producers must meet GlobalGAP standards as of 2006, for health, worker welfare and environmental sustainability and comply with the Law of Bioterrorism for the United States. In this type of structure, private retailers exert a high amount of control and producers must continually invest to comply with retailers’ standards for safety and quality (Lee et al. 2013). In the Huetar Norte region, only 50% of producers have been able to meet these standards primarily due to excessive cost for equipment and inputs, such as fertilizers, pesticides, or seedlings. Due to these high costs, lack of compliance is heavily concentrated in smaller farms under 25 hectares (Faure et al. 2006).

Twenty percent of all pineapple produced in Costa Rica is sold on the national market. These pineapples are primarily older genetic varieties and produced by smaller farms. Producers with less than ten hectares account for 40% of the national production of older varieties (Faure et al. 2006). In these markets, smallholders can either a) sell to local processing or export companies that play a very limited role in the larger value chain, or b) operate solely in the traditional market. Small producers primarily sell to 1) processing firms, for canned,
dehydration or juice products, 2) at the local markets or 3) to export wholesale packing plants, in that order (Faure et al. 2006).

Pineapple, in large farms, is produced in monocultures at an average density of 72,000 plants per hectare. Such plantations require an average of 1 person’s labor for every 2 hectares year round (Villegas et al. 2007). This contributes to startup costs which small holders typically find prohibitive; initial startup costs are a mean average of $9900 per hectare to produce export quality fruit (Piñero and Díaz Ríos 2007). Yet there are clear cost cutting advantages if pineapple is produced on a large scale; for instance, it costs small producers (>10 hectares) .08 cents to produce a kilo of fruit whereas it costs large agribusinesses just .003 cents (Piñero and Díaz Ríos 2007). Savings for larger companies are due to bulk purchasing of inputs, and threshold investments in machinery, transport and infrastructure for packing and processing.

In the Huetar Norte region, 94% of pineapple producers are characterized as small, cultivating less than ten hectares. However, 77% of the area cultivated in pineapple pertains to only 19 large companies, many of which are subsidiaries of the transnational Del Monte and demonstrate the degree of consolidation of land and production these firms have (Faure et al. 2006). The study region accounts for forty-six percent of the largest companies operating in the Huetar Norte region managing over 6400 hectares of pineapple production. These agribusinesses range from 200-1200 hectares and on average have about 492 hectares under cultivation (Villegas et al. 2007). These high production costs, high risk, and dominance of large holders create a high incentive for smallholders to collectively organize. However the structure of the market is so dominated by agribusinesses that it is limiting of the potentially
positive effects of organizing for smallholders. This is further intensified because the existing producer’s organization primarily represents agribusinesses and their interests.

The chamber of pineapple producers (CANAPEP), was founded in 2003 when, as described by a representative,

‘the sector began to organize to have an impact at a governmental level, to prevent Europe from taking away their trade preferences, so in that moment, the pineapple companies were not organized, therefore they began to organize into small groups, and that is when the chamber was created in order to negotiate with Europe, including inviting representatives of the parliament, they had meetings with the ambassadors, with the government…so in order to negotiate at this level, the sector became unified.’

A key goal of CANAPEP is to gain political power. Pursuit and successful acquisition of political power is a characteristic of this group that differentiates them from other producer organizations demonstrated by their frequent meetings with government officials, as described by a representative, ‘the chamber is a link between agribusinesses and the government, so frequently we meet with all the congressmen (members of parliament).’ CANAPEP’s influence is also telling as demonstrated by the following quote: ‘at the level of the chamber, we represent [the producers of] approximately, 85% of the total national land area in pineapple.’ Furthermore, most of their constituents are asset rich large agribusinesses as a Ministry of Agriculture representative explains, ‘more or less, 92% of the pineapple comes from large producers. Only 8% is from small and medium producers. The grand majority of the small and medium producers are not part of CANAPEP, because it is an organization for
large producers.’ The affiliates’ high level of political and financial capital increases the political and financial capital of this group.

