The effects of Fair Trade on marginalised producers: an impact analysis on Kenyan farmers

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Abstract

We analyse the impact of Fair Trade (FT) affiliation on monetary and non monetary measures of well-being on a sample of Kenyan farmers. Our econometric findings document significant differences in terms of price satisfaction, monthly household food consumption, (self declared) income satisfaction, dietary quality and child mortality for Fair Trade and Meru Herbs (first level local producers organisation) affiliated with respect to a control sample. Methodological problems such as the FT vis à vis Meru Herbs relative contribution, control sample bias, FT and Meru Herb selection biases are discussed and addressed.

After reconstructing the dynamics of human capital investment in the observed households we show that affiliation to the younger vintage FT project is associated to a significantly higher schooling investment.

Keywords: impact analysis, child labour, fair trade, monetary and non monetary wellbeing.
JEL Classification: O19, O22, D64.

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1. Introduction

Global market integration and the compression of virtual distances led by the digital revolution are increasing the perception of interdependence across continents, raising awareness for global imbalances and stimulating bottom up action from the civil society in order to contribute to the solution of world imbalances. The rise and development of social responsibility of consumers,[4]

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[4] In a recent survey the "*2003 Corporate social responsibility monitor*" finds that the amount of consumers looking at social responsibility in their choices jumped from 36 percent in 1999 to 62 percent in 2001 in Europe. In addition, more than one in five consumers reported having either rewarded or punished companies based on their perceived social performance and more than a quarter of share-owning Americans took into account ethical considerations when buying and selling stocks. In February 2004, a research undertaken by the market research company TNS Emnid in Germany on a representative sample of the population finds that 2.9% of those interviewed buy Fair Trade products regularly, 19% rarely, and 6% almost never. 35% of respondents said they support the idea, but do not buy (www.fairtrade.net/sites/aboutflo/aboutflo). In a parallel UK survey, Bird and Hughes (1997) classify consumers as ethical (23 percent), semi-ethical (56 percent) and self-interested (17 percent). 18 percent of the surveyed consumers

investors and corporations[5] is a clear signal that global inequality aversion is becoming an additional determinant of individual choices.[6] In the light of the above mentioned interdependences, social responsibility is no more being conceived just as an altruistic behaviour, but also as a long-sighted, self interested attitude which hinges on the growing awareness of the negative feedbacks of global imbalances on one's own individual life. This consideration leads us to expect further growth of attention on social responsibility in the near future.

Fair trade is one of the most interesting attempts of (socially responsible consumption) based bottom-up development initiatives with which the civil society tries to complement actions of governments and international institutions.

Fair trade schemes aim to promote inclusion of marginalised and poor farmers[7] in the international markets, via consumption and trade, through a package of benefits which include anti-cyclical mark-ups on prices, long-term relationships, credit facilities and business angel consultancy aimed at supporting the process of capacity building. [8] The distribution channel offered to marginalised producers by fair trade importers does not intend to be exclusive, since one of the movement goals is to strengthen positions of these producers in the international markets. Scaling up and phasing out are therefore two of the most delicate issues in the relationship between fair traders and marginalised producers.

Even though it would be essential to evaluate whether the claims of the beneficial effects generated by participation to the FT circuit are well funded, the literature on FT impact analyses is surprisingly scarce.

To our knowledge, one of the very few impact studies testing the statistical significance of fair trade is performed by Bacon (2005) on a sample of Guatemalan coffee producers. The study shows with a two way Anova approach that access to certified markets has a positive and significant effects on sale price. The finding is not controlled for other potential concurring factors.

A statistical and econometric approach is also followed by Pariente (2000) who observes the positive impact of minimum price on coffee producers security in the Cococafè cooperative in Costa Rica. The research documents a reduced price variability (and a minimum price higher than the world price) when local producers sell to FT. It further relates this finding to results from two separate estimates in which investment levels are shown to be positively affected by sale prices and investment variability to be significantly correlated with sale price variability.

All other existing impact analyses are based on non-systematic, even though qualitatively very rich, evidence collected in case studies. Castro (2001) impact analysis of FT on COPAVIC in Guatemala

declares to be willing to pay a premium for SR products. For a survey on the theoretical literature on social preferences see (Fehr-Falk, 2002).

[5] KPMG (2005) reports that, in the year 2005, 52 percent of the largest corporations published a CSR report.

[6] For a detailed survey on theoretical, empirical and experimental evidence on reciprocity, altruism and inequity aversion see Fehr-Falk (2002) and Sobel (2005).

[7] For the theoretical debate on the role and impact of Fair Trade at micro and aggregate level see Maseland De Vaal (2002), Moore (2004), Hayes (2004) and Leclair (2002).

[8] Redfern-Snedker (2002) ILO working paper resumes elements of success in the last years by considering that FT: i) *has created a growing US $500 million network of businesses that seeks to push the benefits of that trade to the poorest; ii) has provided a wide range of embedded services to producers who would not have been able to source or afford them locally; iii) has provided market access to groups whom mainstream business was not interested in trading with; iv) has facilitated or influenced the increasing number of fair trade products on supermarket shelves; v) has successfully campaigned at many levels of policy making to bring real pro- poor changes in legislation; vi) has raised the issue of trade with millions of consumers—particularly across Europe—changing attitudes to business and development; vi) has been a significant catalyst in the development of ethical issues within mainstream trade and business practices, influencing the development of Corporate Social Responsibility, approaches like Social Accounting and the development of the Ethical Trade Initiative in the UK*

shows that artisans which are members of the cooperative have significantly higher mean wages in the area and that FT gave significant support to the cooperative in terms of physical capital investment, technical and financial assistance and also employment benefits (introduction of life and medical insurance). An important result, common to almost all FT projects, is that imports from FT cover only part of the marginalised producers sales (around 42%) and that FT technical assistance helps members to strengthen their position on the international market.

The report on FT impact on the "Productores de Miel Flor de Campanilla" in Oaxaca, Mexico (Castro, 2001) presents mixed findings. Also in this case FT played its role of "business angel" providing financial and technical assistance and improving quality standards. Nonetheless, the author observes that results, in terms of livelihood improvement, have not been the same as in the COPAVIC case and that the cooperative is still struggling for survival in the international trade market.

Nelson and Galvez (2000) examine the impact of FT on cocoa producers being part of the MCCH cooperative in Ecuador. The authors find that MCCH cocoa farmers are paid a higher price than conventional farmers, even though the price differential is minimal, also due to a positive effect of FT prices in the area. They also describe that benefits from FT include capacity building, support on marketing skills, organisational development, production and post-harvest techniques. They finally observe that MCCH has been recently successful in breaking local middlemen monopolies.

