

# Is sustainable agriculture a viable strategy to improve farm income in Central America? A case study on coffee

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## Abstract

In order to alleviate the impacts of the low coffee prices in recent years, sustainable coffee production and certification have been a logical strategy for many producers to: a) differentiate their product in the market place; and, b) shift their production cost structure away from more input intensive techniques. This paper explores the two most widely recognized certification schemes (organic and “fairtrade”) to determine whether certification to these systems is actually benefiting producers. It then explores the principal differences in production costs and price premiums for the two systems and their effect on different categories of producers. Finally, it considers the dynamics of the conventional and sustainable coffee markets to assess the likely medium to long-term economic outlook for producers involved in the certification schemes. The research is based on a combination of published sources and detailed primary source data (interviews and surveys) gathered by the CIMS Foundation.

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## 1. Introduction and problem definition

Many Latin American coffee farmers, and with them their national economies, have suffered greatly from the ongoing coffee crisis. The abandonment of coffee quotas regulated by the International Coffee Agreement in 1989 led to a worldwide fall in producer prices for coffee. In the mid-nineties the price for coffee recovered for some time—due to high yield losses caused by drought and frost in Brazil. However, in the late 1990s coffee prices decreased drastically to their lowest real levels of the century. (see [Chart 1](#)). The current ongoing price crisis is not only due to the residual effect of the abandonment of coffee quotas, but also by the entry of new producers in South East Asia, as well as a substantial increase in production in traditional Latin American producing countries like Brazil.

The crisis has affected deeply the Central American countries, due to their higher production costs relative to

large-scale producers such as Brazil and Vietnam. Large numbers of Central American farmers have been forced to leave the industry. A significant number of others have sought to overcome the crisis buying their product through certification to sustainability oriented systems.

In general, a conversion from conventional to certified sustainable production is perceived and promoted as a viable opportunity to differentiate products and therefore to achieve substantially higher prices (see also [FAO, 2004](#)). Unfortunately, this perception is based on very limited data, primarily of retail prices for sustainable coffee. There is only sporadic information and a limited understanding of prices along the various steps of the trade channels. Farm gate price data is generally anecdotal and difficult to compare.

In addition, the requirements for certification have impacts on the production process, farm management and consequently the structure of production costs. These considerations are rarely taken into account because there is virtually no production cost information on which to base decisions. The lack of reliable price data and market intelligence, and valid ex-ante production cost information mean that producers make conversion decisions based on a virtual information

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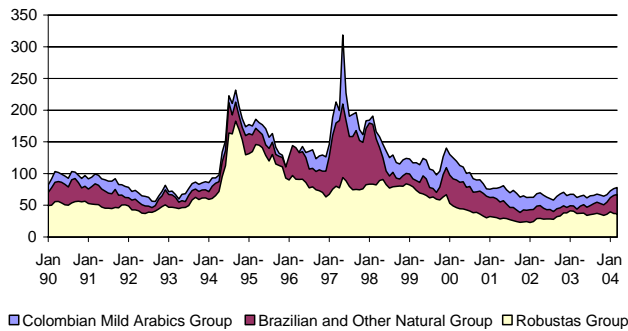


Chart 1. World prices for green coffee. Source: ICO, 2004

void. This paper seeks to make a significant contribution to understanding the current and future economic viability of organic and fairtrade production for coffee producers in Central America.

## 2. Literature review and objective

Sustainable, in particular organic, farming is promoted by many international organizations, mainly due to evident positive environmental impacts, but also due to positive social and economic impacts. With respect to the economic impacts, frequently mentioned points are that organic farming raises the productivity of low-input agricultural systems and provides new market opportunities (FAO, 2004; GTZ, 2004). This assertion is based on very limited data.

In addition to a limited number of case studies, where positive impacts on farm incomes could be demonstrated (Damiani, 2002) only broad general statements or descriptions have been offered. For example in a joint publication of the World Bank, the International Coffee Organization, International Institution for Sustainable Development and the United Nations Conference on Trade and Development it is stated that “Fair trade, organic and eco-friendly coffees... offer attractive benefits not only for about 3/4 million farm households, but also for the entire industry in terms of increased sales from these coffees and greater profits all along the supply chain” (Giovannucci and Koekoek, 2003, p. 16). However, “basic data needed to make reliable projections about organic markets are lacking, especially in the area of organic prices and production costs” (Rosen and Larson, 2001, p. 202).

In the background of this serious and substantial lack of market and business information, the objective of this contribution, based on research of more than two years, is to offer detailed information on price differentials paid for sustainable coffee in the different Central American coffee producing countries. The price analysis follows a micro-economic analysis, comparing income situation for average conventional and organic farms in these countries and subsequently future market and price development for sustainable coffees is investigated by using a conceptual market model. Finally, the potential contribution of sustainable coffee production to rural development is analyzed.

