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Confronting the Coffee Crisis: Can Fair Trade, Organic, and Specialty Coffees Reduce Small-Scale Farmer Vulnerability in Northern Nicaragua?

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Summary. — This paper links changing global coffee markets to opportunities and vulnerabilities for sustaining small-scale farmer livelihoods in northern Nicaragua. Changing governance structures, corporate concentration, oversupply, interchangeable commodity grade beans, and low farm gate prices characterize the crisis in conventional coffee markets. In contrast, certified Fair Trade and organic are two alternative forms of specialty coffee trade and production that may offer opportunities for small-scale producers. A research team surveyed 228 farmers to measure the impact of sales on organic and Fair Trade markets. The results suggest that participation in organic and Fair Trade networks reduces farmers' livelihood vulnerability.

Key words — coffee, Central America, Nicaragua, vulnerability, Fair Trade, livelihood

1. INTRODUCTION

Activist pressure and the expanding specialty coffee market have provoked a small, but growing, percentage of those that daily drink 2.28 billion cups of coffee to remember the 20–25 million families that produce and process this valuable bean (Conroy, 2001; Dicum & Luttinger, 1999). Small-scale family farms produce over 70% of the world's coffee in 85 Latin American, Asian, and African countries (Oxfam, 2001). Most coffee producers live in poverty and manage agroecosystems in some of the world's most culturally and biologically diverse regions.

Changing patterns in global coffee commodity chains including the disintegration of the international coffee agreement in 1989, market liberalization, corporate consolidation, increasing production, and a worldwide coffee glut have plunged commodity prices to their lowest levels in a century (Ponte, 2002a, 2002b). However, increasing consumer awareness regarding issues of quality, taste, health, and environment have created a growing demand for specialty and eco-labeled (*i.e.*, organic, bird-friendly, and Fair Trade) coffees (Goodman, 1999; Rice,

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2001). Specialty and eco-labeled coffees offer price premiums. The volumes of coffee moved through specialty, organic, and Fair Trade commodity chains remain relatively small and must be set within the context of changing global coffee markets.

During the last four years, green coffee prices have fallen from US$1.20/lb to between US$0.45 and 0.75/lb. Low prices continue to devastate rural economies and threaten the biodiversity associated with traditional coffee production (CEPAL, 2002; IADB, 2002). Permanent employment in Central America's coffee sector has fallen by more than 50% and seasonal employment by 21% (IADB, 2002). In Matagalpa, Nicaragua, falling coffee prices have accelerated migration to urban poverty belts. A walk through a coffee farming community in Coto Brus, Costa Rica, reveals eroded hillsides where farmers recently replaced coffee agroforestry systems with treeless cattle pastures. Since the 1999–2000 harvest the value of Central American coffee exports has fallen from US$1.678 billion to US$938 million in 2000–01 and an estimated US$700 million for the 2001–02 harvest (IADB, 2002). Declining export revenues have created debt that exceeds US$100 million. As debt in the coffee sector increases, banks have foreclosed on farms and export companies (Díaz, 2001).

This paper examines how changes in the global coffee market and falling coffee commodity prices affect small-scale farmers' livelihood vulnerability in northern Nicaragua. Section 2 is a synopsis of the changing tendencies in the global coffee trade. Section 3 briefly reviews theories linking price shocks to livelihood vulnerability and then applies this framework to a farmer typology revealing the consequences of the coffee crisis. Section 4 presents the results of research that investigated the hypothesis that farmers selling Fair Trade and organic coffees are less vulnerable than those linked only to conventional coffee markets. In the final section, I discuss strategies to reduce vulnerability without reproducing the same structures that created the coffee crisis.

2. CHANGING STRUCTURES IN THE GLOBAL COFFEE MARKET

Booms and busts punctuate international commodity price histories. The driving forces behind the current four-year decline in green coffee commodity prices suggest this cycle will continue, and prices may remain low for the coming years (CEPAL, 2002). The disintegration of the International Coffee Agreement (ICA) and market liberalization contributed to increasing global coffee production. The increasing coffee supply led to rising inventories in consumer countries and coincided with sluggish demand and market concentration in the roasting and trading industries (Ponte, 2002a).[1] Among the consequences are shifts in power to the roasting and retailing end of the commodity chain and falling prices paid to producers (Talbot, 1997).

The ICA was a set of international agreements that set production and consumption quotas and governed quality standards for most of the coffee industry from 1962 to 1989. A combination of processes, including (i) increasing fragmentation in the geographies of production and consumption, (ii) shifting geopolitical conditions as the United States perceived less of a threat from the Latin American left, and the (iii) changing development models as Indonesia and Brazil moved away from import substitution toward export led growth contributed to the disintegration of the agreement (Ponte, 2002b). Free from international quotas, green coffee prices initially fell, briefly rebounded during 1994–98, then plummeted before rebounding slightly in early 2004.

The two primary coffee varieties are arabicas and robustas. Farmers in Latin America, Ethiopia, and Kenya have historically cultivated most of the arabica beans that are generally considered of higher quality and sold to specialty markets at slightly higher prices than robustas. Brazil, Vietnam, and Uganda produce most of the world's robusta coffees. Two tendencies are eliminating the previous competitive advantages held by countries producing arabica coffee varieties. In the last 10 years, Brazil more than doubled its production of arabic coffees and now produces close to half of the world's arabica coffee. Furthermore, many roasting companies can substitute between robusta and arabica beans in their blends; thus, the price differential between robusta and arabica coffees is rarely more than 10 cents/lb. The price reported below is for other milds, arabica beans grown outside of Colombia Figure 1.