CANAPEP has formed inter-governmental institutional alliances and solicits public research, provides key services such as technical manuals and technical assistance, engages in international lobbying, self regulates the sector to address infractions for poor land management practices and organizes litigation on behalf of their constituents. They have essentially replicated the services that the state once provided to the agricultural sector but has withdrawn from due to limited financial and human resources. This type of replication is a characteristic of the neoliberal shift in agriculture that diminishes state resources and fosters the space for private interest groups to provide critical services to a selective group of constituents (Harvey 2005).

In the following section, I will compare 3 different small farmer profiles that are engaged in pineapple production and demonstrate what struggles they face in this modern sector, and what alternatives they find.

Santiago (middle income) is a 35 year old husband, father of two and recent farmer. In 2008, he inherited 40 hectares with his brother where they cultivate 8 hectares of pineapple for export. They began with 1 hectare of pineapple but expanded up to 8 hectares in the last 4 years. On the rest of the land they have 20 hectares of forest and 10 hectares of pasture. They plan to expand their pineapple plantation to 18 hectares in the next ten years and ‘if the business continues well, if it grows, I am going to buy other properties.’ He said, ‘I would like
to cut the forest [to increase hectares of pineapple], but it's too much work and not permitted by law.’ In this case, half of his land cannot be cultivated because it is legally protected by the state for conservation. The brothers decided to plant pineapple because of the high prices but complain that the major challenge for farmers today is that the exporters ‘do not pay really what the product is worth’ and that overproduction is the main determinant of their selling price. They transport their product directly to the packing plant where the best fruits are selected for .75 cents each and about 1% is rejected due to low quality. This lower quality fruit can be sold for about .10 cents to intermediaries for the national market. Monthly, he receives $362 dollars, all farm-based income, from the sale of about 120,000 fruits per year. He states that ‘increases in the price of pineapple’ is the principal factor that would improve his economic situation and says that last year was especially bad to the point that they almost quit. When describing why it has become more difficult to make a living from agriculture he describes a simple reproduction squeeze (see Bernstein 2010) where the costs of production are increasing and profits decreasing; ‘it’s really costly to produce, with expensive inputs and then it’s difficult to sell.’

Marco (low income) is an early migrant to the frontier, arriving in 1982, ‘out of [economic] necessity and the land was cheap and accessible.’ He deforested his own land (8.5 ha.) and for 32 years has produced pineapple. He dedicated his land to pineapple because it ‘is a crop that is adapted best to the land I have.’ He sells pineapple at the farmers market in San Jose, the capital, for 20 cents a fruit. All of his income, $119 dollars per month, is farm based, from the sale of 52,000 pineapples a year. He has a covered truck to transport the fruit weekly to the market and a tractor, both non-land critical assets that allow him to cultivate this area and
consistently sell his product directly. He says the prices are better at the farmers market than at the local export wholesalers whose prices are low due to overproduction. Plus, he can trade pineapple at the market for all his subsistence needs. Export production requires high investment and ‘you have to apply strong insecticides and pesticide almost all the time.’ He doesn’t like to use pesticides because he lives on the farm and only is able to purchase them when he has extra income from good harvests.

Sergio (low income) is a Nicaraguan immigrant who came to Costa Rica in 1988, receiving amnesty as a refugee of the Contra war. He worked on the banana plantations for 10 years and in 1999 migrated to Sarapiquí region because of the available land. He owns 6.5 hectares of mixed agriculture and pasture. He has 11 cows and grows 2 hectares of subsistence crops (i.e. corn, cassava, beans). He is 43 years old and supports 6 people. In his opinion, the greatest challenge facing farmers today is that ‘they have to work [off the farm] to survive.’ His livelihood is a clear example of this predicament. Although he has land, he ‘chooses’ to work at a pineapple company as a laborer. He works 12-hour days on a rolling 3-month contract and receives $217.41 per month.