## 3. Empirical approach and methodology for economic evaluation

The sustainable products market is characterized by an absence of official trade and market statistics. While there are some estimations available regarding sustainable markets in North America and Europe, data from Latin America is practically non-existent. CIMS began its research by identifying sustainable coffee supplies in all of Latin America; this information is the basis for the detailed supply data presented and analyzed. The supply study conducted by CIMS is based on information collected directly from producers and their associations, marketers, and exporters of sustainable coffee located in Latin America (CIMS, 2003). CIMS estimates that approximately 90% of the organizations working with organic and fairtrade coffee have been identified and their production levels and characteristics quantified.

The price analysis presented in this study is based on an intensive survey carried out at the beginning of 2004, which included all major sustainable coffee producers and exporters in Latin America (CIMS, 2004). CIMS surveyed a total of approximately one hundred companies, representing a majority of total market participants. The final economic assessment on sustainable coffee production in Central America is based on the research activities of CEPAL (2002), CIMS’ own research based on two master theses from the University of Costa Rica (Kilian et al., 2004). Information from national coffee associations, in general considered the most reliable source of local production data, was also considered.

## 4. Sustainable production concepts for coffee

### 4.1. Organic coffee production

The primary objective of organic agriculture is to perfect the quality of all aspects of agriculture and the environment, respecting the natural capacity of plants, animals, and the landscape. Organic agriculture aims to reduce the application of external materials and the use of synthetic chemical fertilizers, pesticides, pharmaceuticals or other products. Instead, it relies on biodiversity to increase agricultural yields and to resist diseases (IFOAM, 2004).

Organic practices demand that producers consider their property as an active eco-system, where techniques such as composting, terrace building, and biological control are required. Organic coffee is produced in soils where prohibited substances (synthetic fertilizers, herbicides, pesticides, growth regulators, fungicides, etc.) have not been applied for a period of at least three years prior to obtaining certification. In addition, producers agree to refrain from their use. Both producers and processors must keep detailed records of the methods and materials used in producing and processing organic food, as well as plans for the practices employed. Organic coffee may be produced in the shade, but it is not an indispensable condition. In addition, many private

and public organic standards (through legislation) include a series of social considerations.

To be marketed as organic, an external certification organization inspects the methods and materials used during production and/or processing on an annual basis. The certification agencies must be properly registered and accredited by the government of the country where they operate. The International Federation for Organic Agriculture Movements (IFOAM) is the primary organization supporting the organic movement by representing the worldwide interest in organic agriculture and providing a platform for global exchange and cooperation. From private companies to non-profit organizations and programs sponsored by governments, there are more than one hundred organizations participating in developing organic agriculture worldwide.

#### 4.2. Fairtrade coffee

The concept of “fairtrade” has existed since the early 1960s. It was founded by a society of importers and non-profit retailers in the wealthy, northern European countries and small-scale producers in developing countries, who, while fighting against low market prices and high dependence on brokers, were seeking a more-direct type of trade with the European market. The system of labeling products as fairtrade began in the Netherlands in 1989; coffee was the first product with that label. That Dutch brand is known as “Max Havelaar,” named after a best-selling book in the 19th century about coffee plantation workers in Java being exploited by Dutch colonial businessmen (FLO, 2004; Fairtrade Coffee, 2003).

To receive FLO (Fairtrade Labeling Organization) certification all producers, merchants, processors, wholesalers and retailers must adhere to the determined standards. There are two types of generic standards: one for small producers and another for workers on plantations and in factories. The first type applies to small-property owners organized into cooperatives or other types of organizations with a democratic and participatory structure. The second applies to organized workers whose employers pay decent salaries, guarantee them the right to join unions and provide lodging when relevant. The plantations and factories must comply with minimum health, safety and environmental standards, without using child or forced labor.

The established norms distinguish between “minimum requirements”, which must be met to obtain fairtrade certification, and “progress requirements” that encourage producers to constantly improve labor conditions and product quality, foster environmentally friendly practices and invest in the organization and its associates. Business standards stipulate that merchants must:

- pay a price to producers that cover the costs of sustainable production and housing,
- pay a premium that producers can invest in development,
- make a partial pre-payment when producers ask for it, and

- sign long-term contracts that enable better planning and encourage sustainable production practices.

Additionally, some standards apply to specific products and determine minimum prices and quality, as well as processing requirements.