The disintegration of the ICA coincided with geopolitical shifts, including the fall of the Soviet Union and the state's declining role in commerce. As many national agricultural ministries dramatically decreased their role in coordinating coffee production, commercialization, and

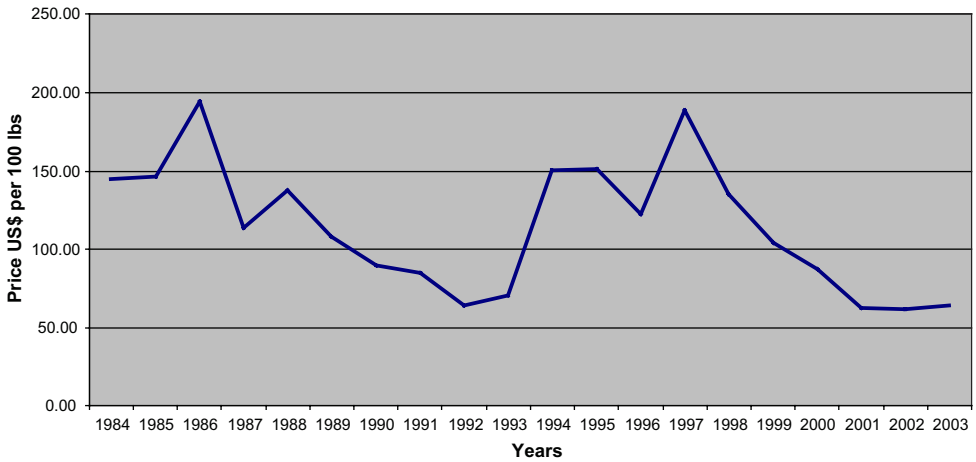

Figure 1. *International coffee prices. Sources: Average yearly prices for arabica coffee beans (other milds) from International Coffee Organization (2003).*

quality control, governments lost international negotiating power. Producers and exporters gained flexibility and more direct market access. Large-scale transnational trade and roasting companies were quick to enter the spaces opened by the retreating state. The combination of market liberalization and increased coffee production coincides with high rates of transnational corporate concentration. By 1998, Philip Morris, Nestlé, Sara Lee, Proctor and Gamble and Tchibo controlled 69% of the roasted and instant coffee market (van Dijik, van Doesburg, Heijbroek, Wazir, & Wolff, 1998, cited from Ponte, 2002a). Eight transnational export–import companies control 56% of the coffee trade (van Dijik *et al*., 1998; cited from Ponte, 2002a).

The changing structure of the global coffee commodity chain has led to declining prices paid to producers. Since the fall of the ICA producers' share of the final retail price has fallen from 20% to 13% (Talbot, 1997). Historically, coffee producing countries in Latin America, Asia, and Africa captured close to 55% of the coffee dollar, significantly more than many other tropical export crops, such as bananas and cacao. However, power shifts and production trends in the coffee commodity chains have decreased producing countries' share to an estimated 22% (Talbot, 1997). These are the trends in the conventional green coffee market which in 1999–2000 moved an estimated 102.5 million 60 kg sacks of coffee with a wholesale value of US$14 billion (SCAA, 1999). These dominant trends mask the growth and emergence of specialty and certified coffees.

(a) *The rise of specialty coffee*

The North American specialty coffee market annually grows 5–10%, and it reached an estimated retail value of $7.8 billion by 2001. This rapid growth contrasts to slow demand growth for bulk commercial grade coffees. Unheard of 30 years ago, the specialty or gourmet market segment represents 17% of US coffee imports by volume and 40% of the retail market by value (Giovannucci, 2001). The United States purchases one quarter of internationally traded coffee in the world (Giovannucci, 2001).

In 1982, a handful of small-scale coffee roasting companies joined together to form the Specialty Coffee Association of America (SCAA). The mission of the SCAA is to promote high quality gourmet coffee and sustainability (SCAA, 2002). The SCAA's 2600+ members are primarily small-scale roasting companies, traders, and sellers of coffee-related accessories, but the membership also includes larger companies (Starbucks and Folgers), farmer organizations, and producing country representatives. Commercial grade coffees do not have equally strict quality requirements, are commonly sold in tin coffee cans, and often cost the consumer half the price. In addition to claims to superior taste, specialty coffee companies celebrate the craftsmanship of coffee roasting and preparation; they employ more specialized

roasting processes, focus on product freshness and use large marketing expenditures to differentiate their product from the bulk commercial grade coffees. The specialty roasters depend on a higher quality coffee bean and are generally willing to pay producers price premiums for better beans.

(b) *Eco-labels and alternative coffee markets*

Small-scale specialty roasting companies pioneered the introduction of organic and Fair Trade coffees into the United States and helped the specialty coffee market become the most active space for eco-labeling in the food sector. Nearly all eco-labeled coffees are also considered specialty coffee. The North American retail market for certified organic, Fair Trade, and shade grown coffee is approximately US$188 million. The estimated worldwide retail value of these coffees is roughly US$530 million (Giovannucci, 2001). Despite their relatively small market share, coffee roasters and retailers anticipate rapid and sustained growth for certified coffees.

Certified organic coffee currently accounts for 3–5% of the US specialty coffee retail market and remains the most widely recognized eco-label (Giovannucci, 2001). Most consumers in the United States and Europe recognize the organic label from its widespread usage on fresh fruits and vegetables. The International Trade Center estimated the worldwide retail market value of all organic food and beverage products at US$21 billion in 2001 (International Trade Center, 2002). Price premiums, and 10–20% growth rates in retail markets, have contributed to an increasing number of acres entering certified organic production.