Other impact analyses based on case studies provide very interesting conclusions which can be taken as a reference in our econometric analysis. The DFID (2000) study on the effects of FT in the Ghana KK cocoa cooperative and in the Tanzanian coffee market raises the important issue of the difficulty in discriminating between FT and non FT aspects of producers organisation activities. The research shows that, in the two case studies, i) FT has mainly relationships with first level producer organisations and not with the individual producers and also that ii) the fair trade premium is managed by the former in order to satisfy the welfare needs of the latter. In such cases the evaluation of the impact of FT crucially hinges on the evaluation of the choice to certify a given local producer organisation. The research also concludes that the main role of fair trade is in (equipment, technical and business skills) capacity building, an activity which is deemed crucial to support inclusion of local producers in international trade. Hence, in the authors' words, FT appears as a "way of empowering farmer groups to engage with non-FT marketing channels on a more favourable basis". Similar results emerge from Hopkins (2000), who collects 18 case studies among Oxfam FT partners and calculates an economic impact ratio, that is, the ratio of earnings from fair trade activities to the opportunity cost of labour, and Ronchi (2002) who analyses a coffee FT cooperative in Costa Rica distinguishing between direct impact (impact of FT on the farmers and the cooperative) and indirect impact (the impact of the cooperative on the farmers). Both papers point out that capacity building is one of the most important achievements of the FT commercial relationship.

Many of these papers acknowledge the importance of a rigorous impact evaluation. Nelson and Galvez (2000) conclude their work by arguing that "*as with many organisations involved in fair-trade MCCH has not yet been able to make an assessment themselves of the longer-term impact of its involvement in cocoa marketing for smallholders and their livelihoods. There is a growing recognition amongst organisations involved in fair-trade that more attention needs to be paid to impact assessment.*" On the same line, DFID (2000) agrees that it would be important to compare (level and changes of) quality of living indicators of farmers affiliated to FT and farmers being part of a randomly selected control sample.

This is the scope of our paper in which we try to evaluate econometrically the FT impact on various well-being indicators.

To do so we build a survey in which we collect information from a sample of 120 Kenyan farmers divided into four groups. The first, (Bio group), includes certified organic farmers with long term affiliation to Meru Herbs and long term access to FT channels. The second, (Conversion group),

Meru Herbs farmers under conversion toward the organic certification with short term or starting partnership with FT. The third, (Onlyfruit group), Meru Herbs farmers which are fruit producers and have a non systematic relationship with FT. The fourth, (Control group), is carefully selected in order to match closely the characteristics of the previous three (it shares with them the same environment and advantages of the local irrigation infrastructure) with the qualifying difference that its members are not part of Meru Herbs and have no relationship with FT.

The paper presents and comments descriptive and econometric findings from this survey and is divided into five sections (including introduction and conclusions). In the second section we explain the construction of our survey and illustrate the characteristics of the Meru Herbs organisation, the three Meru Herbs projects considered in the sample and the criteria followed for selecting the control sample.

In the third section we compare characteristics of the four groups of farmers by looking at crop variety, average market price for each product sold, sale conditions and subjective price satisfaction. The fourth section presents our econometric analysis emphasizing five main results: Meru Herbs members with access to the FT channel have relatively higher price satisfaction, spend significantly more for food consumption, have higher nutritional standards and have relatively less episodes of infant mortality in their households. The lower rate of infant mortality also applies to Meru Herbs affiliated not having systematic relationship with FT. The price satisfaction result is consistent with additional evidence showing that Meru Herbs members with access to FT suffered relatively less from price instability. All our findings are controlled for the concurring effects of land size, number of people living in the farmer's house, number of seasonal employees, age, sex, ethnic affiliation, religion, schooling years, marital status and presence of additional income sources.

The results regarding income satisfaction and dietary quality appear to be the strongest as they are robust to the Meru Herbs and FT selection bias effects in a treatment regression model in which the base equation is estimated jointly with an equation where Meru Herbs or FT affiliation are regressed on individual characteristics.

We finally try to extract from the cross-sectional information contained in our database household schooling decisions in the past 20 years in order to verify whether inclusion in Meru Herbs and in the FT trade channel had a significant impact on them. Our panel findings show that affiliation to the Conversion group is significantly and positively associated to higher human capital investment (lower child labour rates) with respect to the rest of the sample, but do not provide evidence of significant changes in human capital investment after project affiliation.

2.1 Area and project characteristics

Meru Herbs originates from a group of 430 families that in the 60's established themselves in some plots (from 10 to 40 acres) given by the Kenyan Government in the Meru Central and Tharaka districts, about 200 km away from Nairobi, on Mount Kenya's eastern slopes. The area is classified as semi-arid, with an annual rainfall level of 550-650 mm concentrated in 4 months per year. Agriculture was possible only for drought-resistant cultures like sorghum and millet.

In 1982 these families created the Ng'uuru Gakirwe Water Committee, an association composed of local farmers that started a project with the purpose of bringing water to every house and every farm, through the Kitheno river's canalization. The first phase was completed in 1990, benefiting 142 families and the first half of the second phase in 1994, including another 163 families. In year 2000 the second and the third phases were completed, serving another 174 families. The water amount supplied every day to each household is enough to cultivate intensively at least one acre.

The irrigation allowed local farmers to change drastically the kind of agriculture practiced and improved agricultural employment and food security in the area, raising the production for self-consumption and sale, and reducing the time and effort necessary for water supplying, traditionally

impending on women and children. The soil in the area is clayey and today the most cultivated products are maize, millet and beans for self-consumption and other vegetables like okra, French beans and chilies.

Meru Herbs was established in 1991, in order to generate incomes to cover the project's costs. Its activity consists in the production and the sale, especially abroad, of herbal teas and fruit jams.

In the region, the commercialization of the products is normally controlled by traders from Nairobi who cover all the area, collecting and exporting the products. In order to reduce their monopsonistic power and create new trade opportunities Meru Herbs decided to develop a partnership with CTM (the leading Italian Fair Trade importer), which begun in an experimental way in 1991 and followed on in 1992 with the delivery of a container of karkadé, in order to diversify the households' productive structures. In year 2000 the organisation got the organic certification by the English company Soil Association Certification Ltd. and today it sends a significant part of its production to the fair trade channel (in Italy and Japan) with an export turnover equal to 267,862 € in 2004.

Today, 43 out of the 479 farmers beneficiaries of the irrigation project (corresponding to a total extension of 42 acres of land) have already obtained the organic certification, and other 117 are crossing the two year-conversion period, that will end in January 2006. There is also another little group, in conversion too, in the near district of Embu.