### 5. Central American sustainable coffee supply

#### 5.1. Development and current state of sustainable coffee production in Latin America

Organic certified coffee was already being produced in the early nineties, but this production includes only about 30,000 hectares (ha) in all of Latin America. The first boom of organic coffee production occurred in 1995 and can be interpreted as a consequence of the price depression in the early nineties. Due to the required transition period of three years in which farmers are not allowed to sell their products as organic, the response to this price depression lagged. Since then, organic production has grown at a constant rate to a total area of about 150,000 ha in 2002 (see Chart 2).

In the 2002/03 harvest the world’s cultivated area for coffee production was estimated at 10.8 million ha, with some 5.9 million ha in Latin America and the Caribbean, which accounted for about 55% of the total area (FAO, 2003). Out of this total cultivated area, approximately 244,000 ha (or 4%) in Latin America had sustainable-produced coffee. Specifically, organic certification accounted for the largest area of sustainable-produced coffee, approximately 150,000 ha, followed by fairtrade with roughly 63,000 ha (CIMS, 2003). Nevertheless, it is important to note that about 45% of the fairtrade certified area was also certified as organic production. Many farmers maintain several certifications to improve their position in the market. Additionally, the fairtrade organization pays an added premium for organic coffee.

The following results, if not marked separately, are based on the CIMS research study (CIMS, 2003). Within Central America, Guatemala has the highest level of sustainable production, with close to 7000 ha of organic and a little more than 3000 ha of fairtrade coffee (see Table 1). Guatemala is followed by Nicaragua, with close to 5000 ha of organic, which equals more than 4% of total production, and approximately half that amount in fairtrade coffee. In Costa Rica as well as in El Salvador organic and fairtrade production accounts for only 1% of total national production. The level of sustainable production in Honduras is even lower-less than 1%.

#### 5.2. Microeconomic assessment of organic and fairtrade certifications in Central America

The organic and fairtrade concepts for sustainable production serve the same objective: to seek more environmentally friendly and economically and socially equitable production

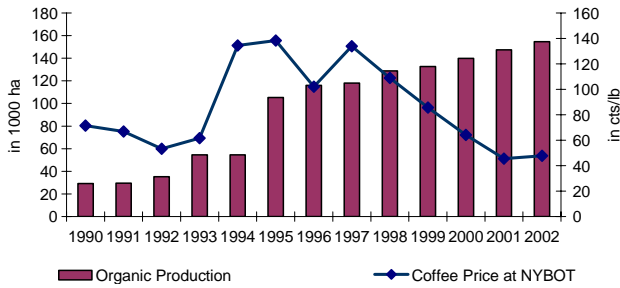


Chart 2. Evolution of certified organic coffee production area in Latin America. Source: CIMS, 2003 and ICO, 2004.

to avoid negative externalities. Fairtrade and organic production schemes explicitly want the final consumer to pay a higher price for the coffee in recognition of the reduction in externalities. In order to assess the entire economic benefit of sustainable coffee production for the producer, price premiums and production costs must be considered together. The economic decision model can be described generally as follows:

$$\begin{aligned} \Delta Y_{t=0} &= \sum_{t=1}^{t=n} \left[ (Y_S - Y_C) \times \frac{1}{(1+i)^t} \right] \\ &= \sum_{t=1}^{t=n} \left[ [((P_S \times Q_S) - C_S) - ((P_C \times Q_C) - C_C)] \right. \\ &\quad \left. \times \frac{1}{(1+i)^t} \right] \end{aligned} \tag{1}$$

with:

- Y* Farm income
- P* Achieved coffee price
- Q* Production volume
- C* Production cost
- Index *t* time (in years)
- Index *S* Sustainable coffee production
- Index *C* Conventional coffee production
- i* Interest rate

The required condition, that sustainable coffee production offers an improved economic perspective for farmers, is that  $\Delta Y > 0$ . Since the decision to change a farm management system implicates investments, the income effects for a correct assessment need to be considered over time.

Table 1 Certified areas of coffee in Central America in 2002/2003

Country	Total production		Organic		Fairtrade	
	In ha	In %	In ha	In %	In ha	In %
Costa Rica	100,000	1.2	1234	1.2	1100	1.1
El Salvador	160,945	1.4	2193	1.4	2187	1.4
Guatemala	245,000	2.8	6854	2.8	3121	1.3
Honduras	215,000	0.8	1823	0.8	866	0.4
Nicaragua	115,200	4.1	4752	4.1	2602	2.3
Total of selected	836,145	2.0	16,856	2.0	9876	1.1

Source: CIMS (2003) and FAO (2003) adapted.