In workshops, Nicaraguan farmers often list the following among their motivations for moving toward certified organic production: It is safer for their families and children without agrochemicals on the farm, it lowers expenditures for synthetic inputs, it is better for the environment, and it helps protect the water. In Latin America, thousands of coffee, cocoa, vegetables, and fruits farmers have solicited and received organic certification. [2] Mexico exported the first organic coffee and remains a pioneer in the organic industry (Nigh, 1997). While health remains consumers' primary motivation for purchasing organic products, development agencies, environmental activists, and many farmers' associations also support the certification for the ecological benefits gained from eliminating synthetic pesticides and fertilizers. Coffee covers an estimated 2.8 million hectares in Mexico, Colombia, Central America, and the Caribbean. While some of this coffee is produced without shade trees, farmers grow more than 60% under the shade of native and exotic trees. These shade coffee landscapes conserve biodiversity, soil, and water (Mendez, 2004; Perfecto, Rice, Greenberg, & Vand der Voort, 1996).

In contrast to organic certification, which is a set of standards that regulates inputs and practices in the *production process*, Fair Trade certifies the *trade process*. [3] Fair Trade supporters believe that trade has the potential to either exploit or empower producers in the global South. Fair Trade advocates refute the basic Neoliberal assumption that expanded trade will increase social and environmental benefits for everybody, and assert that North–South trade relations are plagued by power inequalities and exploitation. Four international Fair Trade associations define Fair Trade as follows: "Fair Trade is a trading partnership based on dialogue, transparency and respect, that seeks greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalized producers and workers—especially in the South. Fair Trade organizations (backed by consumers) are engaged actively in supporting producers, awareness raising, and in campaigning for changes in the rules and practice of conventional international trade (IFAT, 2004)."

Fair Trade markets find their roots in more than 50 years of alternative trade relationships. Long before certification existed, churches, disaster relief organizations, and solidarity groups had formed more direct trade relationships with refugees and marginalized groups. They paid producers better prices, offered market access, and provided technical assistance. These Northern organizations distributed Fair Trade crafts and foods through religious and solidarity networks. However, the volumes of Fairly Traded goods remained small and the development impact limited. In 1988, a church-based NGO in the Netherlands teamed up with a Mexican smallholder coffee cooperative to launch the Max Havaalar Fair Trade product certification (IFAT, 2004). The certification started a Fair Trade mainstreaming process that permitted wider participation by industry actors. This initiative grew quickly; Northern countries formed national Fair Trade

labeling organizations, and more Southern producer groups accessed these networks. In 1997, these organizations joined to form Fair Trade Labeling Organizations International (FLO-I), which promotes Fair Trade, establishes standards, and coordinates an international Fair Trade product monitoring and certification system. This system now includes hundreds of companies, and more than 800,000 producers in over 40 countries are involved in Fair Trade networks (FLO, 2003).

The Fair Trade standards stipulate that traders pay a price that covers the costs of sustainable production and livelihoods, provide a premium for social development, sign contracts that encourage long-term planning and stability, and help provide preharvest credit (FLO, 2003). In the case of both coffee and cocoa, only small-scale producer organizations are eligible for certification. However, the FLO's certification organization also certifies large agricultural businesses producing bananas, tea, and fruit. Certification standards vary between crop and social organization (large farm or cooperative), but they all share minimum standards for social and economic development supplanted by antiexploitation clauses. The expanding list of Fair Trade certified products includes coffee, cocoa, tea, fruits, wine, sugar, honey, bananas, rice, crafts, and some textiles (EFTA, 2003). Coffee was the first certified Fair Trade product and remains "the backbone" of the system, accounting for the majority of the Fair Trade retail sales (Raynolds, 2002b). Analysts estimate that roughly 1–2% of the global coffee trade is certified Fair Trade (Oxfam, 2001). A livelihood vulnerability framework will help understand how participation in Fair Trade and organic coffee networks impacts vulnerability to the coffee crisis.

3. LIVELIHOOD VULNERABILITY, FARMER TYPOLOGY AND THE COFFEE CRISIS IN NORTHERN NICARAGUA

(a) *Livelihood vulnerability framework*

The regional impact of the coffee crisis can be considered an example of the frequent economic crises that affect the global South. These economy-wide shocks have many possible trigger events, including hurricanes, earthquakes, rapid devaluations, recessions, market shifts, declining terms of trade, and commodity price crashes (Skoufias, 2003). From 1980 to 1999 the Latin American and Caribbean regions experienced at least 38 major natural disasters and over 40 episodes when the GDP per capita fell by 4% or more (IADB, 2000). Scholars and development professionals have considered these phenomena in a special issue of *World Development* that examined the interplay between household vulnerability, coping strategies, economic crises, natural disasters, and household well-being (Skoufias, 2003).

The livelihood vulnerability framework offers a common approach for both economic crisis and natural disasters (Combes & Guillaumont, 2002; Moser, 1998). This approach examines causes, impacts on household well-being and mechanisms to cope with and buffer damage (Blaikie, Cannon, Davis, & Wisner, 1994; Skoufias, 2003). Vulnerability contains an external source of stress or shock and an internal component describing the exposure and response to this shock as it is interpreted through the socioecological relationships that shape an individuals or group's livelihood assets. These descriptions of livelihood vulnerability respond to critiques of a narrow focus on income-based definitions of poverty and draw from Sen's pioneering work on assets, entitlements and famines (Moser, 1998; Reardon & Vosti, 1995; Scoones, 1998; Sen, 1981, 1997; Shankland, 2000).

Livelihood refers to the means of gaining a living, including the tangible and intangible assets that support an existence (Chambers & Conway, 1992). Bebbington added a cultural component to the material and economic focus behind livelihood assets, simply defining livelihoods as the way people make a living and how they make it meaningful (Bebbington, 2000). The addition of meaning into the definition of livelihoods provides a theoretical space for including farmer perceptions and narratives, and an entry point for beginning to understand the subjective feelings of well-being and empowerment. In this way, livelihood vulnerability = livelihoods (material and intangible assets) + (exposure to) a stress or shock.