The pineapple sector is characterized by high production costs, complicated international markets with several links in the value chain. These factors incentivize collective organization. However, the collective organization that exists does not represent the family farm, which has the most structural barriers for participation. Instead it serves to further polarize the sector by concentrating political and financial capital for the interest of agribusinesses who already are enabled in this market structure.
Santiago represents farmers who are precariously trying to compete within the modern markets that are deeply integrated into the global agro-export food system. Such farmers are faced with high production costs, limited autonomy and limited opportunities to move up the value chain. Santiago is the most like the commercial farmer type, as he has larger landholdings, produces intensive crops for export and has been able to invest in mechanization and technology to meet the quality standards for international trade. However, he is struggling to compete and it is clear in his situation that the individual characteristics or farm level characteristics are secondary to his success; his main barriers are overproduction caused by larger companies and his lack of bargaining power with the packing plants.

Marco demonstrates an alternative to this modern market through his participation in the traditional pineapple market. He retains a higher level of autonomy and through direct sale of his product is able to get a consistent, average price point. Despite downstream modernization of the pineapple market, he is isolated from the competition by participating only in the traditional market. He receives a lower price than Santiago’s highest price but assumes less risk and production costs. In both Santiago and Marco’s cases, critical non-land assets, notably transportation and mechanization capabilities, allow these farmers to produce an intensive crop. Although Marco produces less pineapple on the same amount of land and may look like a traditional or semi-commercial farmer, his marketing techniques are innovative; he can provide a farm-based income through specialization while maintaining the ability to trade for subsistence. Furthermore, the viability of his strategy within just the traditional sector is
clearly durable, as he has continued to produce pineapple despite changing market conditions for 32 years.

Sergio fits the subsistence profile. He represents the indirect impact modern agricultural markets can have on smallholders and the larger regional economy. As smallholders struggle to secure farm-based livelihoods and are excluded or marginally included in modern markets they are pushed by the increasing labor demand stimulated by large-scale modern agricultural production to become a flexible labor force for agribusinesses (Barbier 2012). A singular labor force links the traditional economy and the modern export agriculture economy. Low skilled farmers become the primary labor force for agribusinesses (Ibid.). While this leads to economic diversification, which could be seen as a good thing, in Sergio’s case it is a decision made out of necessity rather than an opportunity to supplement his income.

The Structure Of Pepper Production And Commercialization

Pepper (P. nigrum L.) production began in 1980s in the study region and is now known as a smallholder crop that has been able to provide a farm based income to support a family. Pepper is an intensive crop in regards to land, labor and financial capital. The average production is 2458 kg per farmer, per year, grown in an average area of .9 hectares. Start-up costs are about $2500/ha (Saenz Segura et al. 2010). Pepper takes 2-3 years to establish but the plant is then productive for 8-15 years. Harvests are continual, with incrementally increasing yields beginning at 1.6 tons per ha. in the third year, and reaching 15 tons per ha. in the fifth year (Saenz Segura et al. 2010). The farmers bring their product to wholesalers who set fixed prices two times per year (Saenz Segura et al. 2010). There is a narrow window of
ripeness pepper must be within for commercial viability, and rejections average about 10% of each delivery. The price for a kilogram of pepper ranges from $1.26 to $2.71 green or $0.90 cents dry (Saenz Segura et al. 2010).

The Association of Pepper Producers (APROPISA) was founded in 2002 because as Coquie, a representative of the organization said, ‘we were losing so much pepper’, indicating there was an incentive to organize, enhance technical knowledge and seek resources to offset the high costs of production. At the time of APROPRISA’s formation, their competitor also had a monopoly on the market, providing an incentive for collective bargaining (Sáñez Segura et al. 2012). The organization has evolved over 12 years and the current president attributes its success to significant institutional help in building organizational capacity, providing market research, financial resources and technical expertise. Coquie says, ‘We [APROPISA] already have more than 12 years, so the institutions here know us as being a solid, strong organization…so we have been really supported by the governmental institutions and the universities. They have been at our service, and readily available.’ However, as described by Coquie, their success is predicated on, ‘first and foremost, getting organized, because in order for you to receive help from the state you have to be legally established.’

