

Coffee production and communal forests in Honduras: Adaptation and resilience in a context of change

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Abstract

Export coffee production has been associated with deforestation, increasing social heterogeneity and social tensions. This study examines how export coffee production has posed challenges to a traditional common property regime in western Honduras, and the ways that the indigenous Lenca people are adapting to the new opportunities presented by expanding market linkages. Despite the spread of coffee plantations into mature pine-oak forests, the community has retained common property woodlots and grazing areas, and created a protected watershed in a cloud forest. The research draws on fieldwork conducted over a 14 year period. It encompasses a period of rapid expansion in coffee production (1994-1999), the coffee crisis of 1999-2003, and subsequent adjustments to changing market and climatic contexts. The data include household surveys, interviews, and satellite image analyses. The analyses show that forest cover expanded between 1987 and 2000, and protections for communal forests increased even as privatization proceeded in areas suitable for coffee production. The discussion considers the ways in which recent experiences indicate a level of resilience among households and organized groups, and how communal governance of forests and natural resources appear to contribute to the people's adaptive capacity. It examines the contradictory and complex interrelationships that characterize current processes of change. On the one hand, coffee expansion has been associated with increases in social heterogeneity and inequitable access to land, which pose serious challenges to traditional, largely egalitarian social relationships. On the other hand, people's decisions reveal concern for forest conservation and participation in joint management of natural resources.

Keywords: *Communal forests, coffee production, market integration, resilience, Honduras, Latin America*

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INTRODUCTION

Market integration and expansion of export crop production have frequently been associated with the transformation of traditional property rights, degradation of natural resources, and increasing social inequality (e.g., Pendleton and Howe 2002; Jodha 1992; Gössling 2003; Henrich 1997). Export coffee production has been among the factors linked to such social and environmental transformations in a number of developing nations (Greenberg 1989; Williams 1994; D'Haese et al. 2005; Roseberry, Gudmundson, and Kutschbach 1995). Honduras appears to provide a case in point (Jansen 1998; Jansen and Roquas 1998). Expanding coffee production, encouraged by policy incentives, has contributed to privatization and deforestation in communal forests and exacerbated social inequality (Tucker 2008). Broad generalizations, however, fail to capture the range of variation in the ways that individuals and communities have adapted to new economic opportunities, evolving legal contexts for property rights, and changing environmental conditions. This study focuses on the experiences of the people of La Campa, a municipio (similar to a county) in the mountains of western Honduras. The community has been experiencing increased coffee production, land privatization and growing social heterogeneity during the past two decades. The community has also engaged in efforts to protect its natural resources and certain common property forests. This paper explores the historical trajectory of changes in coffee production and property rights, within the broader context of Honduras. People have adapted with varying degrees of resiliency to their evolving circumstances. In contrast to many other parts of Honduras, the people of La Campa have developed a diverse set of property rights arrangements that appear to contribute to resilient adaptation.

For this study, “resilience” is understood as the ability of an individual or a group to cope, persist, and adapt to hardship, crisis, or changes in the status quo while increasing their ability to meet future challenges. Resilience becomes apparent when people (or ecosystems) encounter stresses (Resilience Alliance 2005). Adaptation refers to enduring or long term changes that individuals, groups, and social-environmental systems make to adjust to risks and improve their future capacity to deal with new risks (Eakin 2005). Through successful adaptation, people maintain or improve their health, social relations, and conditions of the natural environment. In the long term, the aim of adaptation is to increase resilience to shocks and stressors, such as climate change, market volatility and political transformations (e.g., Adger 2003).

METHODS

The data for this study was collected in eight fieldwork periods between 1993 and 2007. Data collection methods included household surveys (1994, 1997 and 2003), and interviews conducted with residents of the study site, local and regional authorities and representatives of development programs. Historical records and municipal documents were examined in the municipal and national archives, as well as the archives of the Honduran Forestry Development Corporation (COHDEFOR). Satellite image analyses

were undertaken to develop a time series to interpret forest cover change. Participant observation allowed an in-depth view of people's lives and livelihoods.