When vulnerable livelihood assets are exposed to a stress, the stress can diminish the asset's productivity or quality and/or limit access; the consequences are declining resource flows to the households. Intangible assets, such as kin and friendship networks, are often the most important relationships that households mobilize to reduce vulnerability. Household livelihood projects that are exposed to a stress will likely reallocate their assets to cope with the

declining quality of life (Skoufias, 2003). Previous studies have documented a wide variety of coping mechanisms to reduce damages and survive crises; many of these mechanisms such as pulling children out of school to avoid expenses can diminish long-term development potential and maintain households in a "poverty trap" (Skoufias, 2003; Varangis, Siegel, Giovannucci, & Lewin, 2003). Other common coping mechanisms include migration, increased borrowing, crop substitution, and decreasing inputs. Households will decide to reallocate their assets according to their perceptions and capabilities.

(b) *A farmer typology for the Central American and Nicaraguan coffee sector*

Different farmers produce coffee in different ways, under different agroecological conditions, and in a variety of positions *vis-à-vis* the commercialization chains leading to the market. Farm size provides a good general indicator to describe the different forms of coffee production and commercialization (CEPAL, 2002). An estimated 85% or 250,000 of Central America's coffee farmers are micro and small-scale producers. The family is the primary source of labor on these farms. These households often produce corn and beans and/or work off the farm. In contrast to the microproducers, most small-scale farmers employ day laborers during the coffee harvest. The small-scale farmers I surveyed in Nicaragua grow more than half of the food they eat. These farmers intercrop bananas, oranges, mangos, and trees for firewood and construction within their coffee parcels. Households measure annual yields in coffee *and* associated crops. Medium, large and the agro industrial plantations maintain a permanent labor force. Most large-scale and the agroindustrial plantations have integrated processing facilities on the farm, occasionally exporting their own coffee (Table 1). These farms usually provide living quarters and food to farm worker families. Rural landless workers continue to live in extreme poverty. During the coffee harvest, the large plantations employ and house hundreds, sometimes thousands of coffee pickers.

Like most countries in Central America, Nicaragua's coffee farm ownership is highly concentrated. In Central America, the largest plantations and agroexport businesses account for 3.5% of the farms, 48.6% of the total land in coffee production, and an estimated 57.8% of the region's coffee production (CEPAL, 2002). During the 2000–01 coffee harvest in Nicaragua, 404 (2.4%) of the country's largest farms accounted almost 25% of the land in coffee production and roughly 52% of the production (UNICAFE, 2001).

(c) *The coffee crisis in Nicaragua*

It is difficult to isolate the impacts of the coffee crisis from the series of negative shocks (Hurricane Mitch, drought, declining commodity prices) that continue to affect Central America (Varangis *et al.*, 2003; Wisner, 2001). In Nicaragua, the 1999–2001 droughts added further stress to low coffee prices. In the tropical dry regions, including the northern departments of Estelí, Madriz, and Nueva Segovia, the farmers did not harvest their subsistence crops. In focus groups, small-scale farmers told

Table 1. *Typology of coffee producers in Nicaragua*

Farm size (ha)	Micro <3.5	Small-scale 3.5 < 14	Medium 14 < 35	Large 35 < 70	Agro-industry >70	Total/average
Average productivity (qq/ha)[a]	2.51	5.55	11.00	19.91	29.87	16.62
Number of producers	41,698	5,204	732	245	159	48,038
Total area (sq ha)	36,000	45,000	14,000	8,000	5,000	108,000
Production in (qq)[a]	263,000	599,000	284,000	394,000	260,000	1,800,000
% of total farms	86.8	10.83	1.52	0.51	0.33	100
% of total surface area	33.25	41.83	13.11	7.09	4.72	100
% of production by group	14.6	33.3	15.8	21.9	14.4	100

Manzana (mz) = 0.7 ha
Quintal (qq) = 100 lb or 46k

Source: CEPAL (2002); adapted from UNICAFE database. Estimated total harvest levels for 2000–01.
[a] Average productivity statistics were generated from previous studies, not from the 2000–01 harvest.

us how they lived off mangos, yucca, bananas, and the other subsistence crops that they intercrop with their coffee.

People's vulnerability to the falling prices depends upon their location in the coffee commodity chain and their access to assets such as land, credit, employment, and social networks. The coffee crisis is felt by most of the country's estimated 45,334 micro and small-scale farmers. These smallholder households sell coffee as their primary source of cash income. Farmers talk about pulling their children out of school, migration, and increased heath problems. The microproducers often work as day laborers on large plantations because their small parcels and current management practices are not sufficient to support the family. In the late 1990s coffee annually contributed US$140 million to the national economy and provided an equivalent of 280,000 permanent agricultural jobs (Bandaña & Allgood, 2001; CEPAL, 2002). Researchers estimate that Nicaraguan laborers have lost over 4.5 million days of work during the first two years of the coffee crisis (CEPAL, 2002). The rural landless coffee workers are more vulnerable than smallholders. The large plantations that employ these workers have high *monetary* costs of production (US$0.74–1.08/lb) due to dense cropping patterns, dependence on paid labor, and intensive chemical inputs. [4] In 2001, the banks stopped offering credit for coffee and foreclosed on debt-ridden farms.