2.2 The construction of our Survey

A first crucial step of our research consists in the identification of a control group. With regard to this point, the Meru Herbs case has a relevant advantage given by the homogeneity of the population living in the irrigation project area: all the interviewed farmers benefit from the Ng'uuru Gakirwe Water Project and therefore all share the same geographic area, the same availability of services and infrastructures (in particular, the irrigation infrastructure). Most of them, also share the same cultural background and economic activity, but differ in marketing channels (Meru Herbs with or without FT partnership, local middlemen, direct sale on local markets).

More specifically, our reference population is composed by the 474 farmers who benefit from the irrigation project. Within this population we randomly select four groups that represent respectively organic farmers (which we will call Bio farmers), farmers under conversion (Conversion farmers), fruit farmers who have a commercial relationship with Meru Herbs that is not fully a Fair Trade relationship[9] (Onlyfruit farmers), farmers who do not sell to Meru Herbs at all (but, however, benefit from the irrigation project) (Control farmers).

The advantage of having four groups is that we can distinguish between long-term and short-term effects of the relationship with Meru Herbs and FT (Bio and Conversion farmers respectively), relationship with Meru Herbs which is not a full FT relationship (Onlyfruit farmers) and the absence of relationship with FT (control farmers).

The four groups have responded to a questionnaire containing 100 questions (see Appendix). From these questions we obtained information on demographics, product sale conditions, monetary and non-monetary sources of income, food consumption expenditure and dietary quality, schooling years and working status of household members, various social and capability indicators, subjective measures of price satisfaction and income satisfaction, social capital indicators.

The final version of the questionnaire (see Appendix 1) has been modified with respect to an initial draft on the basis of considerations developed on the job together with the members of the organization and individual farmers regarding the quality of responses and their possible biases.[10]

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[9] Onlyfruit farmers are associated to Meru Herbs but, since they do not sell organic certified products they are not monitored constantly by Meru Herbs and Fair Trade representatives and have discontinuous relationship with Meru Herbs.

[10] The research has been developed according to the following timetable: i) 1st of February 2005 – Meru Herbs, Nairobi office: research beginning; ii) 2nd – 11th of February 2005 – Meru Herbs Base Camp: community analysis and

3. Descriptive statistics

Table I describes the characteristics of the four groups showing some relevant differences among them. Control group farmers are relatively younger (ten year difference on average with respect to Bio and Onlyfruit farmers) and have less schooling years only when compared with Conversion farmers. Bio and Onlyfruit households are relatively larger.

Farmers belonging to the Control group employ on average relatively less workers during the harvesting season.

With regard to the ethnic composition of our sample we consider 15 potential affiliations (Embu, Kalenjin, Kamba, Kikuyu, Kisii, Luhya, Luo, Maasai, Meru, Mijikenda, Somali, Taita, Tharaka, Turkana, Kuria) and observe that the large majority of interviewees belong to the Tharaka group (from 60 to around 87 percent). The second largest ethnic group is Meru (around 27 percent among Onlyfruit farmers).

An important difference among the three groups selling to Meru Herbs is that, as expected, Bio farmers declare a much longer commercial relationship with the Meru organisation and FT (more than 13 years on average), while Conversion and Onlyfruit farmers have started it more recently (respectively around 1 and 3 years on average). The four groups appear quite homogeneous in terms of availability of other sources of income, while we register a ten percent difference between Bio and Onlyfruit farmers in terms of other working activities.

The observed differences in the four groups clearly show that we cannot just compare average subgroup values to infer the impact of Meru Herbs and FT relationship on farmers standard of living. An econometric analysis is needed to single out the Meru Herb affiliation and the FT impact effects from those of additional controls which differentiate the four groups and are expected to affect our target variables.

We continue our descriptive analysis by focusing on crop variety, sale conditions and quality of living in the four groups by looking at indications provided by descriptive statistics (Table II). In the Survey farmers of the four groups are asked questions about production, sale conditions and price satisfaction concerning the following 18 products: papaw, mango, french beans, okra, karkade, camomile, lemongrass, tobacco, banana, potatoes, soia beans, maize, sorghum, millet, tomatoes, pilipili, guava, lemon.

For each of these products we have information about production and distribution channels (Meru Herbs, middlemens, directly to customers). Descriptive evidence on this point shows, consistently with previous research findings and FT criteria, that FT is not an exclusive channel for affiliated farmers. Bio, Conversion and Onlyfruit farmers also sell between 17 and 28 percent of their products directly to customers, and between 7 and 12 percent to local intermediaries.

Control farmers seem to differ markedly from those affiliated to the other three groups in terms of average sale prices and crop variety, with a relatively lower number of products sold on the market (on average 4) against a value ranging from 6 to 9 for the rest of the sample. More specifically, mango, guava, lemon and karkade are exclusively sold by farmers affiliated to Meru Herbs who also seem to obtain better price conditions on average for some of the products which are sold by Control farmers as well (sorghum, maize and pilipili).

When we look at descriptive statistics in terms of various income and social development indicators we observe that the control group exhibits lower weekly household consumption expenditure and

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provisional questionnaire's checking; iii) 12th – 20th of February 2005 – Meru Herbs, Nairobi office: data collection for the indirect impact study; iv) 21st of February – 15th of March 2005 – Meru Herbs Base Camp: interviews through questionnaires (direct impact study); v) 15th – 18th of March 2005 – Meru Herbs, Nairobi office: research ending.

lower monthly earnings (Table III). We must remember, though, that Control group farmers have relatively smaller families. This explains why the gap is reduced by far when earnings are equivalised for household size using the standard OECD approach[11].

An important observation is that the share of those declaring episodes of infant mortality during the last three years is markedly higher in the Control group (around 30 percent) than in the other three groups (between 17 and 7 percent). Another relevant finding is that farmers in the group with older Meru Herbs and FT affiliation (Bio farmers) declare lower desired monthly earnings than those of the control group sample. This finding may reflect higher nonmonetary sources of income (selfproduction, livestock), but also a higher level of benefits received by Meru Herbs. The combination of average group values on perceived and desired income is consistent with a far higher level of declared income satisfaction for Bio farmers compared to the control sample. If we compare in Table III the ratio between declared (non equivalised) and desired household income we find that it is approximately 1 to 5 for Bio farmers against approximately 1 to 9 for Control farmers.

A somewhat unexpected result is the one concerning the share of child labour (according to our definition, the number of children between 6 and 15 not attending school on the total number of household children in that age cohort) and of the human capital investment rate (according to our definition, the number of children between 6 and 18 going to school on the total number of household children in that age cohort). If Conversion households exhibit the best figures (.55 percent the child labour rate and .35 the human capital investment rate), Bio and Onlyfruit households appear to be in this case in a worse position than Control group households.