Table 2 Certification price premiums for green coffee, FOB

Premium	Organic	Fairtrade
	US cents/lb	US cents/lb
Maximum	150	106
Average	15–25	62
Minimum	5	56

Source: CIMS (2004).

5.2.1. Price premiums for sustainable coffee

To gain a deeper understanding of how certification influences producer price, CIMS (2004) carried out a detail price analysis for sustainable coffee at different points in the value chain, including farm gate. The study determined price premiums for different sustainable certifications in various Latin American countries. A major finding of this study is that for coffee certification alone does not generate price differentials (with the notable exception of organic coffee sold in Europe). The price is always a function of both quality and certification, where quality can be seen as a more basic prerequisite for a price premium and the certification as a tool to differentiate and to underline the outstanding performance of the product.

According to the study, the highest price premiums, of up to 150 US cents/lb (on FOB level), have been paid for organic certified coffee. The highest fairtrade price premiums were at 106 US cents/lb (see Table 2).

Although quality is a precondition for price premiums; farmers do not always achieve the required quality. In fact, many organic farmers only occasionally receive price premiums; and some do not receive any. The reasons for this are manifold; however, two are dominant. The first reason is that in some cases former, practically abandoned farms have been simply certified and then labeled organic without major changes and adaptations in the production processes, with resulting deficiencies in quality. The second reason is more general in nature in that under organic management, farmers face greater farm management challenges to achieve sufficiently high quality and yields.

In comparison, a relatively high minimum price premium is inherent in the fairtrade concept. Farmers, once they find a buyer, always get a minimum price. Since market prices in 2002 and 2003 were relatively low, the price premiums for fairtrade and organic were comparatively high as a percentage of total price. The mentioned minimum price premium of

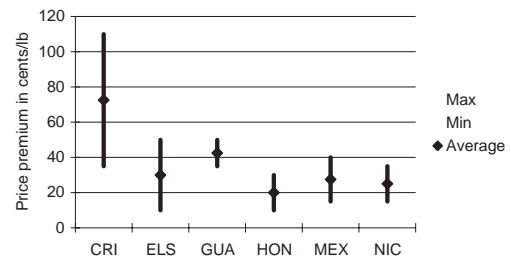


Chart 3. Price premiums for organic certified coffee in Central America, harvest 2002/03. Source: CIMS, 2004.



56 US cents/lb in Table 2 results from the difference between the fairtrade minimum price for Arabica coffee of approximately 124 cents/lb and the regular market price of 70 US cents/lb.

The organic coffee price premiums listed in Table 2, however, are not identical all over Latin America. Since organic certified coffee is the most widespread certification in the region, a comparison has been carried out to identify the different organic coffee price premiums in several countries (see Chart 3).

Several price premiums are especially high, with Costa Rica, Guatemala and also Columbia having averages of more than 40 cents/lb. In Costa Rica, the average price premium is over 60 cents/lb. As a first conclusion it can be assumed, that big part of the higher price premiums, achieved in these countries are due to their well-known high-quality coffee. Nevertheless, to get a deeper understanding, why price premiums differ so much in over the producer countries, coffee traders have been asked to differentiate and to quantify the price differential paid for quality and for certification. As the results show in Chart 4, with the raise of coffee quality, price premiums paid for sustainable coffee are increasingly determined by quality in place of certification. Coffee of regular quality achieves a price premium for certification of 5 up to 25 cents per lb. In the case of premium coffee, price premium for certification and quality are practically the same, and in the case of specialty coffee, price is defined by quality with a small top up for certification.

A final impact factor on the price premiums, which cannot be specified in quantitative terms, is the impact of the certified coffee supply in the individual countries. Countries with comparatively low price premiums, such as Nicaragua and Mexico, and even more in Peru, are characterized by a high participation of organic production in total coffee production. On the other hand countries such as Costa Rica, with a limited offer of organic coffee (just around 1% of total production) but which is of high quality, achieve price premiums above average.

The gained results allow more detailed specifications on the price impact in the economic decision model presented. While the conventional coffee price is mainly a function of the current

price at the NYBOT and the achieved coffee quality, represented by:

$$P_C = f("C", q),$$

the price for organic coffee can be described as a function of:

$$P_S = f("C", q, s, c).$$

With:

"C"	coffee price at the NYBOT
q	coffee quality
s	supply (of organic coffee)
c	certification

From these results the conclusion can be drawn that the impact of certification on achieved coffee prices is rather limited since certification is just one out of several variables that define coffee price. Superior coffee quality proved to be more important in achieving a higher coffee price.

However, as indicated in the economic decision model, considering price premiums alone does not answer the question properly of whether sustainable certifications help producers reach their final objective of ensuring a better economic situation. The conclusion that a higher price premium automatically means an improved economic situation is not necessarily true since sustainable management influences production processes and costs, as well as yields.