As the above quote describes, APROPISA has taken advantage of the administrative structure available to regional farmers' organizations where the Ministry of Agriculture (MAG), the National Production Council, Institute of Agrarian Development (IDA) and other government agencies meet regularly to evaluate formalized farmers organizations and productive projects and where meeting participants decide to provide inter-institutional resources and support to
deserving organizations. The pre-requisite to accessing this state support is becoming formally organized and to present a solid proposal complete with market research and assurances for project viability. As Coquie describes, their initial organization prompted the government to develop a program specifically for pepper production, ‘thanks to the organization, and that APROPISA began to process [pepper] here, our own government now has a specific program for pepper.’

Through becoming a formal organization and soliciting state support, APROPISA is able to essentially subsidize production via coordinated state provided resources to ensure a higher quality product and increase farmer affiliation and satisfaction. The state provides technical assistance; money to purchase inputs distributed in a welfare check, and coordinated inter-institutional support between IDA and MAG to provide infrastructure and target agriculture extension services in IDA settlements. IDA also gave the organization a processing plant and equipment to dry and package the pepper. In this way, APROPISA is able to function as a funnel for state support that has otherwise been withdrawn in the post 1980 era. The group is able to solicit state help in order to subsidize production and make the pepper sector accessible to the family farmer. Furthermore, in regards to market competitiveness, APROPISA operates as a collective bargaining unit to secure a better price with downstream distributors, and sell in quantity to wholesalers on the domestic market.

As demonstrated in the following quote, the impact of pepper on many smallholders has been transformative,
'When I came here, I came with 13 families. My story is this-- all of my life, I was a manual laborer/landless peasant, until now, thank god, I have land and for the moment she is providing for me because we have pepper. This is my life; I live from this and I have 20 years now working in pepper.'

Regional agricultural representatives are proud of this sector and APROPISA. They believe that APROPISA, as an organization with this product and market, has potential to tangibly improve agrarian livelihoods. Nevertheless, some government officials feel that the pepper is still underexploited by smallholders because of ‘their lack of entrepreneurial vision and willingness to work hard’. As Carlos, a representative of the National Council of Production said,

‘here in Sarapiquí, there is one of the best, most profitable crops, and people don’t take advantage of it, they don’t get it. You know what it is? Pepper. We did a study in 2008 with an NGO from Spain and we found that here you can grow 120 ha. more of pepper and there is a market. And people don’t like it. Why? Because its a lot of work, like gardening, you have to be constantly attending to the crop everyday, but its a really profitable crop.’

Carlos is critical of the lack of individual farmer initiative; however, in the case of pepper, the discussion above demonstrates how critical contextual factors, like the organization’s efforts and state help, heavily condition and enable individual initiative and performance. The following cases demonstrate how profitable this crop is for smallholders and how essential organization has been in securing state resources for smallholders.
Doña Myra (high income) moved to this region in 1990 with her husband and they qualified to purchase a typical Institute of Agrarian Development (IDA) village plot of 6.5 hectares. They form their livelihood through two primary sources of income: 1) her husband’s policeman salary ($777) and 2) pepper production ($602) per month. They initially learned about pepper through an IDA promotional program. As their health has deteriorated over the years, pepper is a good retirement option. When describing why she chose to grow pepper she says, ‘with cassava there is only one harvest a year. Pepper lasts for 8 years and there is a harvest every week.’ She claims that she and her husband were the first to try growing pepper, and that now others in the community have started to do the same. To begin planting pepper, her husband took out a loan from the local rural credit institution and was given production advice by a wholesaler’s agronomist (not APROPISA affiliated). They lost everything due to poor technical advice and mismanagement of fertilizers and insecticides. The husband had to take out another loan to start over after the crop failed and they are now advised by the Ministry of Agriculture agronomist who visits bimonthly to check on their production and offer technical advice. Currently, they have 3 hectares of cassava, 1.5 ha pepper, .5 ha forest and the rest is residential. Because her husband is away all week for work in the city, Doña Myra tends the pepper. She says, ‘It is a very delicate crop… it needs a lot of attention.’ They are at maximum labor capability; she has to hire one laborer to help her with the pepper that is harvested daily. Even though APROPISA offers a better selling price, she does not have the transportation required to deliver the pepper to APROPISA’s processing plant twice a month. For this reason, she sells to the competitor of APROPISA who picks up the pepper at their doorstep. Because pepper is a vine that is typically grown wrapped around trees (*Erythrina*
*poeppegiana*, this type of agroforestry system qualifies for the payments for environmental services (PES) program. Doña Myra and her husband are currently receiving payments in their 4th year of the PES contract, and so far have received $1553.48. She sees the benefits of PES as this, ‘We are harvesting two products; one—pepper and two—trees.’