4. Econometric findings

The descriptive findings presented in the previous section suggest that farmers participating to the FT initiative have better price conditions, more diversified crops, higher food consumption, less episodes of child mortality and superior income satisfaction. However, observed findings cannot lead us to conclude *per se* that participation to the FT project has had undoubtedly significant effects on these indicators for several reasons.

First, composition effects and heterogeneous characteristics of the four groups may influence some of our findings. With this respect, one of the most obvious considerations is that Control group farmers may have lower household consumption expenditure because they have on average a lower number of children, a slightly lower surface of cultivated land and are relatively younger (if age and, presumably correlated, working experience have some effects on performance and standard of living).

Second, endogeneity and a selection bias in the affiliation to Meru Herbs seem difficult, in principle, to disentangle from the concurring interpretation of the positive impact of FT. Do all our findings reflect advantages obtained during and thanks to the affiliation to Meru Herbs and to the FT project, or do they measure characteristics which were already present (and, presumably, contributed to affiliation) at the moment in which farmers were affiliated to Meru Herbs ? And, related to this point, is it possible to separate the impact of affiliation to Meru Herbs from the effect of participation to FT?

If some of the problems considered above (Meru and FT selection biases) may induce us to believe that observed findings on the FT impact may be excessively optimistic, two other arguments may counterbalance them in the opposite direction. First, if the Meru Herbs project generates positive spillovers in the area, differences between the three project groups and the control group may result flattened, thereby leading to an underestimation of the FT contribution.[12] Second, a project

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[11] Under the OECD rule earnigs are divided by a scale factor A, where $A = 1 + 0.5\ (N_{adults} - 1) + 0.3\ N_{children}$.

[12] The point is well discussed by Armendariz de Aghion and Morduck (2005) in their analysis of the impact of microfinance projects.

survivorship bias may also arise since the most successful farmers may be likely to get out of the project.

In what follows we try to do our best to answer at least some of these questions, given the limits of our longitudinal database.

With regard to the first point (composition effects), the vast amount of information collected in the survey allows us to control our results for a wide range of concurring factors.

In a first econometric exercise we test whether findings on: i) weekly household consumption expenditure; ii) income satisfaction; iii) crop diversification; iv) sale price conditions; v) infant mortality; vi) dietary quality and vii) child labour are robust to the inclusion of proper control factors.

4.1 Price satisfaction

We build a standardised index of price conditions calculated as the average of the standardised prices (deviations from price mean divided by price standard deviation) for those products which the relevant farmer sells to the market.

More formally, the standardised index of price conditions (SIPC) for the i-th farmer selling the j-th

(j=1,…,n_i)[13] product on the market is equal to $SIPC_i = \frac{1}{n_i}\sum_{j=1}^{n_i}\frac{P_{ij}-\mu_{Pj}}{\sigma_{Pj}}$ where μ_{Pj} and σ_{Pj} are,

respectively, the mean and standard deviation of the product j price in the overall sample.

The standardised index becomes the dependent variable in the following Tobit[14] specification

$$SIPC_i = \alpha_0 + \sum_{l=1}^{3}\gamma_l Group_l + \alpha_1 Male + \alpha_2 Birth + \alpha_3 Married + \alpha_4 Schoolyears + \alpha_5 Famsize + \alpha_6 Catholic + \alpha_7 Tharaka +$$

$$+\alpha_8 Meru + \alpha_9 Acres + \alpha_{10} Employees + \alpha_{11} Othincome + \alpha_{12} People\,home + \alpha_{13} Noothact + \varepsilon_i$$

(1)

where $Group_i$ is a dummy variable taking the value of one if the farmer belongs to the l-th group (Bio, Control, Conversion) and zero otherwise, *Male* is a dummy variable taking the value of one for male respondents and zero otherwise; *Birth* is the year of birth; *Married* is a dummy variable taking the value of one for married respondents; *Schoolyears* are the schooling years of the respondent; *Famsize* is the number of respondent children; *Catholic* is a dummy variable taking the value of one if the farmer is catholic; *Tharaka* (*Meru*) is a dummy variable taking the value of one if the respondent belongs to the Tharaka (Meru) ethnic group; *Acres* is the extension in acres of the farmer land; *Employees*: is the number of workers hired during the harvesting season; *Othincome* is a dummy variable taking the value of one if the respondent has additional sources of income and zero otherwise; *Peoplehome* is the number of individuals living at the respondent's home; *Noothact* is a dummy variable taking the value of one if the respondent has another working activity.

Our findings show a strongly significant and positive effect of affiliation to the Conversion group on the index (Table IV, column 1). No other variables appear to be significant in the estimate.

The limit of the standardised index of price conditions is that it only looks at price levels, neglecting other important characteristics of prices which are conveyed by other questions in the survey (advanced/anticipated payment conditions, price stability, absence of sharp price declines). By taking just one of these complementary aspects of price satisfaction, we observe that farmers in the control sample declare (in a significantly higher proportion) to have suffered price decreases. Consider also that the SIPC index downweights the effect of crop diversification and is conditioned

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[13] The number of products sold (n) is indexed by i in order to take into account that it is different for any i-th farmer.

[14] We use a Tobit model because our dependent variable has, by construction, the value of one (zero) as upper (lower) limit.

by the fact that non control group farmers sell some additional goods at a price which is common to all of them (karkade, mango, guava, lemon).[15]

We therefore repeat the experiment by replacing the SIPC with the farmer's subjective perception of price satisfaction under the assumption that the latter can successfully incorporate the above mentioned complementary factors not included in the standardised price index. To build this second index we consider that, for each of the products sold, farmers are asked whether they are satisfied a lot, enough, a little, not at all. Our index of price satisfaction (IPS) is therefore equal to

$$IPS_i = (3*muchperc + 2*enoughperc + afewperc)/3 \tag{2}$$

Where *muchperc* is the share of products sold on the market on which the farmer declares highest price satisfaction, *enoughperc* (*afewperc*) the share of products sold on the market on which the farmer declares next to highest (next to lowest) price satisfaction. The estimated regression is[16]

$$IPS_i = \alpha_0 + \alpha_1 Control + \alpha_2 Male + \alpha_3 Birth + \alpha_4 Married + \alpha_5 Schoolyears + \alpha_6 Famsize + \alpha_7 Catholic + \alpha_8 Tharaka +$$
$$+ \alpha_9 Meru + \alpha_{10} Acres + \alpha_{11} Employees + \alpha_{12} Othincome + \alpha_{13} People\,home + \alpha_{14} Noothact + \varepsilon_i \tag{3}$$

with all regressors being defined as in (1).