SITE DESCRIPTION

The municipio of La Campa is located in the Department of Lempira in western Honduras. Lempira is regarded as the poorest department in Honduras, which is considered to be the third poorest nation in Latin America after Haiti and Nicaragua (United Nations Development Program (UNDP) 2003). The topography is complex; steep slopes contrast with narrow valleys, and the soils are susceptible to erosion (Pineda Portillo 1994). Pine-oak forests represent the most important naturally occurring vegetation. Patches of forest intersperse with agricultural fields, pastures and small villages across the landscape. La Campa is divided between a lowland and highland area which are separated on the east by a steep escarpment. The elevation ranges from about 900 to 1829 meters (Tucker 2008). Until the completion of a road in 1993, the only way to reach the highlands was by walking up precipitous trails.

La Campa's people are descendants of the Lenca indigenous peoples who dominated western Honduras at the time of the Spanish Conquest (e.g., Newson 1986). Although the people have lost their language, they continue to practice traditions and ways of life that contrast with those of the mestizos who dominate Honduran society (Chapman 1985, 1986). Most of La Campa's people consider themselves to be an indigenous Lenca population, although younger people tend to identify more closely with the dominant society. A majority of the population depends upon agriculture for their livelihoods. Communal forests provide timber, firewood and a variety of plants and animals for household consumption. Maize and beans are the most important staple crops, but coffee has emerged as the most important commodity and income source in recent decades.

COFFEE, DEVELOPMENT AND PROPERTY RIGHTS

Coffee production and economic development

During recent decades, considerable attention has been given to export crop production as a tool for reducing poverty in developing nations. Coffee has been widely promoted as a viable export crop for many tropical, developing nations. Today coffee is grown in 50 countries, but its contributions to economic development have been mixed (Daviron and Ponte 2005). A number of nations eager to promote the expansion of export coffee have implemented policies that encourage privatization of communal lands, often favoring a small segment of the population that has the resources to pay for land titles and invest in coffee production. Although coffee production has improved incomes for producers during periods of high international prices, coffee markets are notoriously volatile. When prices fall, households dependent upon coffee production can experience hunger, loss of land, dislocation and impoverishment (Osorio 2002, 2005; CEPAL 2002).

Historical context of common property rights

In much of Central America during the late 19th and early 20th centuries, liberal policies served to expropriate communal lands from indigenous populations and create a land poor class of laborers to work on coffee plantations (Williams 1994). Honduras provided an exception. Despite the liberal reforms enacted by the central government during the late 1800s, the reforms aimed to attract foreign investment rather than to support coffee-producing landowners (Murga Frassinetti 1985). Honduras was the only Central American nation that did not become oriented toward coffee production by the beginning of the 20th century. Scholars point to a set of interrelated factors that delayed Honduras' development as a coffee exporting nation, including a weak central government, inadequate infrastructure, elite interests in silver mining, lack of capital, and the dispersion of land suitable for coffee production (Williams 1994; Euraque 1996). In addition, Honduran governments did not enact laws to privatize common property until the latter part of the 20th century. Instead, policy-makers attempted to expand agricultural production by granting lands to communities as well as individuals. As a result, many indigenous communities maintained communal land titles. Honduran coffee production became dominated by small producers whose individually managed plantations often fell under communal titles and sometimes lacked legal titles altogether.

The situation of property rights in Honduras thus contrasted with other coffee-producing nations in the region. In general, the expansion of coffee production has been associated with privatization and concentration of land (Greenberg 1989; Roseberry 1995). Even in Costa Rica, which also has a history of coffee production dominated by smallholders, a formal land titling system based on private property was established early in the post-independence period (Williams 1994). An openness to communal and cooperative land titles continued in Honduras through the land reform efforts of the 1960s and 1970s, which attempted to redistribute idle lands from large landholders to peasant cooperatives for productive use. Under the National Agrarian Institute (INA), which was founded by President Ramón Villeda Morales in 1961, land redistribution became oriented toward organized groups (Kincaid 1985). The decision responded to the land invasions occurring at that time, which were usually undertaken by peasant groups who relied on large numbers to assert their claims. The agrarian land reforms ultimately failed to restructure the inequitable distribution of land and high levels of landlessness that continue to characterize Honduras (Baumeister and Wattel 1996; Loker 2004). Large landholders successfully resisted most attempts by peasant groups to gain or reclaim unused agricultural land by presenting or inventing land titles. By 1981, fewer than 125,000 hectares had been granted to approximately 30,000 landpoor and landless peasant families (Kincaid 1985).