In the mountains north of Matagalpa, banks and plantation owners stopped paying and later stopped feeding their workers. Hungry and without work, thousands of families marched down from their individual parcels and large plantations. People grouped together along roadsides and in public parks where they lived in miserable conditions surviving on food donations. They demanded food, work, health care, and land (Calero, 2001; Gonzalez, 2001). I interviewed one woman who had camped by the road for the last three days with her children, and she stretched out the palm of her calloused hands and said, ''You see these hands. These hands are for working not for receiving donations.'' The aid agencies have responded with food for work programs, providing packages of donated rice, beans, sugar, and oil to plantation owners who can supplement their lower wages with food and entice the rural laborers back for this season's crop. As a recent World Bank study notes the Central American governments have largely failed to address the structural problems underpinning the crisis (Varangis *et al.*, 2003). However, after five years of protests and three years since signing an agreement with the government, the rural landless workers union recently won titles for more than 2,000 ha of land for some 3,000 rural workers.

4. THE IMPACT OF ORGANIC, FAIR TRADE AND SPECIALTY COFFEE

(a) *Study design and methods*

The research I conducted in Nicaragua started after 15 months accompanying a coffee quality improvement project with coffee cooperatives. I developed a set of indicators combining my research interests with criteria suggested by the cooperatives' administrative directors and elected leadership. After designing and fieldtesting a survey, we scheduled a training workshop attended by the cooperatives' agricultural extension agents. Following the training, extension agents decided to either perform a complete census or I randomly selected 12–15 farmers from their cooperatives' membership lists. The larger unions of cooperatives designated a representative first level cooperative from which farmers were randomly sampled.

The survey primarily contained structured closed ended interview questions and a walking assessment of the farmer's principal coffee parcel. While the extension agents conducted the survey, I followed up with multiple visits to each research site. During these visits, I evaluated data quality and ensured comparative methods. I also worked with a gender specialist to conduct 10 focus groups separated by sex. I drew focus group participants from the same list of farmers that participated in the sample and used these results to help triangulate responses given in the surveys. Finally, I interviewed the cooperatives' elected leadership and professional staff and reviewed the cooperatives' internal documents regarding coffee sales.

The 228 farmers that participated in this survey are from a diverse social and ecological terrain. The social landscape includes first level cooperatives (20–50 members) and regional cooperative unions (1500+ members). Although the distribution of farm sizes in this sample resembles the percentages described in Table 2, this sample differs from the national

Table 2. *ANOVA results comparing altitude and certification with price as dependent variable*[a]

	DF	Sum of squares	Mean square	*F*-value	*P*-value	Lambda	Power
Certification	1	1640169.310	1640169.310	78.945	<0.0001	78.945	1.000
Altitude	1	21131.332	21131.332	1.017	0.3144	1.017	0.162
Certification & altitude	1	34775.200	34775.200	1.674	0.1972	1.674	0.237
Residual	209	4342184.525	20776.003				

Source: Participatory survey 2001.
[a] The average prices received at the farm gate were calculated by multiplying the (volume sold to each market)(by price for that market) + (volume market 2)(price sold to market 2) = (total revenue)/total volume sold, these average totals were calculated for all farms.

census because 180 farmers sold coffee to organic, Fair Trade, or bird friendly markets.

(b) *Findings*

The question of how coffee fits into farmer livelihood projects in northern Nicaragua precedes a discussion of the impact of participation in alternative and conventional markets. [5] Farming is part of a dynamic and mutually constructed relationship between households and agroecosystems (Gliessman, 1998). Households engage their farms for multiple purposes few of which are captured in a single survey. Despite dependence on an export commodity for currency, a strong subsistence ethic survives among many small-scale Nicaraguan coffee farmers. Sixty-one percent of the surveyed farmers grow half of more of the food they eat. Many coffee farmers also produce corn, beans, bananas, fruits, chayote, and yucca. The list of foods purchased off-farm, generally included salt, sugar, oil, and meat. In the focus groups, we asked how men and women allocate the total harvest of different crops. Both men and women allocate the first 80–90% of their corn and beans for household consumption, and they sell the surplus. Milk and cheese were sometimes divided evenly between resources for the household and those for sale. In contrast, farmers sold 80–90% of the coffee harvest, generally keeping only the lowest quality beans for their own consumption.

Although coffee is exotic to Nicaragua, for many farmers, this seed now contains a different story. Coffee agroecosystems and farm households coevolved as coffee slowly wove its way into the culture and landscape. [6] Twenty-six percent of those in the sample are third or fourth generation coffee farmers, 49% are second generation, and 35% reported that they are the first to cultivate coffee in their families.

In the focus groups, we asked, ''What does coffee mean in your daily life?'' A male coffee farmer in Estelí said, ''Coffee is the hope of a better future;'' a female coffee farmer in Matagalpa said, ''It provides sustenance to our family,'' another woman from Jinotega said, ''Coffee gives value to our land;'' and two men from Madriz said that coffee is, ''The best crop to improve our lives and find an equilibrium with the environment.'' These quotes suggest some of the cultural values associated with coffee cultivation. Coffee dollars build houses, send children to school, and provide hope for the future.

What are the determinants of prices paid at the farm gate? The general assumption underlying coffee quality improvement projects is that higher quality coffee receives a better price. Higher quality is sold quicker and earns higher yields when the coffee is processed from the parchment to exportable green beans. The results of a professional coffee tasting and the number of physical defects are the best quality measures; however, altitude is an easily accessible and commonly used proxy indicator. A systematic comparison of price and altitude reveals a statistically insignificant correlation between altitude and price. I used the average prices in local currency to run a two-way ANOVA comparing the impact of altitude and certification on coffee prices. The results support the conclusion that access to certified markets leads to significantly higher prices paid to farmers. Certification has a greater influence on price than altitude (quality). These relationships between price, quality, certification, and cooperative membership merit further research.