In seeking to answer the main question, information about organic certified coffee production costs has been collected, evaluated and compared to conventional farming systems for several Central American countries. An appropriate assessment of whether paid price premiums are leading to an economic improvement can be conducted once sustainable and conventional farming system production costs are known.

### 5.2.2. Microeconomic comparison of conventional and organic coffee farm management systems in Central America

To assess economic impacts on the farm level, the authors researched production costs of conventional and organic managed farms in Central America and compared them to coffee prices in 2003 (see Table 3). Costa Rica is the leader in coffee production technology in the region; therefore, even with production costs per hectare significantly above other Central American countries, around \$2000/ha, the production costs per produced unit are comparable to the others. An important difference, however, is that Costa Rica, due to the quality of its coffee, receives the highest prices. Comparatively low production costs per unit as well as the higher price level allow Costa Rican farmers to accommodate more easily to the current price crisis and to reach a certain balance between production costs and coffee prices.

This situation is somewhat different in other Central American countries. In Guatemala, for example, total production costs per hectare are significantly lower, but at the same time the yield level is also much lower, so that production costs per unit are actually significantly higher at approximately 65 cents/lb. So even with an average farm price level close to

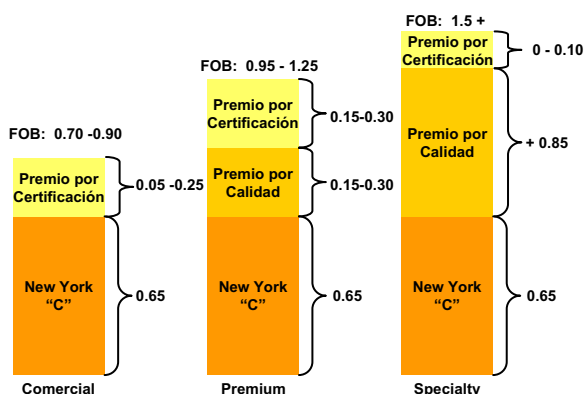


Chart 4. Impacts of quality and certification on green coffee prices in 2003. Source: CIMS, 2004.

Table 3  
Economic aspects of organic coffee farming in Central America

Country	Costa Rica	Guatemala	Honduras	El Salvador
Farm management	Conventional			
Yield (qq/ha)	35	20	14.3	14.4
Total costs (\$/ha)	2001	1466	879	825
Average costs (\$/lb)	0.56 (0.51–0.77)	0.65	0.56	0.51
Price on farm level 2003 (\$/lb)	0.50	0.48	0.42	0.26
Difference (\$/lb)	–0.06	–0.17	–0.14	–0.25
Farm management	Organic			
Yield (qq/ha)	20	20	14	14
Total costs	2687	2157	1474	1443
Average costs (cents/lb)	1.23 (1.05–1.58)	1.00	0.95	0.91
Price on farm level 2003 <sup>a</sup>	1.23	0.91	0.62	0.56
Difference (\$/lb)	0	–0.09	–0.33	–0.35
Fairtrade minimum price for organic coffee	0.85	0.85	0.85	0.85
Differences between organic and conventional production in:				
Costs (cents/lb)	67	35	39	40
Price premium (cents/lb)	73	43	20	30

Source: Own elaboration based on CEPAL (2002), Hernández (2004), ICO (2004), Pro Café (2003) and Kilian et al. (2004).

<sup>a</sup> Organic price is calculated as the sum of: average New York market price “C”+national differential due to quality performance of the country+organic differential reached per country, as shown in Chart 3.

Costa Rica, the gap between production costs and achieved prices is 17 cents/lb. Honduras and El Salvador have among the lowest production costs per hectare, but their productivity is also fairly low, with around 14 qq/ha. Production costs per pound are between 50 and 60 cents. Overall, farmers in Honduras receive only slightly lower price levels than in Guatemala and Costa Rica; however, the difference between production costs and coffee prices in El Salvador is the most severe, at approximately 20 cents/lb. According to this data, farmers' expectations to improve their income due to higher prices for organically produced coffee are understandable; however, changes in cost structures must be considered.

The highest impacts on production from conversion to organic production are to be expected in Costa Rica since production technology there is the most advanced. Often yield losses ranging between 40–50% are observed. Nevertheless, Costa Rican coffee farmers are, in general, able to get a substantial differential for their organic coffee so that production costs are covered and farm net income might be improved. Again the situation in other Central American countries is different. Since production technology and intensity is much lower in these countries average yield impacts are much smaller and are frequently zero. Remunerating all input factors at market prices—especially labor—production costs for organic farming are higher than for conventional farming. This indicates that in the case of organic production, with respect to current price levels, there is a gap between production costs and final product prices. This gap can be quite substantial, as is the case in Honduras and El Salvador. Additionally, while in Costa Rica and Guatemala the price premiums for organic coffee in general surpasses the increase in costs, in Honduras and El Salvador, price premiums are lower than the increase in production costs.