Justifications and complications of private land titles

The persistence of communal land became viewed as an impediment to economic development by national policy-makers and international agencies by the 1980s. A series of efforts to privatize commons and title previously untitled private holdings emerged. The titling efforts operated on assumptions derived from theories and observations of agricultural development in the United States (Shepherd 1985). The

programs assumed that private land titles would increase tenure security, allow more farmers to obtain credit, and encourage farmers to invest in more productive, market-oriented activities. In fact, the assumptions did not fit the Honduran context well. Land titles granted to poor farmers carried the risk of reducing tenure security because titled land became more attractive to elite investors. Credit availability was not assured because bankers were not particularly eager to give credit to poor farmers, but land titles did allow banks to easily appropriate land if a creditor defaulted on a loan (Shepherd 1985). Between 1974 and 1993, the number of landless agricultural households increased from 89,955 to 126,383 (Baumeister and Wattel 1996).

Expansion of export coffee production

The 1980s effort to title land coincided with increased policy incentives to expand coffee production (Table 1). Although Honduras had a long history of promoting coffee production, its attempts to become an important coffee producer intensified in the latter half of the 20th century. Support from the USA, which aimed to fortify Honduras as an anti-communist ally, helped to support coffee production and road-building. In 1970, the creation of the Honduran Coffee Institute (IHCAFE) began to research and promote ways of increasing coffee production. Coffee producers were exempted from agrarian reforms with the Coffee Enterprise Protection Law of 1982. Perhaps the most important incentive, however, was provided by Decree 175-87, which created a road-building subsidy for coffee-producing municipios. The lack of roads represented one of the most serious challenges for the development of rural communities, many of which viewed road-building as a top priority. As a result, the road-building subsidy encouraged minor coffee producing municipios, including La Campa, to expand coffee production in order to take advantage of the subsidy. The incentives proved effective. Coffee production increased in Honduras by 800% from 1950 to 1990 (Rice and Ward 1996). During the 1990s, coffee came to rival bananas as the most important export crop. Honduras became the world's eleventh largest coffee producer in 2000 (International Coffee Organization (ICO) 2006).

PROPERTY TRANSFORMATION AND ADAPTATIONS TO EXPORT COFFEE PRODUCTION

Traditional property rights and coffee production

Coffee has been produced for several generations in La Campa. It was evidently introduced during mid to late 1800s. In 1921, when La Campa became a municipio, official documents noted that coffee was among the most common crops grown locally. Until the 1990s, all of the land in the municipio was held under communal land titles. The oldest land title dated to 1724, followed by titles in 1732, 1865, and 1973 (Tucker 2008). Under local tradition, all native-born residents had the right to claim land for a houselot, agricultural fields, orchard (planted with coffee, fruit trees and other useful plants) and pasture. Land granted to a resident carried nearly all the benefits of private property: it could be transformed, passed on to heirs, or sold as long as the buyer was a resident. However, only the improvements on the land could be included in a sales price because the land itself belonged to the *común* (the people of the community) (Tucker

1999). If a claimant failed to fence a parcel, or abandoned it to fallow, the parcel reverted to communal land (Tucker 2004).

Table 1: Legislation Related to Coffee Production (1970- 2002)

Law	Date	Title	Content
Decree 83	1970	Creation of the Honduran Coffee Institute (IHCAFE)	Creation of the Honduran Coffee Institute (IHCAFE), as a non-profit-making private body to support coffee improvements, development and marketing, and promote Honduran coffee
Decree 78-82	1982	Coffee Enterprise Protection Law	Exemption of coffee-producing lands from the Agrarian Reform Law
Decree 175-87	1987	--	Established an annual payment for road improvements to coffee producing counties, proportional to production
Decree 146-92	1992	National Coffee Fund Law	Created the National Coffee Fund (FCN), established a program to improve infrastructure, and withhold coffee exports during low prices for later sale.
Decree 145-2000	2000	National Coffee Commission Law	Creation of the National Coffee Commission to establish policies related to coffee and protect the public interest related to coffee
Decree 297-2002	2002	IHCAFE Loan	Authorization of a \$20 million government loan over 20 years for IHCAFE, to finance coffee growers through loans and relieve debt.