Our findings show that, with the subjective index of price satisfaction, and the usual controls, the impact of access to the FT distribution channel and enjoyment of FT criteria is even stronger (Table IV, column 2). Affiliation to the control group is negative and significant whereas participation to the Bio and Conversion groups is positive and significant. Quite interestingly, the same effect does not apply to Onlyfruit affiliated whose coefficient is negative and weakly significant.[17] The price satisfaction effect seems therefore related more to the FT than to the Meru Herbs project effects.[18]

4.2 Food consumption and dietary quality

As it is well known, wellbeing in developing countries depends on a mix of monetary and nonmonetary components (wage income, government and local transfers, self production and self consumption, livestock, education, dietary quality, social capital). All of them contribute to enhance capabilities and functionalities of the local farmers and therefore their quality of life. Our survey collects information on these different types of indicators. Within this framework, a relevant component which captures both formal and some of the informal aspects of economic wellbeing is monthly household food expenditure. We regress this variable on the usual set of controls in the following specification

$$Foodcons_i = \alpha_0 + \alpha_1 Control + \alpha_2 Male + \alpha_3 Birth + \alpha_4 Married + \alpha_5 Schoolyears + \alpha_6 Famsize + \alpha_7 Catholic + \alpha_8 Tharaka +$$
$$+ \alpha_9 Meru + \alpha_{10} Acres + \alpha_{11} Employees + \alpha_{12} Othincome + \alpha_{13} People\,home + \alpha_{14} Noothact + \varepsilon_i \tag{4}$$

where *Foodcons* is weekly household food expenditure in shillings and the regressors are defined as in (1).

Two interesting findings here are that the dependent variable is significantly and negatively affected by participation to the Control group (Table V, column 1). The significant relationship between

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[15] If control farmers nonparticipation to these product markets is involuntary (i.e. they would like to diversify and sell these products, but they cannot because they do not have access to the relative trade channels) we should in principle assign them a price of zero. Our choice of assigning them missing values therefore downweights the positive effect of FT on sale conditions.

[16] Here again, the dependent variable has an upper limit of 3 and a lower limit of 0. We therefore perform a Tobit estimate to keep into account the characteristics of its distribution.

[17] The estimate is omitted for reasons of space and available upon request.

[18] We perform a robustness check on this indicator by modifying the weight given to the different types of answers (1 for much, enough and a few price satisfaction and zero otherwise). Results are substantially unchanged and available from the authors upon request.

food consumption and an indicator of price (un)satisfaction (*atallperc*) (Table V, column 2) reveals an important link between one of the most important FT criteria and economic wellbeing of local farmers in our survey.

A complementary and relevant indicator of household wellbeing is the dietary quality of their food consumption. In our survey we have information about the frequency of consumption (more than once a day, once a day, once every three days, once a week, rarely, never) of the following types of food (*ugali, chapati, rice, maize, beans, eggs, milk, chicken, other meat, fish, potatoes, greens, fresh fruit*).

On this basis we build an index of dietary quality giving descending values from a maximum of five to a minimum of one to the above mentioned frequency modalities. We finally calculate our synthetic index as an average of the values given to each food item.[19]

We therefore regress the dietary quality synthetic index on the usual set of controls and on measures of affiliation to the FT projects or to the control sample. We observe in this case that affiliation to the control sample is related to significantly a lower value of the dependent variable (Table V, column 3). A second estimate in which we replace the control dummy with the years of Meru affiliation (which coincide with FT affiliation for Bio and Conversion workers) and add variables measuring ownership of different kind of domestic animals documents the significance of the project seniority, together with the absence of other sources of income and ownership of some animals (chicken and cows) (Table V, column 4).[20]

4.3 Living satisfaction, technical assistance and infant mortality

We finally want to investigate whether affiliation to Meru Herbs and to the Fair Trade significantly affect income satisfaction. We measure the latter by directly looking at the qualitative question on the level of satisfaction about living conditions.[21] The dependent variable is discrete and qualitative assuming values from 3 to 1. We therefore estimate the following ordered logit model.

$$Livesat_i = \alpha_0 + \alpha_1 Control + \alpha_2 Male + \alpha_3 Birth + \alpha_4 Married + \alpha_5 Schoolyears + \alpha_6 Famsize + \alpha_7 Catholic + \alpha_8 Tharaka +$$

$$+ \alpha_9 Meru + \alpha_{10} Acres + \alpha_{11} Employees + \alpha_{12} Othincome + \alpha_{13} People\,home + \alpha_{14} Noothact + \sum_{l=1}^{5} \gamma_l Cattle_i + \varepsilon_i$$

(5)

Our findings document a significant and positive effect of affiliation to the Bio project (Table VI, column 1) or seniority of project affiliation (Table VI, column 2) on the dependent variable. The only additional regressor which is significant and positive is the availability of other sources of income.

Notice that the positive relationship between income satisfaction and project seniority may depend not just on the nominator (perceived wage), but also on the denominator since Bio farmers declare a lower desired wage (see descriptive statistics in Table III). The relevance of this dependent variable to our analysis lies in its capacity of capturing the provision of public or private goods and services

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[19] We perform a robustness check and find that our results are still valid under a different approach used for building our dietary quality synthetic index (i.e. presumed number of times food items are consumed per week). Results are omitted for reasons of space and available upon request.

[20] We further focus on the frequency of consumption of fish and greens (as additional indicators of dietary quality) and observe that the negative effect of affiliation to the control sample is strong here again. The regression on the determinants of fish consumption also shows the expected signs for the number of people living in the household (negative) and the presence of additional sources of income (positive). These estimates are omitted for reasons of space and are available from the authors upon request.

[21] The questionnaire demand is: *Are you satisfied with your household's living conditions?* The qualitative answers have been given the following points: very much=3; enough=2 a few=1 not at all=0.

which cannot be measured by the information on perceived income. A reasonable assumption is in fact that lower desired wage is significantly related to a higher quality of monetary and nonmonetary goods and services. This assumption is supported by information on the behaviour of Meru Herbs toward Bio farmers which receive goods and services for free (seeds and small fruit trees, organic fertilisers and periodical training meetings about organic farming procedures) as side benefits related to their affiliation to Meru and strong commitment to the organic farming.

In order to find confirmation of this comparative advantage we further estimate a logit model in which the dependent variable takes the value of one if the farmer declares to receive technical assistance from the buyer and zero otherwise. We regress the dependent variable on the usual set of controls, including the number of years of farmer's affiliation to the FT project. We observe that this last variable is significantly and positively correlated with access to technical assistance, together with farmer's schooling years (Table VI, columns 3 and 4).