Juan (high income but due to no current production low income) came from San Carlos in 1984 seeking land. As a low-income migrant upon arrival, he also qualified to purchase 28 hectares from the Institute of Agrarian Development. He deforested 22 hectares of that land for pasture and pepper production. He was one of the original pepper farmers and organizers of APROPISA: ‘because no farmer, under their own resources can get ahead alone…we have to create the future together with organizations.’ He is now 63 year old, and a father of 10 kids who have since moved away. He is now settling into retirement after a long public service career in regional politics. He has been working in community development and as a governmental representative for the past 10 years and had to let his farm fall out of production. His normal income for 2 hectares of pepper is $821 per month but he is currently in a re-establishment phase, i.e., the 3-year period required to get the crop going again. Consequently, he has no current income. Juan receives state provided welfare payments for inputs (fertilizers and starts) for pepper.

Throughout his years in farming and in politics, Juan has seen a lot of changes. He is afraid agriculture has gotten so hard to make a living from that ‘young people don’t want to work in agriculture anymore, before people used to be accustomed to this kind of work.’ Juan continues, ‘without help they [farmers] are going to disappear’ because ‘the farm doesn’t
sustain.’ He would like to see ‘low interest loans’ for farmers and sees the two biggest challenges are imports and the lack of help from the state in general. When asked why he doesn’t enroll his crop or his remaining forest in the PES program he said, ‘its too much commitment and you lose control of your land.’

The pepper sector represents a traditional marketing system. Although it has specialized wholesalers, the quality standards and post-harvest processing are minimal and the product is sold predominantly on the domestic market. Smallholder production systems, labor availability and smaller landholdings are advantageous to intensive production of this crop. The characteristics of this crop, such as its increasing productivity, daily harvest, and longevity serve to provide consistent income for families and offset the initial startup costs. Moreover, the inter-institutional coordination of state agencies and focus of service distribution targeted in IDA settlements provides added advantages to and decreased transaction costs for smallholder participation. It is evident that state support provides a critical complement to collective organization and facilitates the development of entrepreneurial traits in smallholders, which allows them to be competitive in this market. As such, this serves as an example of a ‘successful’ model for smallholder inclusion. However, its success is very much conditioned by continued state intervention and help and the accessibility and growth potential of the traditional market in practice. Furthermore, the efficacy of the collective organization and the synergy created by the intensive nature of this crop, low land requirements and family labor availability, that in several cases, one of which was demonstrated here, is provided by female producers all contribute to the ability for family farmers to participate and be successful in this sector.
In both of the above cases, the farmers receive income from the non-farming sector and have diversified economically. Doña Myra demonstrates some level of commercial sophistication by qualifying and securing loans, taking the risk to invest in pepper, researching the marketing options, weighing the costs and benefits of this crop and for enrolling in the agroforestry payments. She has been successful in the sense that she is able to almost match her husband’s non-farm salary by producing this intensive crop, even despite her limited health status. Juan is lower income at the moment, and is only ‘productively’ using 2 hectares of his 28-hectare plot and thus perhaps looking more like a traditional or subsistence farmer. However, his insight early on to form APROPISA demonstrates shrewd entrepreneurialism; the organization has benefited commercial and subsistence farmers because it has explicitly addressed the proximate conditions for family farm access and success.

*The Structure Of Cattle And Dairy Production And Commercialization*

The cattle and dairy sector in Costa Rica is a very accessible sector for all incomes; however, the profitability of this sector for families is highly variable. Profitability depends upon both the rancher’s objectives and on the larger national policies and international market for cattle and dairy in Costa Rica, which has changed dramatically since 1980.