Sources: AFE-COHDEFOR, Análisis del Sub-Sector Forestal de Honduras 1996; IHCAFE

This system worked well under slash-and-burn agriculture, which represented the dominant planting method into the 1970s. While houselots, orchards and pastures represented permanent land cover changes, most agricultural parcels were planted for only a few years before being abandoned to fallow. Usually fields were left to grow back to forest for several decades before being cleared again. A majority of the land remained under forest cover at varying stages of maturity and regrowth. A few forest areas in the highest, coolest elevations of the municipio were rarely cleared; these served primarily for hunting wildlife. By the 1970s, however, the population had begun to put pressure on the lands suitable for agriculture. The most fertile lands in the valleys were claimed in perpetuity, and the fallow length evidently began to fall on flatter areas where soils were suited to frequent use.

COHDEFOR and state intervention in common property forests

In 1974, the Honduran government declared all trees to be national property, even though the land on which the trees grew would remain in the hands of the existing owner. It also created COHDEFOR, which had the responsibility to develop timber resources, encourage development and poverty alleviation through forestry activities,

and protect forest resources. These contradictory mandates presented problems from the start; it proved untenable for COHDEFOR to make a profit from timber sales while also protecting forests from overexploitation.

La Campa's timber was sold in a series of concessions to local sawmills between 1974 and 1987. COHDEFOR prohibited local residents from using their communal forests for firewood collection and other subsistence needs, until the forests had been exploited by loggers. The harvesting methods used by the sawmills caused erosion and undermined the regenerative capacity of the soil. Between 1983 and 1987, the people began to resist the logging concessions and COHDEFOR's interventions in their communal forests. In 1987, the grassroots group formed by angry Campeños achieved its goal of expelling COHDEFOR in order to end timber concessions.

Land privatization and the expansion of coffee production

Following COHDEFOR's expulsion, La Campa forbade commercial forest exploitation and limited forests to subsistence uses. The period of intervention by COHDEFOR had nonetheless shaken Campeños' confidence that they could maintain rights to their common property forests. They realized that private holdings received greater consideration under the national legal system. In a departure from tradition, the municipal council began to approve private claims to forest, and lifted the customary requirement that forested areas be cleared to prove a land claim. During the same period, the national legislature passed Decree 175-87 and an IHCAFE agronomist declared La Campa's highlands to provide a nearly ideal environment for coffee production. La Campa's municipal government had been struggling to build roads, and the road-building subsidy provided an extra motivation for encouraging coffee production. Many farmers were eager to find a way to augment their incomes; in most years, they were lucky to grow enough maize to feed their families, and they could not count on a surplus to sell. Even when they did have a surplus, prices for locally grown crops were low. Therefore farmers welcomed the opportunity to produce coffee. In order to gain the road-building subsidy, as well as taxes anticipated from coffee plantations, the municipal council willingly approved large land requests from prospective coffee growers in the highlands. La Campa made a rapid transition from subsistence coffee production to export coffee production. In 1990, La Campa's recorded coffee production (which excluded coffee consumed by households or sold locally) was 529.64 *quintales* (45 pound bags). In 2001, production reached 9065 *quintales*.² By that time, a majority of La Campa households had made an effort to augment their household plantations in order to sell coffee to the market. Most of the highland forests, with the exception of village woodlots and an area of cloud forest, were claimed as private holdings by 2000.

Road building proceeded in accordance with local goals. The first road into the highlands was followed by the construction of a network of dirt roads cleared through mountain forests by a lone bulldozer. In 2000, La Campa's nine major villages were linked by roads to the market. Roads not only facilitated the coffee exports, they

² IHCAFE Annual Records, IHCAFE Archives, Gracias, Lempira

allowed easier transportation of goods, teachers, doctors, the parish priest and agronomists to the highlands.

The process of land privatization in La Campa thus involved a combination of factors, which initially did not include a national land-titling effort. The memory of losing rights to common property forests under COHDEFOR combined with local desires for economic development, improved livelihoods and road construction. These factors encouraged people to request lands from common property forests and compelled the municipal council to grant the requests. Population growth had also increased demands for land, and reduced the viability of slash and burn agriculture. Together, these factors had the effect of dismantling much of the traditional property rights system in favor of privately held lands. In many ways, the processes in La Campa followed theoretical predictions. Communal lands tend to be marginal, encompass dispersed or mobile resources, and offer too few returns to merit the individual investment and oversight associated with private property. However, if communal land and resources increase in value, then privatization may become worthwhile (Netting 1976, 1982; McKean and Ostrom 1995). Coffee production, road-building subsidies, and the perceived vulnerability of communal lands to state interventions increased the value of common property forests for individual holdings, particularly in the highlands.