We finally wonder whether participation to the project generates significant differences in an important indicator such as child mortality, validating descriptive evidence provided in Table III. Econometric estimates confirm the significance of the difference in child mortality between control group farmers, on the one side, and Meru Herbs and FT affiliated, on the other side, when controlled for the usual regressors (Table VI, columns 5 and 6). Additional significant regressors in this estimate are the availability of other sources of income (negative) and ownership of chickens (negative).

5. Robustness check of our findings to Meru Herbs and Fair trade selection biases: a treatment regression approach

Results presented in section 5 show a significant association of the affiliation to Meru Herbs and the FT project with monetary and nonmonetary objective and subjectively perceived components of individual well-being. Limits of our database do not completely enable us to answer to a few possible objections. Do these findings depend on a significant impact of FT on farmers wellbeing or are they affected by project selection and control sample bias ? On the one hand, we can probably answer by arguing that descriptive findings show that the four groups are not so different in terms of equivalised monthly earnings, and that differences in household size, size of cultivated land and number of employees in the harvesting season are controlled for in our econometric estimates. On the other hand, it is always possible that hidden variables affecting the selection of our four groups are also the determinants of differences in wellbeing, even though this is more difficult to believe in the case of some of our findings. More specifically, the link between price satisfaction and affiliation to Meru Herbs and the FT project seems an obvious direct consequence of FT criteria (Table IV, columns 1 and 2) and the link between household food consumption expenditure and price satisfaction (Table V, column 1) seems to demonstrate that FT criteria have positive effects on farmers wellbeing.

To provide a more rigorous evaluation of the effects of project affiliation, net of the Meru Herbs and Fair Trade selection biases, we specify a treatment regression model in which the previously estimated model equation is reestimated jointly with a selection equation in which affiliation/no affiliation to FT is regressed on a set of individual characteristics. This estimate helps to disentangle the effect generated by the project (affiliated farmers have a superior outcome in terms of a given indicator for the effects of FT) from the selection effect (affiliated farmers have a superior outcome because affiliation to FT was somewhat conditional to farmers high outcome or to characteristics correlated to high outcome).

The estimated two equation model is:

$$Perform_i = \alpha_0 + \alpha_1 Workyears + \alpha_2 Male + \alpha_3 Birth + \alpha_4 Married + \alpha_5 Schoolyears + \alpha_6 Famsize + \alpha_7 Catholic + \alpha_8 Tharaka +$$
$$+\alpha_9 Meru + \alpha_{10} Acres + \alpha_{11} Employees + \alpha_{12} Othincome + \alpha_{13} People\,home + \alpha_{14} Noothact + \sum_{l=1}^{5} \gamma_l Cattle_l + \alpha_{15} Ftrade + \varepsilon_i$$

(6.1)

$$Treat_i = \beta_0 + \beta_1 Workyears + \beta_2 Male + \beta_3 Birth + \beta_4 Married + \beta_5 Schoolyears + \beta_6 Famsize + \beta_7 Catholic + \beta_8 Tharaka +$$
$$+\beta_9 Meru + \beta_{10} Acres + \beta_{11} Employees + v_i$$

(6.2)

where *Perform,* a selected performance indicator, is the dependent variable of the first equation, while *Ftrade* (affiliation to FT) is the treatment variable which is both a regressor in the first equation and the dependent variable of the second equation. Since we focus on the FT selection bias our treatment variable is equal to one if the farmer belongs to the Bio or Conversion groups and zero otherwise.

Consider also that, in order to evaluate the dynamic impact of the project across years, we add in the first equation the *Workyears* variable indicating the years of affiliation to FT.

In the two equation system (v) and (ε) are bivariate normal random variables with zero mean and covariance matrix $\begin{bmatrix} \sigma & \rho \\ \rho & 1 \end{bmatrix}$. The likelihood function for the joint estimation of (6.1) and (6.2) is provided by Maddala (1983) and Green (2000).

Selected results of treatment regression estimates are presented in Table VII. These findings show that, for two performance variables (nutritional quality and satisfaction for living conditions), years of FT affiliation remain positive and significant, even after controlling for both FT and Meru Herbs selection biases.[22] This suggests that seniority of affiliation to the FT distribution channel has significant effects on dietary quality and declared satisfaction about living conditions, after controlling for the selection bias effect. Consider that the only other variable which is significant in the second equation is the number of employees hired in the harvesting season. This finding implies that such variable affects the process of selection of participants to the FT project.

6. Fair trade and education: an attempt to reconstruct the dynamics of human capital investment

We finally investigate the impact of FT on child labour (according to our definition, children between 6 and 15 not attending school on the total number of household children in that age cohort) and human capital (according to our definition, children between 6 and 18 going to school on the total number of household children in that age cohort) investment rates in the year of the survey. The estimated specification is

$$Hcap_i = \alpha_0 + \alpha_1 Project + \alpha_2 Income + \alpha_3 Male + \alpha_4 Birth + \alpha_5 Married + \alpha_6 Schoolyears + \alpha_7 Famsize + \alpha_8 Catholic +$$
$$\alpha_9 Tharaka + \alpha_{10} Meru + \alpha_{11} Acres + \alpha_{12} Employees + \alpha_{13} Othincome + \alpha_{14} People\,home + \alpha_{15} Noothact + \varepsilon_i$$

(7)

The difference with previous specifications is that the dependent variable (*Hcap$_i$*) measures, alternatively, the child labour and human capital investment rate described above. Among

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regressors we include here a measure of *Income,* which is one of the most important determinants of the dependent variable.[23] As a measure of income we alternatively use equivalised (*eqincome*) and non equivalised (*montavearn*) household income. The variable *Project* indicates that we verify whether affiliation to one of the four sample groups affects the dependent variable (with *project* being alternatively represented by the already defined *Bio* and *Conversion* dummies). Consider also that the *Schoolyear* variable is particularly important here as several contributions in the child labour literature have shown that parental education has significant effects on household child labour choices.[24] Consider also that the cross sectional estimate has a lower number of observations because of the presence of households not having children in the school age during the survey year. In Table VIII, column 1 the dependent variable is *NOCHILDLAB* (children aged between 6 and 15 attending school over the total number of household children of that age cohort), whereas in column 2 (Table VIII) is *NOHUMCAP* (children aged between 6 and 18 not attending school over the total number of household children of that age cohort).

Our findings show that affiliation to the Conversion group is significantly and negatively (positively) related to the first (second dependent variable). The other only significant variable in the cross sectional estimate is the absence of other working activities which is also negatively (positively) correlated with the first (second) dependent variable.

The selection bias problem obviously applies also to this variable. In this case, though, an original solution could be provided by reconstructing the behaviour of the observed households in a given performance indicator before and after affiliation to Meru Herbs or to FT value chain. In principle, we cannot do that with our cross sectional survey data, except for one important case.