The Huetar Norte region has the highest bovine population in the Sarapiquí area and produces the largest contribution of milk and calves in Costa Rica. Farms in the region are of medium size, averaging 35 hectares with approximately 31 head of cattle per farm. The region has the highest percentage of its agricultural land dedicated to pasture in Costa Rica (Holman et al.)
pasture is most frequently transitioned into intensive export crop plantations (i.e. pineapple) and most likely to become abandoned and naturally reforested (Fagan et al. 2013) in part because its profitability and competitiveness as a land use has declined in relation to growth in other sectors (i.e. pineapple).

Cattle for beef production are typically sold at regional auctions or directly to rural slaughterhouses. Dairy products are sold directly to clients or, in the case of large operations, raw milk is sold to cooperatives, such as Dos Piños. However, in my sample, all dairy-producing households surveyed sold directly to clients. Many cattle farms are small in Costa Rica; about half of the farms are ten hectares or less (Holman et al. 2008). Cattle and dairy production are accessible even to the lowest income populations and operate differently than other agricultural commodities. They can be used as a savings account or as insurance, rather than as income or subsistence generation, as is the case in many other regions around the world (Sibelet and Montzieux 2012). In the survey, 30 households had cattle with an average herd size of 5.5. Another 30 households had an actual savings account, with an average amount of $307 dollars. However, only 8 households had both a savings account and cattle. This, plus qualitative evidence describing herd size reductions due to unexpected expenses, indicates that cattle ownership and savings accounts are substitutable and do not often occur together. In this sense, the ‘productivity’ of this sector spans a wider range than in other sectors. Whether productivity is described as "very low" or "very high" depends on the objectives of the rancher. Furthermore, the persistence the extensive ‘underproductive’ cattle ranch is evident in the study region, and is described in depth in (Edelman 1985).
The cattle organization, AGRIGASA, was formed in 2010, and has 160 active affiliates, who got together, in the words of Don Rios - one of the original organizers, because

‘we gain strength from unity, and if we remain isolated we cannot achieve our goals, but if we are groups that represent the agricultural sector, and all of us are unified-- the spheres of government and institutions pay more attention to us…when there is a situation of market prices, or cattle robbing, we seek help from the government and we are heard...so this is our work to be mediators, to be voices.’

This organization is famous for its charismatic and politically connected leadership but it is debilitated primarily because of the larger political economy of cattle and dairy production in Costa Rica that has been fundamentally transformed.

The cattle industry in Costa Rica has declined steadily since the 1980s, where exports were 27,000 tons to 13,285.1 tons in 2012 (CORFOGA 2013) and as, Don Rios says, ‘Ranching in Costa Rica has collapsed, the famous hoja amarilla or yellow sheet, of international prices from the US, have dropped.’ Since 1980, the percentage of credit for cattle within agricultural loans has declined, exports have decreased and international prices have decreased. The industry is plagued by weak international demand, declining national consumer consumption trends for beef, low technological adoption on farms and slaughterhouses, lack of compliance and capacity to address sanitation issues, and un-competitiveness due to high processing costs and low farm productivity (Holmann et al. 2008, CORFOGA 2013).

---

5 Yellow sheet is a generic name for the Daily Market & News Service’s publication of meat prices for the United States that at one time favored Costa Rican beef.
Trying to improve sanitation practices to meet basic health standards for commercializing dairy products has been a major focus of the producers’ organization. Don Rios said,

‘For the past four years, they [the government] have been trying to make each rancher comply with health standards but the conditions here are the most precarious when compared to other regions, in the dairies for example, here, they are the most rustic, directly in the field, they don’t have a platform, or an area to milk the cows…so we intervened so that they could give us some time…’

This assessment of the state of the sector, in comparison to other regions, and with such recent enforcement of basic safety standards indicates this is still predominately a traditional market system. The range of producers and majority of lower income producers presents some challenges to modernizing cattle and dairy production because they are predominately in the middle or lower income class and lack investment capital. For this reason, this organization has focused on securing accessible credit for small and medium producers. Although cattle is notorious for being favored historically in the national banking system (Edelman 1985), since structural adjustment the national banking system has become less accessible and generous. The change is described in the following quote from Don Rios,

‘the banking environment, used to be easier before, for farmers and ranchers, than now. Now, they have to comply with a lot of requirements, in order for them to get a loan, I can’t say that the bank is not willing to loan money, but the ease that it once had, it no longer has…and loaning money directly to smaller producers, just doesn’t happen.’
This is one issue where there is unanimous agreement across interviews with state officials, organization representatives and surveyed farmers. All claim that the state needs to intervene to provide accessible credit for small and medium farmers and ranchers.