Although La Campa's private holdings did not yet have legally recognized private titles during the early 1990s, the process of *de facto* privatization of common lands progressed. In 1997, the process was accelerated by the implementation of a national land titling program in Lempira. INA informed Campeños that they could apply for private land titles for a modest fee, or they could choose to include their lands in village-level titles. Only land that had been purchased with municipal funds (the 1724 and 1973 land titles) would be exempt from the program, and given the option to be retained as municipal common property. Despite the trend toward private land holdings, a majority of Campeños preferred to join in village titles, which recreated common property. Each person continued to hold their land claims as if they were private property, but as village property, any land sales and credit applications had to be approved by a majority of the land owners included in the village title (Tucker 2004). (In reality, this regulation has been poorly enforced). A minority of better-off farmers, including the larger coffee producers, invested in purchasing private titles. A segment of the population divided their landholdings between purchased private titles and communal village titles. The tendency to maintain *de facto* private as well as common property was repeated at the village and municipal levels. All villages retained their traditionally held communal woodlots, in some cases choosing to expand them. Municipal communal forests were also preserved. In many cases, residents fenced off communal woodlots to discourage incursions from surrounding farms and plantations. The maintenance of common property forests while creating new forms of *de facto* and *de jure* private property represent a form of adaptation to changing legal and economic contexts. The diversification in property rights also represented a way for people and the municipal government to hedge their bets in an uncertain national political environment. Although the Honduran government relinquished its ownership of the nation's trees in 1992 with the Agricultural Modernization Act, Campeños seemed to

regard national policies with caution, and did not rule out further state interventions in communal and private lands.

By the early years of the 21st century, La Campa's custom of awarding free usufruct for residents and the cycling of land in and out of common and *de facto* private holdings had come to an end. All of the land had been encompassed by one form or another of permanent private or common property. Much of the private land was still in forests; partly due to the slow pace at which coffee plantations can be expanded with limited household income. Other dimensions of forest maintenance on private land appear to reflect an appreciation of forests as reserves for future agricultural land, refuges for wildlife, and sources of water, firewood, timber and useful plants. An unanticipated side effect of the experience with COHDEFOR was the realization that forests could be destroyed; a number of farmers in La Campa assert that they do not plan to cut their private forests because it is important to conserve them for future generations.