The cooperative is the primary intervening variable affecting prices received at the farm gate. Small-scale farmers, not organized into a cooperative or a marketing association, do not produce the volumes of coffee necessary to fill a container (275 sacks) and access the cer-

tified markets or sign contracts with importers. The export cooperative manages external relationships that move coffee to certified markets and organizes an internal price structure that determines prices received at the farm gate. All cooperatives that commercialize coffee penalize farmers for defects, but none that I observed provides clear incentives for high quality coffee. As coffee roasters increase their push for higher quality and cooperatives increase their knowledge and infrastructure for measuring quality, an incentive system will likely emerge.

The cooperatives allocate a portion of the higher prices offered by Fair Trade and organic markets to invest in productive infrastructure, pay debts, provide credit, provide technical assistance, cover administrative and certification costs, and to fund housing and education projects in farmer communities. Two cooperatives in this study used up to half of the Fair Trade and/or organic premiums to pay outstanding debt. These practices result in lower coffee prices to producers. Table 3 summarizes the average prices received at the farm gate for sales through different commodity chains.

Most farmers sell their coffee to multiple markets. Nicaraguan cooperatives linked to organic and Fair Trade markets sell up to 60% of their coffee through conventional markets. Thus, the average price for all the coffee sold by the farmer may be significantly less than prices paid in the different alternative markets. For example, although the 11 cooperative members received US$1.09/lb for the portion of their coffee sold directly to the roaster, the average price for all their coffee was US$0.58/lb. [7] Thirteen members of a cooperative linked to organic and Fair Trade markets averaged US$0.56/lb. In comparison, farmers selling to conventional markets averaged US$0.40/lb.

Many of these average farm gate prices are below smallholders' estimated monetary production costs, which are between US$0.49 and 0.79/lb. [8] The consequences of low farm gate prices are further exacerbated by long delays between depositing the dehulled coffee beans at the processing and export plant and receiving the final payment. Most cooperatives pay farmers in stages: first as credit for the harvest and wet-milling, next a payment when they bring the wet coffee parchment to the dry processing facility, and a final adjustment when all has been exported and actual prices are calculated. A few export cooperatives treat farmers and cooperatives as clients who own the inventory, and thus bear the risk, until the importer buys the coffee. If their coffee does not sell, the farmers receive no payment. Farmers waited an average of 73 days before receiving the full payment for their organic coffee. Farmers generally sell some of their coffee to low-paying middlemen to satisfy the immediate need for cash as they wait for higher prices in the specialty markets.

These smaller producer cooperatives have joined together to form unions of cooperatives that can manage the economies of scale, pool the resources, and export coffee. Export cooperatives need access to larger credit lines to pay the farmers before their physical product is actually exported. Banks, roasting companies, and importers are increasingly reluctant to provide this credit to these cooperatives. Even well established export cooperatives with over US$300,000 in working capital must rely on a handful of foundations and one roasting company for preharvest financing.

Table 3. *Average prices reported at the farm gate for the 2000–01 harvest*

Where did you sell the coffee?	Price paid per pound green coffee[a]	How long until you were fully[a] paid?	How many farmers sold to each market?
Cooperative-direct to roaster	US$1.09 (0.04)/lb	33 (6.1) days	11
Cooperative-Fair Trade[b]	US$0.84 (0.07)/lb	41 (86.6) days	36
Cooperative-organic[b]	US$0.63 (0.11)/lb	73 (78.4) days	61
Cooperative-conventional	US$0.41 (0.04)/lb	46 (62.9) days	84
Agroexport company	US$0.39 (0.04)/lb	24 (50.3) days	51
Local middleman	US$0.37 (0.02)/lb	9 (27.3) days	72

Source: Participatory farmer survey conducted from July to August 2001.
[a] Numbers in parentheses are standard deviations.
[b] Although, some coffee was certified as both Fair Trade and organic, most farmers understood and thus reported that they were commercializing either Fair Trade or organic. They did not give a single price for both certifications.

(c) *Vulnerability and changes to the quality of life*

Farmers selling to a cooperative connected only to conventional markets are four times more likely to perceive a risk of losing the title to their land due to low coffee prices than members of cooperatives connected to alternative coffee markets. In the survey, 224 farmers answered the following questions: ''Is there a risk you will loose your farm this year? If there is a risk, why?'' Of the 180 farmers who commercialized a portion of their coffee to organic, Fair Trade, or roaster-direct market channels, eight farmers perceived a risk that they could lose their farm this year due to low coffee prices. Eight of the 44 farmers who belong to cooperatives selling only to conventional markets also indicated a risk of losing their farm due to bank foreclosures and low coffee prices. [9]

When I asked leaders from each cooperative to design project evaluation indicators, they suggested I consider health, environment, education, and community development in addition to coffee price and quality. Measuring quality of life is a difficult task. A small-scale farmer, from a cooperative in Jinotega, said that, ''Well being is to have health, food, education and tranquility in the family.'' Farmers articulated the relationships between low coffee prices and their quality of life in focus groups. Their own words tell the story: A female coffee farmer from Jinotega, explained, ''We can't buy our clothing, shoes... We are surviving off bananas.'' Two other farmers added, ''[We give] insufficient management and attention to our coffee plantation.'' and that there is ''Deterioration [of the relationships] in our family.'' [10] Another farmer from the department of Madriz said, ''We have a little help, a little room to breath, with the 50% the coop buys as Fair Trade.''

In conclusion, the evidence from this survey suggests that participation in alternative coffee trade networks reduces exposure and thus vulnerability to low coffee prices. The farmers linked to cooperatives selling to alternative markets received higher average prices and felt more secure in their land tenure. However, 74% of all surveyed farmers reported a decline in their quality of life during the last few years. The responses to this question about quality of life showed no significant difference between farmers participating in conventional and alternative trade networks. This finding and the results of the focus groups suggest that income from coffee sales to alternative markets is not enough to offset the many other conditions that have provoked a perceived decline in the quality of one's life.