What nevertheless can make the organic farming model more attractive to producers is the fact that labor, and not

purchased goods, such as chemical fertilizers, composes a significant portion of farming costs. In small farms especially, labor availability is not a constraining factor to production; farmers may more easily adapt to different price conditions, which means in real terms, that the remuneration of their labor input might be reduced, thus avoiding debt, interest costs and other financial outlays.

Again, important to consider within this evaluation is the impact of coffee quality. In all Central American countries there are regions that are internationally recognized for their excellent coffee quality and are frequently sold within the category of specialty coffees. As seen in Chart 3 the coffee price is practically only defined by quality, while the price premiums for certification almost can be neglected. Therefore, the increase in production costs and yield losses for organic are not adequately compensated by additional sales revenues.

However, investigating farm income is of crucial importance, besides price premiums and costs, to consider the impact of farm management on the economic indicators. In the case of Costa Rica it has been possible to investigate several conventional, as well as organic, farms, and therefore, to work out the importance of farm management versus price premiums for the economic success of the farm. While the best-managed conventional farms are able to produce coffee for around 51 US cents/lb, achieving net farms incomes, poorly managed farms face average costs of around 77 US cents/lb, leading to an income loss of 17 US cents/lb of produced coffee. In the case of organic farms, the identified gap between successful and less-successful farmers has been even wider. While most efficient organic farms in Costa Rica are able to produce organic coffee for slightly more than 1 US\$/lb with a net income of 18 US cents/lb, production costs in the less-efficient farms amount for nearly 1.60 US cents/lb and consequently an income loss of 35 US cents/lb. This means that while some part of organic farmers

are able to benefit highly from the above average price premiums for organic coffee from Costa Rica, there are also many farmers not able to generate net farm income, in spite of the high price premiums.

Next, the economic impacts of fairtrade certification are considered. With the exception of Costa Rica, the most attractive economic scenario comes from production with fairtrade certification. Despite the fact that the data presented in Table 3 indicates a difference between production costs and fairtrade prices, farmers, even under current difficult conditions, are able to achieve improved living conditions and a better income. The reason for this lies in the fact that fairtrade cooperatives, besides paying better prices for the product, also are obliged to invest in the area’s social infrastructure (healthcare, education and general infrastructure). Therefore, fairtrade farmers and their families benefit even further from services that are not included in the other certification standards.

The results lead to the conclusion that on one hand the fairtrade certification offers in general a substantial contribution to improve farm income and therefore living conditions for farmers and their families. However, an optimized farm management leads in many cases to even higher economic benefits than offered price premiums for organic and even fairtrade certified coffees, what might proof in the long run as the better strategy.

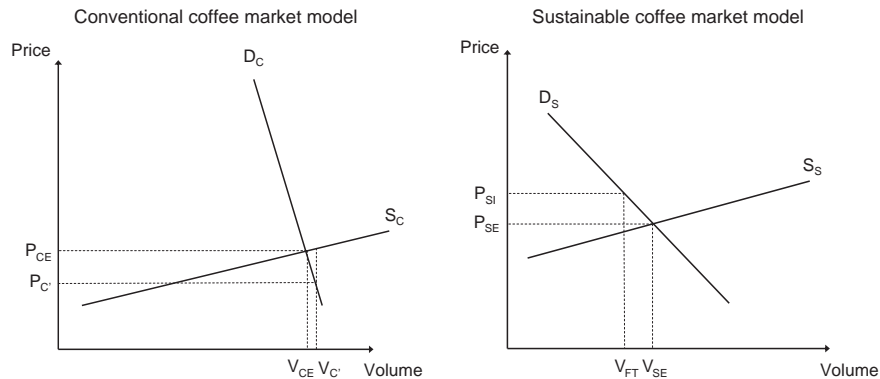
5.2.3. Medium- and long-term perspectives of fairtrade and organic coffee production

To indicate potential future fairtrade and organic coffee development, a conceptual model can be applied (see Chart 5). The conventional coffee market is characterized by a low price elasticity of production as well as consumption. Since coffee

trees come into production 4 years after planting and reach full production level at an age of 6–8 years (Graaff, 1986), entering coffee production from a producer point of view is always a long term decision. With respect to the price elasticity of coffee consumption, a recent investigation of the ICO (ICO, 2004) showed, that the coffee consumption in most traditional coffee-drinking countries has already reached saturation point and due to this, a fall in price does not imply an increase in consumption. The comparatively small oversupply of coffee ( $V_{CE} - V_C$ ) led to a drastic fall in coffee prices ( $P_{CE} - P_C$ ) (CEPAL, 2002).