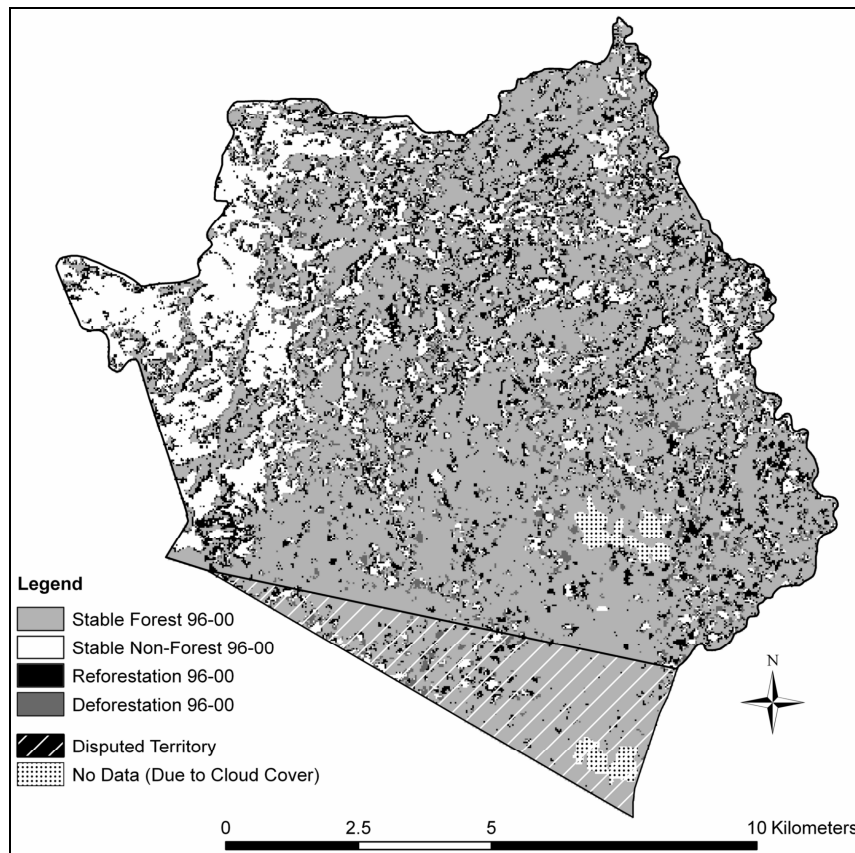
COFFEE AND FOREST COVER CHANGE

Across Central America, coffee production has been associated with forest clearing. Contrary to this pattern, La Campa's forests experienced a gradual reforestation trend following COHDEFOR's expulsion. Analysis of a series of satellite images (1987, 1991, 1996, 2000) revealed a highly dynamic landscape in which parcels of land switched between clearings and regrowth over the 14 year interval. Overall, reforestation exceeded deforestation; by 2000, there was 10% more forest cover than in 1987 (Tucker 2008). Part of this included shaded coffee plantations, which are indistinguishable from forest in satellite images.³

Figure 1 illustrates the complex patterns of forest cover change for the 1996-2000 interval. Deforestation in discreet patches includes clearings for maize, houselots and coffee production. Reforestation occurring along forest edges indicates natural regrowth, particularly in areas that are slowly recuperating from the excessive logging of the 1970s and 1980s. The communal forests that were logged under COHDEFOR are found mainly along the western edge of the figure; they remain degraded and sparse. Regrowth is difficult in these areas not only due to eroded soils but because of continuing firewood collection and subsistence timber harvesting. Patches of reforestation spread across the image include agricultural areas that have been fallowed, and coffee plantations. The coffee plantations are concentrated on the eastern half of the figure, which are the highlands.

³ Further study and ground-truthing is necessary to assess the percentage of forest cover that is actually shaded coffee. In many ways, however, shaded coffee plantations mimic forest cover in ways that contribute to biodiversity and soil conservation (Perfecto et al. 1996).

Figure 1: La Campa Forest Cover Change, 1996-2000



ADAPTATION DURING THE COFFEE CRISIS

Through the early years of coffee expansion in La Campa (1987- 2000), coffee growers expressed great optimism for coffee's potential to increase their incomes and improve their livelihoods. At the end of the 1990s, however, coffee prices fell drastically on world markets to their lowest level in 100 years (Lewin, Giovannucci, and Varangis 2004). Transformations in the coffee commodity chain, global overproduction, and generally flat consumption levels combined to create the one of the most serious crises in the history of coffee markets (Ponte 2002; Osorio 2002; Daviron and Ponte 2005).

Throughout Central America, falling prices created difficulties for growers. Unemployment and underemployment increased dramatically; temporary employment declined by 20%, and permanent employment fell by 50% (Flores de la Vega et al. 2002; Varangis et al. 2003). Poor rural families experienced hunger and malnutrition, migration rates increased, and social tensions came to the surface (Osorio 2005). The crisis lasted through the 2002–2003 harvest season before prices began to improve. As prices fell, La Campa's coffee growers made a variety of adjustments. Life became more difficult, but with few exceptions, Campeño coffee producers did not endure

hunger or loss of livelihood, or find it necessary to migrate to urban areas. Most households continued to pick their own coffee, and did not have to pay for pickers. New fields planted before the crisis began to produce and municipal coffee production continued to expand until 2002.

Comparison of Campeño experiences with those of Guatemalan and Mexican farmers

Comparative analyses of coffee growers in La Campa, Honduras and similar communities in Mexico and Guatemala indicate that Campeños differed in their perceptions and experiences of the crisis (Table 2). In Guatemala, 67.9% of the respondents reported a decline in income, and 96.4% said that the coffee crisis had reduced their ability to purchase basic goods. For the Mexican sample, 86.7% reported a drop in household income, and 96.7% responded that buying basic goods posed a problem. Overall, more of the Mexican and Guatemalan respondents said that their families had difficulty meeting their basic necessities, and they reported fewer adaptative responses than Campeño farmers. Most of the Mexican and Guatemalan coffee growers answered that low prices represented a major preoccupation for their households, 89.3% and 81.7% respectively. In contrast, 56.8% of La Campa respondents agreed that low coffee prices were a major concern; more were worried about health problems and potential illnesses (67.6%).