With the available information about age and schooling years of farmers' offspring, it is possible to reconstruct year by year the effective human capital investment of each household vis à vis its potential. In a second step, we can match these series with information on the seniority of affiliation to Meru Herbs and FT project and therefore evaluate whether household human capital investment rate has been affected by project affiliation. As a fundamental *caveat* to our exercise it must be considered that our reasoning holds under the strong assumption of i) absence (or irrelevance) of temporary exits and re-entries into the schooling system and ii) entry into the schooling system when children are six year old.[25] Moreover, we do not dispose of information on yearly household income and other time varying controls, with the exception of the respondent's age and seniority of Meru Herbs and FT affiliation. Nonetheless, the effects of unmeasurable time invariant controls may be captured by fixed effects.

More formally, the household human capital investment rate (HHCI) is given by the following expression

$$HHCI_{it} = \sum_{j=1}^{n_i} \frac{TOTSCH_{ijt} \left| 6 \leq Age_{ijt} \leq 18 \right.}{TOTPOTH_{ijt} \left| 6 \leq Age_{ijt} \leq 18 \right.} \tag{8}$$

where $HHCI_{it}$ is the sum of the children of the i-th farmer in the school age cohort ($6 \leq Age_{ijt} \leq 18$) in a given period t who actually go to school ($TOTSCH_{ijt}$), divided by the number of children of the i-th farmer being in the school age cohort in the same period ($TOTPOTH_{ijt}$).[26]

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[23] On the role of income among determinants of child labour see, among others, Basu, (1999) Basu and Van (1998), Baland and Robinson (2000) and Becchetti and Trovato (2005).

[24] On this point consider the following quote from Marshall (1920) "*The less fully children's faculties are developed, the less will they realise the importance of the faculties of their children, and the less will be their power of doing so. And conversely any change that awards to the workers of one generation better" earnings, together with better opportunities of developing their best qualities, will increase the material and moral advantages which they have the power to offer to their children*" and, among recent literature contributions, those of Haddad and Hoddinott, (1994) Manser and Brown (1980) and Cigno (1991).

[25] We nonetheless performed sensitivity analysis on this threshold by fixing school entry at five year age. Results are substantially unchanged and available upon request.

[26] The total number of children for each farmer (n_i) is indexed to indicate that households are heterogeneous in size.

Based on our reconstructed human capital investment series, we estimate the following fixed effect panel specification

$$HHCI_{it} = \alpha_0 + \sum_{m=1}^{3} \beta_m Dgroup_{mit} + \alpha_2 Totpoth_{it} + \alpha_3 Age_{it} + \alpha_4 pworkyears_{it} + \alpha_5 [pworkyears_{it}]^2 + \sum_{t=1}^{n-1} \gamma_t Dyear_t + \eta_i + \varepsilon_{it}$$

(9)

where *Dgroup* (Bio, Conversion, Control) is a vector of dummies taking the value of one if the respondent is affiliated to one of the three groups in the relevant year and zero otherwise, *Totpoth* is the total number of farmer's children which were in the school age cohort in the relevant year, *Age* is the age of respondent, *pworkyear* is the project seniority of the i-th farmer in the relevant year and *Dyear* are year dummies capturing all factors which may hit cross-sectionally all sample respondents in a given year such as business cycle effects, meteorological shocks etc.. Finally, η_i are fixed effects capturing the joint impact of all time invariant individual characteristics (i.e. ethnic groups, gender, etc...).
The unbalanced panel estimate is based on information drawn on 94 households over a 18-years period and has therefore more than 1,100 observations (Table VIII, columns 3 and 4).

Panel estimate findings show a clearcut positive effect on the dependent variable of affiliation to the Conversion project, together with a negative effect of age. This implies that older farmer parents invest less in human capital of their children. The joint significance of the fixed effects is confirmed by the F-test diagnostics. Our findings hold irrespective of the change into the considered schooling interval (6-15 or 6-18 age cohort).

7. Conclusions

Over 4,000 small-scale and marginalised producer groups in more than 50 developing countries participate to Fair Trade supply chains. More than five million people in Africa, Latin America and Asia benefit from Fair Trade terms (Fair Trade Advocacy Office, 2005).
 It is therefore uncautious to draw general conclusions about the impact of FT from an analysis developed on just one of these projects. Findings from this paper may, at most, give an indication on whether the partnership with Meru Herbs was a good choice for FT and whether the joint impact of FT criteria and Meru Herbs activity had a positive influence on affiliated farmers. We believe, however, that our results, even though project specific, provide interesting evidence to the Fair Trade debate and develop a methodological approach which can be successfully replicated and implemented (i.e. with a difference in difference approach based on two analyses repeated at distance in time) on a larger scale in similar projects.
In the case of the observed Kenyan farmers our main conclusions are that fair trade affiliation seems to be associated with superior capabilities, economic and social wellbeing, but also that more can be done on the human capital side. In the project that was investigated, fair trade is definitely responsible for crop diversification, creation of an additional trade channel and higher price satisfaction of marginalised producers. Fair trade and Meru Herbs affiliated have also been shown to have relatively higher food consumption expenditure and dietary quality, with the latter being seemingly related to the previously mentioned FT direct effects on price satisfaction. Another interesting result is the remarkable difference between fair trade affiliated and control farmers in terms of income satisfaction. Such difference is not only due to the higher earned income, but also to a relatively lower desired income which is likely to be determined by a higher supply of complimentary (or cheaper) goods, services and technical assistance.

Among these findings, those of higher living satisfaction and superior nutritional quality seem to be the most robust since the two variables are positively related to the seniority of FT affiliation and are robust to controls for the FT selection bias in a two equation treatment regression model.

A less clear cut result is the one related to the impact of fair trade on human capital investment. We may note in this case the positive (negative) association between affiliation to the younger Conversion project and human capital investment (child labour), but there is no significant association between the same variables and affiliation to the other projects.

Overall, our findings seem to indicate that FT works quite well in the static perspective and that its specific features directly contribute to the improvement of farmers wellbeing, but also that the dynamic aspect (support for human capital investment) may be further improved. Remember, however, that in our analysis the control group is quite homogeneous with the other three groups, since it shares with them the same geographical area and basic infrastructure. This tends to flatten all differences and makes the exam of the FT impact more severe (as it does not take into account the effect of the positive FT externality in the area). Moreover, the survivorship bias caused by exit of the most successful farmers from the project may contribute as well to the underestimation of the effects of FT.

In addition to these specific results, we believe that a fundamental contribution of this paper consists in the development of a full blown methodology for impact analysis which can be usefully applied to similar projects. Such methodology tackles all phases of the impact study providing guidance for the survey design, the construction of the control sample and the descriptive and econometric analysis which can be developed from survey answers.