5. LEARNING FROM ALTERNATIVES TO REDUCE VULNERABILITY

What can the livelihood vulnerability framework reveal about the coffee crisis? In contrast to the narrowly focused income-based approaches to poverty, the livelihood approach provides a more detailed description that explores how people make a living and how they make it meaningful. It provides a theoretical space for incorporating the multiple household and collective coping strategies, including subsistence production, kinship networks, barter, migrations, increased labor time, political mobilization, and protest. Linking vulnerability to livelihood projects and trade networks begins to suggest why some households are more vulnerable than others. The approach will lead to an integrated response to the coffee crisis well beyond the current program of debt relief, quality improvement programs, and food donations.

(a) *Diversification to reduce vulnerability*

Starting from a livelihood project approach implies interventions working with small-scale producers and laborers to increase access to land, build stronger producer organizations, participate in alternative markets, increase government investments in rural health and education, and diversify production and commercialization channels. Development actors can learn from and support local coping mechanisms. I asked farmers in the focus group to identify their activities and strategies to address the coffee crisis. Their responses reveal a few coping mechanisms: ''Planting more bananas and citrus,'' ''Redoubling the labor that we put in as a family in order to survive,'' ''Work organically to obtain better prices and lower the costs of production, because chemical fertilizers are very expensive.'' Diversifying the crops on a farm, such as planting additional fruit and/or the continued subsistence cultivation of corn and beans has long been a key strategy to maintain food sovereignty and manage risk within the household (Ellis, 1998; Reardon, 1997). The tendency of small farms to survive price crashes by exploiting their own labor has been documented since Chayanov first

investigated agrarian transitions in the former Soviet Union (Chayanov, 1966 [1925]). The third quote represents two reasons—lower costs and price premiums—for moving toward organic agriculture. These are only a few coping mechanisms that farmers mobilize to negotiate with the coffee crisis, other observed activities include sharing resources through kinship networks, local migration, and increased barter.

All of these activities may reduce vulnerability without reproducing the same structures that created the coffee crisis. Diversification beyond coffee is important, and much can be learned from the failures of previous export-oriented diversification projects (Sick, 1997). However, the following discussion investigates the role of diversifying into alternative coffee production and trade networks. What interventions can help expand *coffee* production and trade models that reduce vulnerability and move toward long-term sustainability?

(b) *Making markets: the promise and peril of coffee's alternative trade and production networks*

Nicaragua has the potential to emerge as a world leader in the production and trade of specialty, organic, and Fair Trade coffee. In the last ten years, cooperatives, technical assistance organizations, and the donor community have worked with Nicaraguan farmers and their organizations to increase participation in specialty coffee markets. Although 80% of Nicaraguan coffee is potentially specialty coffee, only about 10% of the 2000–01 harvest was exported as specialty coffee (Bandaña & Allgood, 2001; USAID, 2002). To increase participation in the specialty coffee markets, including sales into the Fair Trade and organic segments, producers and their organizations must invest in coffee quality improvement infrastructure and training (Table 4). [11]

Although the global demand for Fair Trade labeled products grew by 42% during 2002–04, Fair Trade remains a very small market segment of the global market (FLO, 2003). Due to low demand and high quality requirements, many Fair Trade certified cooperatives must sell close to 70% of their coffee into the lower paying conventional markets. Assuming that one accepts Fair Trade as one model that can help reduce vulnerability, the next question is on how to scale up.

Markets are institutions that reflect the collective results of socially agreed upon rules and practices. The North American public is increasingly aware of sustainable coffee marketing messages, and mainstream news has covered the coffee crisis. Specialty roasting companies are forming campaign alliances with civil society organizations and producer cooperatives. A few roasting companies, such as Equal Exchange, have teamed up with the faith community (Lutherans, Quakers, Catholics, etc.) and civil society organizations (Oxfam) to build campaigns promoting Fair Trade. Student activists have recently formed the United Students for Fair Trade to coordinate a national student fair trade movement in more than 100 universities across the United States. People and their organizations are making markets.

Fair Trade and organic certifications are two examples of attempts to build alternative production and consumption networks. To the extent that Fair Trade networks create a working model of their principals in practice, they help coffee drinkers align their tastes to specialty coffee with their social justice values. Seen from this perspective, Fair Trade offers a technology

Table 4. *Nicaraguan production of specialty, organic and Fair Trade coffee 1987–2007*

Period	Area in production		Farmers	
	Hectares	Percentage[a]	Number of farmers	Percentage[a]
Pre-1994	420	0.5	156	5.1
1994–2002	6,089	6.7	3,927	12.9
2002–07[b]	10,959	12.0	7,070	23.3

Source: The Cooperative League of the United States of America (CLUSA) 2002.

[a] Both area and farmer percentage calculations use the data from the 1997–98 harvest. However, as the coffee crisis continues, the national area in coffee production will likely decrease, so these are conservative estimates. It is still unclear what the future holds for the total number of farmers involved in coffee production.

[b] CLUSA technicians derived these projections by multiplying the current numbers by 15% per year for the first four years and 10% for the two final years.

that can help reimbed economic relationships into a set of social values (Polanyi, 1944; Raynolds, 2000c).

The promise of re-embedding trade into a social value system is matched by the challenges and contradictions involved in attempts to infuse 21st century capitalism with social and ecological justice. In the United States, most Fair Trade and organic products are considered specialty items and sold at prices significantly above their conventional competitors; this links affluent consumers in the North to livelihood struggles in the South. Further research, action, and exploration would investigate and address these class differences and escape the confines of this market niche. Market-based approaches accept consumers as stakeholders in the international development process and downplay their role of citizens (Goodman & Goodman, 2001). Certification as a tool for producer empowerment is further challenged by the proliferation of certifications, such as Rainforest Alliance and Utz Kapeh, which offer lower social standards than Fair Trade and lower environmental criteria than organic certification. However, in the short term, many of the questions concern how to grow these markets.