Table 2: Comparison of Coffee Crisis Impacts and Major Household Concerns in Guatemala, Honduras and Mexico

	Guatemala (N=28)	La Campa, Honduras (N=37)	Mexico (N= 60)
Income decreased (N)	67.9 % (19)	37.8% (14)	86.7% (52)
Reduced ability to obtain basic goods (N)	96.4% (27)	51.4% (19)	96.7% (58)
Reduced ability to purchase clothing (N)	85.7% (24)	32.4% (12)	71.7% (43)
Reduced ability to pay for school inscription (N)	78.6% (22)	1 (2.7%)	26.7% (16)
Low coffee prices represent a major concern (N)	89.3% (25)	56.8% (21)	81.7% (49)
Illness in family a major concern (N)	46.4% (13)	67.6% (25)	63.3% (38)

Source: 2003 Household survey by author and fieldwork assistants

Campeño responses and adaptations to the crisis

Campeños responded to the coffee crisis with a diverse range of strategies, which also distinguished them from their peers in Mexico and Guatemala. Borrowing money represented the single most common strategy to address temporary declines in income. Over half (56.8%) of the sample took on debt during the coffee crisis. Twelve families borrowed money through microcredit cooperatives, which had become common in Lempira in the 1990s. Usually the borrowed amounts represented less than 500 lempiras (about \$60). Three farmers received loans from relatives or friends, and one received an advance from the middleman who purchased his coffee. Six respondents reported taking out modest loans through credit programs offered to coffee producers by banks and coffee-related organizations, but these programs evaporated as the crisis dragged on. Those who obtained bank loans had privately titled land to put up as collateral. In contrast to many coffee producers in other parts of Central America, only a few Campeños had outstanding debts when the coffee crisis began. Although Campeños often bemoan limited access to credit from banks, they did not have bank loans to repay when they could least afford it.

A variety of adaptations involved changes in land use. Twenty-seven percent (27%) expanded the area planted in staple crops, and 18.9% reduced the area planted. Campeños sought alternative agricultural commodities; 37.8% began to plant crops that they had not planted previously. Sugar cane was a popular choice for those with available land at lower elevations, because the price of refined white sugar had been climbing. Other efforts included planting yuca, vegetables, and fruit trees aimed at local and regional markets. Diversification decisions did not occur in response to government programs. Instead, La Campa farmers independently made decisions with respect to their interests and resources. Choices varied, and as a result, farmers did not face excessive competition to sell the crops and goods they produced. In comparison to Mexican and Guatemalan coffee growers, Campeños demonstrated a wider range of adaptations, especially in changing the area planted, adopting new crops, and adjusting their crop mix (Eakin et al. 2006).

Surprisingly, almost 40% of the farmers in the survey planted (or planned to plant) more coffee during the coffee crisis. These optimists explained that coffee prices always fluctuate, and they were confident that prices would increase to previous levels again. They wanted to be prepared. This attitude apparently contributed to La Campa's steady increases in coffee production through the coffee crises. The decision to expand coffee also reflected the low wage rate in La Campa compared to most other places. For smallholders, dependence on household labor and labor exchanges allowed coffee to be managed with low labor expenditures. Meanwhile, the Guatemalan and Mexican farmers did not report plans to expand coffee plantations. They evidently had no interest, too little available land, or inadequate resources to take the risk.

A number of La Campa coffee growers sold or purchased land during the coffee crisis. One fifth (20%) of the sample reported selling land. More than half of the respondents (51.4%) bought land between 1999 and 2003. Land purchases occurred for a variety of reasons, from helping out a neighbor who needed money, to anticipating children's

future land needs, to planning for new coffee plantations. In three cases, people bought land with money gained by selling a less desirable parcel. While most of Central America's coffee producers struggled to make ends meet, a surprising proportion of La Campa producers were able to expand their landholdings, a choice that could augment their capacity to adjust to future market shocks. The fluidity of land exchanges in La Campa was facilitated by the predominance of village level titles and de facto private property; land could be sold and purchased without administrative costs or recourse to national bureaucracy. During this time, communal woodlots also assured everyone free access to firewood, which is essential for cooking.