While in the case of sustainable coffee price, elasticity of the supply is similar to the case of conventional coffee, the price elasticity of the coffee demand, as in general in sustainable products, is considerably higher, due to the high retail price level as well as to growing consumer preference for socially and environmentally produced products (Elliott et al., 2003; Gendall et al., 2004). The growing demand for more environmentally and socially sound products since the late 1980s has led to an increased demand in sustainable—mostly organic—coffee. During this time, demand has generally exceeded supply causing price levels for sustainable coffee ( $P_{SI}$ ) to be well above conventional ones ( $P_{CE}$ ) (CIMS, 2004; Giovannucci and Koekoek, 2003; ICO, 1987). This offered a substantial increase in income ( $P_{SI} - P_{CE}$ ) for suppliers of organically grown coffee. Attracted by these price differentials and a potential future market, many farmers entered organic production (see Chart 2), especially as a response to the coffee crisis, which had caused rock bottom prices for conventional coffee ( $P_C$ ).

However, with a continuously growing supply of organic coffee on the market, a new market equilibrium will be reached



with:

- $D_S$  = Demand for sustainable coffee
- $D_C$  = Demand for conventional coffee
- $S_S$  = Supply of sustainable coffee
- $S_C$  = Supply of conventional coffee
- $P_{SE}$  = Equilibrium price for sustainable coffee
- $P_{CE}$  = Equilibrium price for conventional coffee
- $P_C$  = Actual price for conventional coffee
- $P_{SI}$  = Initial price for sustainable coffee
- $V_{FT}$  = Sales volume of Fairtrade coffee
- $V_{SE}$  = Sales volume of sustainable coffee at market equilibrium
- $V_{CE}$  = Sales volume of conventional coffee at market equilibrium
- $V_C$  = Actual sales volume of conventional coffee

Chart 5. Conceptual market model for the conventional and sustainable coffee market.

in the near future, which is represented by the supply volume  $V_{SE}$  at the price level  $P_{SE}$  in Chart 5. As it can be seen, the new price at market equilibrium ( $P_{SE}$ ) will be significantly lower than the initial price ( $P_{SI}$ ) for organic coffee. Indeed, coffee supply investigation (CIMS, 2003) indicated, that in the coming years there is expected to be a surplus supply of organic coffee on the market. More than 150,000 hectares (370,500 acres) currently hold certification, and in Mexico alone more than 40,000 hectares (98,800 acres) are in transition to organic production. It is very unlikely that international consumption of organic coffee will grow at the same rate as the supply is increasing. Mexico, Peru, Brazil, and Guatemala are the primary producers of organic coffee, but it is expected that Brazil will position itself as the second largest producing and exporting country after Mexico, in the medium term. This predicted surplus supply of organic coffee is already beginning to be felt. A large number of certified organic producers in diverse countries—affected by difficult financial situations—are compelled to seek other alternatives and are even abandoning certification. Combining both market models, this development can be explained systematically (see Chart 6).

As noted, the benefits for sustainably produced coffee have been especially high due to the recent, low prices ( $P_{SI} - P_C$ ). With the conventional coffee market's recuperation and consequent market equilibrium and the sustainable coffee market's maturation, the future price difference between sustainably produced and conventionally produced coffee will be much smaller than currently expected, ( $P_{SI} - P_C$  compared to  $P_{SE} - P_{CE}$ ). One reason for this result is that with the sustainable coffee market's maturation, more specialized producers will enter the market and offer the same product with similar quality at a lower price.

The fairtrade organization set minimum prices with the intention of supporting farmers all around the world. Although putting a rigid minimum price system does not allow the market to flow openly and indicate changes in production volume and quality, which tends to result in a reduction in demand and a subsequent oversupply.

In 2002 only about 21,000 tons out of a total 63,000 certified tons produced were sold under fairtrade certification. This reality leads to uncertainty in farm management and could signify a lower-than-expected income. Additionally, many

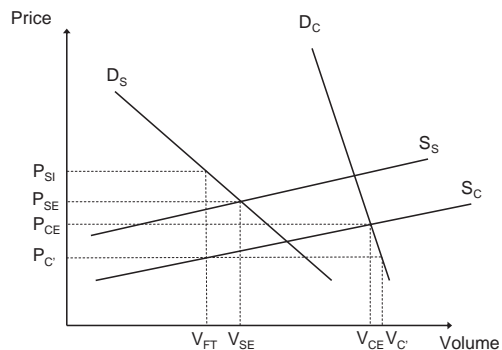


Chart 6. Conceptual common market model for sustainable and conventional coffee.