Changing markets and power shifts to the roaster and retailer end of the commodity chain suggest a set of demand side interventions that compliment more innovative supply side projects. Donors such as the US Agency for International Development, European Union, World Bank, and the Ford Foundation are funding projects to address the coffee crisis. While some foundations have funded innovative approaches partnering business and civil society organizations to expand alternative markets, most of the multilateral funding remains narrowly focused on production practices for niche markets. If multilateral funding does not also promote consumer education and expand alternative markets, these actors risk pushing too many people toward a small exit (Oxfam, 2002).

6. CONCLUSIONS

A few farmers also offered their strategies for the long-term resolution of the crisis. Byron Corrales says, ''We need to apply agroecological coffee production practices and sell to a just market.'' And Jose Saturnino Castro Peralta of the La Providencia Cooperative said, ''We need to maintain and strengthen the cooperative and improve the quality to get better prices.'' These quotes represent individual responses to the changing structures of the global coffee markets and international development agendas. Eight Nicaraguan cooperatives, that collectively represent more than 7,000 small-scale farmers created a collective response. They formed CAFENICA, the Nicaraguan association of small-scale coffee farmer cooperatives. CAFENICA provides technical assistance helping member cooperatives coordinate and execute their own development projects. It also provides political representation for small-scale producers and coordinates collective marketing strategies.

Alternative models can help reduce livelihood vulnerability to the crisis in conventional coffee markets. As the crisis deepens and alternative models mainstream, they will encounter increasingly large obstacles and contradictions. Addressing these issues requires a more diverse, committed and critical dialogue that engages historical ideals and existing trading practices. This dialogue could stimulate Fair Trade praxis and the continued evolution of a process intended to increase social justice in our food systems.

NOTES

1. See Ponte (2002a) for a detailed discussion of the causes, mechanisms, and consequences of the coffee crisis. He also provides a good summary of the global coffee commodity chain theory. He uses this approach to carefully demonstrate how shifts in consumption patterns and commodity chain governance structures have led to declining revenues to producing countries and increased profits to the international roasting companies.

2. Millions of peasant farmers around the world produce food without using synthetic inputs. Thousands of coffee producers continue to manage their coffee trees applying the minimum amount of work and no inputs from outside the farm. They may simply manually remove the weeds once or twice per year and harvest the cherries when they ripen. Although these farmers may meet the basic requirements for organic certification, the fact that they do not *actively* manage their farms and

have neither filled out necessary documentation nor solicited third-party inspection legally prohibits them from selling *certified* organic products. Many classify this as passive organic production.

3. For additional information on the Fair Trade, consult Raynolds for conceptual frameworks and research into Fair Trade bananas (Raynolds & Murray, 1998; Raynolds, 1997, 2002a, 2000c). Early work on Fair Trade coffee has been published by Brown (1993); also see Renard (1999a, 1999b) and Rice (2001). Leclair (2002) provides a more comprehensive summary of the alternative trade organizations and the fair trade of crafts as well as food products.

4. Estimates for the costs of production vary widely. Many of the costs incurred on family labor farms do not show up in monetary values. It is clear that large technified farms have higher dollar expenditures. An internal report at National Union of Farmers and Ranchers (UNAG) estimates that *monetary* production costs on large farms are double those on passively managed small-scale farms (Corrales & Solorzano, 2000).

5. Recent research by Mendez describes the multiple roles that shade trees play in the livelihood strategies of small-scale producers in El Salvador (Mendez, 2004). See Bray *et al*. and Nigh for detailed descriptions of the social dimensions of organic coffee production in Mexico (Nigh, 1997; Hernández Castillo & Nigh, 1998; Bray, Plaza Sanchez, & Murphy, 2002).

6. In Matagalpa, cooperatives, municipal authorities, exporters, and businesses recently sponsored the first fair to celebrate the beginning of the coffee harvest. People have long celebrated the end of the harvest. All festivities were canceled during the first three years of the coffee crisis. But the recent fair reflects the region's determination to keep planting this once golden bean. Folkloric dances often depict campasino families cultivating corn and picking the red coffee cherries.

7. The prices in Table 3 are average prices for each market reported by the farmer. These prices are received on the farm after deducting costs for dry processing, organic certification, debt service, and export; other costs including transportation to market, land, labor, and capital have not been deducted.

8. See endnote 5.

9. Land ownership in Nicaragua has been highly contested for more than a quarter century. These perceptions are not ill founded; CEPAL estimates that between 500 and 3,000 Nicaraguan coffee farms have been lost due to the coffee crisis (CEPAL, 2002). Follow-up research found that members of the cooperative selling all of their certified organic coffee to Fair Trade markets were able to purchase additional land and the cooperative membership continued to expand, while two of 18 members of a cooperative selling to conventional markets sold their land (Bacon, forthcoming).

10. This direct translation refers to increased stress, more arguments, and likely more abuse as the poor farm households try to make by with less. One leader of rural peasants has clearly linked falling coffee crisis to increased abuse and discrimination against women.

11. Katzeff (2001) and Giovannucci (2001) concur that flavor is the most important factor in the specialty coffee roaster's buying decision. Flavor is identified in coffee tasting laboratories. Eight cooperatives in Nicaragua recently teamed up with Thanksgiving Coffee Company and used funds from USAID and other donors to build cupping labs as part of the coffee infrastructure controlled by the cooperatives. The project has led to an improved reputation for Nicaraguan coffee, better prices to the cooperatives, and an estimated 25 containers (valued at more than $1 million) in additional coffee sales (Bacon, 2001; Bacon, forthcoming).

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