Table 3: Types of Adaptations and Livelihood Strategies Reported by Coffee Growers
(Many households reported multiple adaptations)

Types of Adaptations (1999-2003)	Percent of Sample (N)
Borrowing money ¹	59.5% (22)
Buying land ²	51.4% (19)
Buying livestock	46.0% (17)
Selling livestock	43.2% (16)
Reducing investments in coffee	43.2% (16)
Adding new crops	37.8% (14)
Planting (or preparing to plant) more coffee	37.8% (14)
Expanding area planted in subsistence crops	27.0% (10)
Selling land	21.6% (8)
Reducing area planted in previously planted crops	18.9% (7)
Adopting new subsistence activities ³	10.8% (4)
Changes due to death or serious illness in family	10.8% (4)
Households that made at least one livelihood change	75.7% (28)

¹ Includes loans during the preceding five years. Two of the borrowers had repaid their loans by 2003.

² Purchases of land were not always related to the coffee crisis.

³ Includes off farm employment, adopting new activities (fish pond, hog production)

Source: Field survey of 37 randomly selected households by the author and assistants, 2003

Unfortunately, those who acquired land did so as other residents felt the need to sell it. The existence of households that sold land shed light on an unanticipated gap in the

survey: no data was collected from Campeños who sold out. Only through interviews did it become clear that the coffee crisis, in conjunction with privatization processes and a municipal council decision to allow land sales to outsiders, had created the first landless farmers in the municipio. Their numbers were small (I learned of only two cases), but it was a dramatic change from the tradition in which every adult Campeño had once had the assurance of usufruct to a parcel of communal land for private use.

Many adaptations reflected market conditions, but life events also influenced farmers' decisions. Four households in the survey had experienced the death or serious illness of a family member during the coffee crisis. These households took on debts for medical care or funeral costs, and had to adjust their labor allocations. For other households, the departure of grown children for marriage, off-farm employment, or schooling changed labor availability. In these cases, farmers usually chose to reduce the area planted in subsistence crops.

DISCUSSION AND CONCLUSIONS

The past two decades have brought major changes to La Campa's property rights, infrastructure and involvement with markets through coffee production. La Campa's experiences indicate that the expansion of coffee production, national privatization policies, and market integration do not necessarily lead to the destruction of common property or deforestation. Instead, processes of change may involve diverse, even contradictory trends and a variety of experiences.

The expansion of export coffee production appears to have increased the vulnerability of some households to market shocks. This is most clearly the case for households that have been compelled to sell their land, and have not been able to acquire new parcels. The emergence of landless farmers in La Campa, in association with a new trend of land concentration in the hands of a few better-off Campeños and absentee landlords, signals an increase in social inequality that promises to complicate local efforts for economic development.

Nonetheless, many Campeño farmers have benefitted from linkages to the market that has enabled them to produce and sell more coffee. When compared to farmers in other parts of Central America, it appears that Campeños have been relatively more successful in making adaptive changes to market risks posed by coffee price volatility. In part, their adaptive capacity relates to the variety of private, communal and de facto property arrangements that have evolved in the past 20 years. During market stresses, many people were able to sell, buy, and exchange land more flexibly than if they had depended on a single form of land ownership. Access to land represented a key factor in their capacity to diversify. Communal woodlots experienced pressure for firewood extraction and are recovering slowly from the overexploitation during COHDEFOR logging concessions. Nevertheless, the common property forests provided people with equitable access to firewood and forest products even as social inequity increased.

La Campa's forests have been expanding, but they are also experiencing transformations to areas with "coffee forests." Privatization of land suitable for coffee has proceeded, but it has not eliminated common property forests. Residents made choices to conserve certain forests for their common use, in order to meet shared needs for timber, firewood and useful plants. At the turn of the 21st century, the municipal council and a group of committed residents created a communal watershed reserve on the Montaña Camapara, which provides most of La Campa's water. At the same time many landowners have made an effort to protect forest patches on their land for future uses or conservation. Thus efforts to improve livelihoods involve individual as well as collective efforts, and ongoing changes cannot be summarized in linear terms. La Campa's experiences involve complex, multilineal processes that bring mixed outcomes.

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