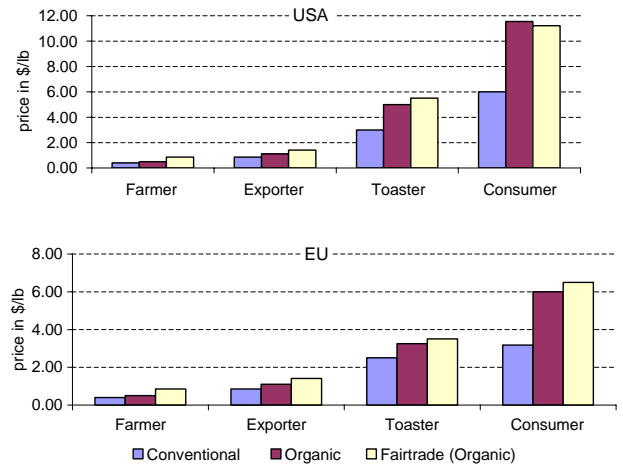


Chart 7. Coffee prices along the trade channels. Source: CIMS, 2004 and ICO, 2004.

toasters in North America as well as in Europe, have complained about inferior quality from fairtrade producers. This is potentially a risk to the future of the certification as fairtrade coffee in the US and Europe is sold at the price level of premium quality coffees (see Chart 7). Finally, many market participants complain that the farmers actually benefit the least from fairtrade certification, even though the basis of the concept is to have them benefit the most.

Fairtrade regulations prevent the organization from intervening in the market; therefore, it has no control over retail prices charged for the products in developed countries. In the US, for example, the sale of fairtrade products is still relatively new and occupies an interesting and growing market niche with retail prices sometimes reaching more than \$10/lb (some \$5/lb more than the conventional price). As markets mature, retail prices tend to fall, as has been the case in Europe where the fairtrade initiative began some years earlier and retail prices for fairtrade coffee have dropped significantly lower than in the US—though still well above conventional coffee prices.

For the future, fairtrade sales are expected to grow, especially in the US; but due to the current situation of oversupply (around 40,000 metric tons) any possible increase in demand could be covered with no increase in supply, and consequently no price increases along the value chain. Therefore, there are few chances for new farmers to enter the fairtrade coffee market, and little incentive due to the oversupply.

#### 5.2.4. Long-term potential contribution to rural development

In the short-term, there are positive income effects for farmers producing and selling organic, and especially fairtrade. However, it is not clear if these positive impacts can be sustained in the long-term, or whether they can have a significant impact on improving the overall situation of the sector. Central America's coffee crisis is not only due to overproduction, but also to structural and productivity problems of the region's coffee sector. Many producers who converted early-on to sustainable coffee production benefited from high price premiums and subsequent higher incomes without really having to become



more competitive in quality or farm management practices. This situation appears unlikely to, hold true in the near future.

With the further development of these sustainable markets, competition has already begun to increase, and farmers—in order to maintain their income—will be obliged to improve their productivity and quality. Even in the case of fairtrade, with its inherent concept of minimum prices, this development will occur. This means that fairtrade offers an important economic help to small farmers at the moment, however, in the long-term, an increase in productivity is an inevitable requirement for producers and the national coffee sectors in general. Farmers who are currently receiving benefits would be well advised to invest in improvements before they too become overwhelmed structural problems in the sector.

## 6. Conclusions

The sustainable certification processes have brought several benefits to the region. Sustainable coffee has contributed to Latin American producers being better able to face the current crisis in the industry, primarily by allowing them to receive better prices for their coffee. However the higher prices will only allow farmers to improve their income in the short-term. In the long-term, with growing demand and supply, these markets will be more mature and price premiums for sustainable coffee will likely decrease. Additionally, farmers will need to improve their productivity to maintain or increase farm income.

The fairtrade certification concept of demanding high retail prices without premium quality is expected to reduce significantly its market share gain. Therefore, in both cases, in order to combat the shortcomings of these certification concepts and increase their potential to truly foster economic growth and development, an effort should be undertaken in the region to improve productivity and quality. In the short-term, organic and fairtrade certification production schemes seem to be a viable strategy for Central American farmers to combat the current coffee crisis; however, upon further examination, these certification processes alone, without other changes in quality, productivity, export, and production, will not be the answer the region needs.

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