In this context, access to credit or investment capital serves to differentiate producers and polarizes the agricultural sector, as this quote from Don Rios demonstrates,

‘There are three classes of producers; one has all the capabilities there are, he comes to the bank with his land title and says, I want to grow X product, what are the requirements, here is my guarantee, here is my land title, [they say] here take your money— why? Because he knows how to work, he knows where he is going to sell, this is a farmer who gets ahead. After this, is another who is up at 4 am at the welfare center, to see what they will give him… And after that-- the last one, he is kind of on a swing, but he does not know how to get it going, so someone has to come give him a push, from within the institutions in the sector, to give him a little push so he can continue.’

This third type of farmer/rancher is where a representative of AGRIGASA sees the majority of ranchers. He says, what ranchers need is threefold, ‘that ranchers identify/ take more pride in their work, and take advantage of the land better [intensify production] and on the other hand that they can receive resources from the banking system.’

These quotes again affirm the interplay between personal agency and initiative and the need for external state support—both are necessary. Differentiation and polarization within this sector is very evident in the following cases, which describe a wealthy rancher profile, a
representative of the absentee owner and a very precarious dairy farmer profile participating in the same sector.

Doña Licha (low income) is a 40-year-old female who supports her husband, seven children and one grandchild by selling cheese. On 6.5 hectares of land and with 17 cows, she is able to get 7 kilograms of cheese a day, which she sells for $4 per kilogram directly to her client base and takes a price-cut down a dollar if she has to sell it to an intermediary. Her total monthly income is $289, including $91 of welfare payments. She has a truck that she uses to deliver cheese. Doña Licha's reasons for basing her livelihood on cheese production are: 1) its ‘easy to sell the product; it is the most stable,’ 2) ‘every week we have a little bit of money’ and 3) ‘agriculture is a raffle.’ She evaluates her life as ‘complicated,’ and said that if she had any extra income she would use it to ‘cover basic needs,’ indicating their precarious standard of living. Doña Licha's family rents a house closer to town so that the kids can go to school and currently have access to 46 hectares of shared forestland where her husband is (illegally) harvesting wood to construct their new home.

Germán (high income) earns his living ($1,987 monthly from non farm based income including $903 contributed from his wife) as a semi-retired businessman from San Jose. Both he and his wife are university educated. He is 59 years old with 4 adult children. He grew up spending half his time in Sarapiquí and half in the capital, San Jose. Germán inherited this farm with his 10 siblings, which his family bought in 1938 and 1944. His father always liked cattle, so he continues to dedicate this land to pasture in family tradition. Germán has 3 properties (2 here and 1 in Heredia), with the properties here amounting to 100 hectares of
forest, and 70 hectares of pasture. He has 80 head of cattle, of which, he sells about 20 cows a year for $361.27 each. He hires no labor. He sees ‘competition with foreign cattle’ as the primary thing that influences the price he gets for cattle. They have to sell 2-3 cows a year to cover operating costs but anything beyond that is all profit. Germán mentioned that he has considered enlisting his property into PES because it could cover the property taxes and he figures he could get about $6000.00. However, he does cut his forest and he doesn’t want to pay for all the visits by the forest engineers. He says, ‘you can’t touch your own forest if you enroll.’ His siblings want to be bought out of the farm property and the future of this family farm is uncertain. Germán is actively seeking tourism investment opportunities (i.e. horseback riding, motocross etc.) to develop on the farm, and he is thinking about selling some of his land to buy more pasture or to invest in growing pepper.

Cattle and dairy production have low transaction costs for market participation characterized by basic standards and direct sale to clients for dairy products or indirect, centralized sale at auctions for beef or cattle for fattening. This market accessibility reduces incentives for collective organizing and action. The producer’s organization’s efficacy is undermined in this context and its ability to influence change is debilitated by the lack of state support (i.e., subsidies and accessible credit) and the international political economy of cattle production and trade that no longer favors Costa Rican beef. Cheese or milk can be produced with very rudimentary equipment, is highly perishable and difficult to get in remote rural regions. Direct, client based marketing is accessible to smallholders, facilitates immediate delivery of the perishable product and provides for a daily farm based income. In this traditional market, cattle ownership is accessible to even the lowest income populations and is seen in big herds,
most commonly, as a rich man’s hobby or way to maintain land use rights and avoid natural forest regeneration into pastureland rather than a major income generating enterprise.

Doña Licha represents small dairy ranchers. As such, she fits the traditional, semi-commercial profile, producing in rustic conditions, with minimal but consistent opportunity to earn farm-based income. However, she has taken advantage of the market accessibility, runs an intensive dairy farm and capitalizes on the daily production to provide a consistent farm based income.

Germán represents the wealthy semi-absentee landowner common to this region. He has large landholdings, secured early on in the settlement of this region, and is engaged in ranching as a marginally profitable supplementary economic activity but principally for cultural or land maintenance reasons. He has several of the higher income, education, and landholding characteristics of a commercial farmer but he runs an extensive ranch, primarily for non-economic cultural reasons.

Conclusion

The corporate food regime has served to more deeply integrate Costa Rican farmers into the global economy, has driven exclusivity and market modernization, particularly of non-traditional export crops like pineapple, and is related to increased international competition and the lack of state support for traditional sectors like cattle and dairy. However, our data show that smallholder family farmers in the Sarapiquí region are persisting and in some cases, like pepper producers, are prospering, relative to other sectors, while not participating at all in
modern markets. Furthermore, the existence of producer organizations in the pineapple, pepper, and cattle sectors, despite their varying level of success in reaching their goals, demonstrates that farmers are actively resisting exclusion, fighting for vitality and trying to find alternatives through collective organization. There are, however, clear tradeoffs between traditional and modern markets regarding risk, consistency and production costs.

Our data indicates that pineapple production entails high risk but can result in a high reward, especially at a large scale of production. Pepper has high production costs but consistent production, significant state support and a secured sale. Collective organization has been transformational in the pepper sector in providing access to family farmers whereas in the pineapple sector collective organization has served to concentrate political and financial capital that disempowers family farmers. Finally, cattle and dairy production are marginally profitable but characterized by easy market access, daily income and low technical requirements, which benefit and provide access to family ranchers but do not incentivize collective organization. In this case, the larger political disinvestment and traditional market for cattle in Costa Rica constrains this industry from being more profitable or productive when compared to historic trends but also is one of the principal reasons it is accessible to family farms.

Effective group organization can create opportunities for smallholders that serve to sustain farm earnings and the families that depend on them, especially if the organizations are supported by an institutional support framework, a growing accessible market and crop characteristics that favor smallholder production. Furthermore, this research demonstrates that
traditional markets provide a needed space to generate farm-based income and support agrarian livelihoods in the face of a rapidly modernizing agricultural sector and the global context of the corporate food regime.

This research supports assertions that the role of the state in politically supporting and financing family agriculture and the role of the family farm must be reconsidered as fundamental to addressing rural poverty and promoting economic development in frontier regions because it is a critical livelihood strategy for the rural poor. Furthermore, this research illustrates the multitude of factors that need to be considered to effectively evaluate the accessibility of markets to family farmers. These factors must be considered within the specific locale and sector in order to fully understand what factors within each sector empower family farms and allow for their future existence and prosperity.
References


www.corfoga.org/pdf/estadist/diagnostico_costa_rica.pdf


Ministerio de Agricultura y Ganadería (MAG). Dirección Regional Huetar Norte.

Ciudad Quesada, Costa Rica.