Further work in this direction may be needed to enrich the dataset and allow the researcher to disentangle the pure impact of the FT affiliation effect from the local producer and control sample selection bias effects.

References

Armendariz de Aghion, B., Morduch, J,., 2005, The economics of microfinance, MIT press, Cambridge Massachussets.

Bacon C., (2005), "Confronting the Coffee Crisis: Can Fair Trade, Organic, and Specialty Coffees Reduce Small-Scale Farmer Vulnerability in Northern Nicaragua?" *World Development* 33, no. 3

Baland J.M. and Robinson A., (2000), "Is Child Labor Inefficient?", *Journal of Political Economy* 108 (4) pp. 663-679.

Basu K., (1999), "Child Labor, cause, consequence and cure, with remarks on interantional labor standards", *Journal of Economic literature*, vol. 37, pp. 1083-1119.

Basu K. and Van P.H., (1998), "The Economics of Child Labor" *American Economic Review* 88, 412-427

Becchetti L., Trovato G., (2005), "The determinants of child labour: the role of primary product specialization", *Labour,* Vol. 19, No. 2, pp. 237-271.

Bird, K. & Hughes, D.: 1997, 'Ethical consumerism: the case of "fairly-traded" coffee, *Business Ethics: a European Review*, **6**, 3, pp.159-167

Castro J.E. (2001), "Impact assessment of Oxfam's fair trade activities. The case of Productores de miel Flor de Campanella", OXFAM

Castro J.E. (2001), "Impact assessment of Oxfam's fair trade activities. The case of COPAVIC", OXFAM

Cigno A., (1991), "Economics of the Family"*,* Clarendon Press and Oxford University Press, Oxford and New York

Corporate social responsibility monitor 2003 (downloadable at
http://www.bsdglobal.com/issues/sr.asp

DFID, (2000), "Fair trade: overview, impact, challenges", Oxford Policy Management and Sustainable Markets Group

EFTA Yearbook: Challenges of Fair Trade 2001-2003, downloadable at http://www.eftafairtrade.org/Document.asp?DocID=49&tod=93821

Fair Trade Advocacy Office, (2005), "Fair Trade rules!", downloadable at http://www.ifat.org/downloads/advocacy/FairTradeRules_oct%202005.pdf

Fehr E. and Falk A., (2002), "Psychological Foundations of Incentives", *European Economic Review* 46, 687-724

Greene, W.H., 2000, Econometric Analysis, 4th ed. Upper Saddle River, NJ, Prentice-Hall

Haddad L. and Hoddinott J., (1994), "Women's Income and Boy-Girl Anthropometric Status in Cote d'Ivoire" *World Development* 22, 543-553

Hayes, M., 2004, Strategic management implication of the ethical consumer http://www.fairtraderesearch.org

Hopkins R., (2000), "Impact assessment study of Oxfam Fair Trade", OXFAM

KPMG International Survey of **Corporate Responsibility Reporting** 2005 downloadable at www.**kpmg**.com/Rut2000_prod/Documents/9/Survey2005.pdf

Leclair, M. S., 2002, Fighting the tide: Alternative trade organizations in the era of global free trade, World Development 30 (7): 1099–122

Maddala, G.S., 1983, Limited-dependent and qualitative variables in econometrics. Cambridge: Cambridge University Press.

Manser M. and Brown M., (1980), "Marriage and Household Decision Making: a Bargaining Analysis" *International Economic Review* 21, 31-44

Marshall, A., (1920), *Principles of Political Economy*, London: Macmillan, 8th edition

Maseland, R., & De Vaal, A. (2002). How Fair is Fair Trade? De Economist, 150, 251-272.

Moore, G., 2004, The Fair Trade Movement: parameters, issues and future research, Journal of Business Ethics, 53, 73-86

Nelson V. and Galvez M., (2000), "Social Impact of Ethical and Conventional Cocoa Trading on Forest-Dependent People in Ecuador", University of Greenwich

Pariente W., (2000), "The impact of fair trade on a coffee cooperative in Costa Rica. A producers behaviour approach", Université Paris I Panthéon Sorbonne

Redfern A. and Snedker P., (2002), "Creating market opportunities for small enterprises: experiences of the fair trade movement", ILO

Ronchi L., (2002), "The impact of fair trade on producers and their organizations: a case study with Coocafè in Costa Rica", University of Sussex

Sobel J., 2005, Interdependent preferences and reciprocity, XLIII, 2, pp. 392-436.

Table I Summary characteristics of the four farmer groups

	Bio	Conversion	Onlyfruit	Control
Male (percent)	54.94	33.57	74.7	43.4
Catholics (percent)	46.23	56.6	60.24	46.24
Age	48	43	48	38
Years of affiliation to the Meru cooperative	13.3	1.1	2.8	0
Schooling years	6.3	9.17	7.53	8.97
Tharaka ethnic group (percent)	86.7	60	76.7	70
Meru ethnic group (percent)	6.6	3.3	26.7	10
Acres	10	7.16	9.36	6.8
N. of employees hired during harvesting season	1.3	1.9	1.96	0.7
N. of children	3.1	2.5	3.6	1.9
Other income*	23.15	26.14	20.16	20.34
No other activities*	80.27	73.73	70.26	76.12
Number of respondents	30	30	30	30

Group legend: *Bio*: certified organic farmers with long-run affiliation to Meru Herbs and long-run access to FT channels. *Conversion*: Meru Herbs farmers under conversion towards the organic certification with short-run or starting partnership with FT. *Onlyfruit*: Meru Herbs farmers which are fruit producers and have non systematic relationship with FT. *Control*: farmers not affiliated to Meru and FT who share the same productive environment and advantages of the local irrigation infrastructure with affiliated farmers.
* Share of respondents for which the item applies.

Table II. Crop diversification and sale conditions

	Bio	Conversion	Onlyfruit	Control
Share of products directly sold to customers (percent)	17	18	28	38
Share of products sold to intermediaries (percent)	9	7	12	20
Share of products sold to Meru Herbs (percent)	60	55	38	0
Avg. number of products sold	8.8	7.7	6.6	4
Papaw*	5 (20)	5 (18)	5 (19)	5 (1)
Mango*	7 (20)	7 (15)	7 (25)	- -
Okra*	26 (6)	32 (9)	30 (10)	31 (11)
Karkade*	7 (30)	7 (1)	7 (28)	--
Sorghum*	12.2 (17)	11.7 (16)	12.4 (13)	10.2 (18)
Maize*	12.4 (15)	12.8 (15)	13 (21)	11.7 (18)
Millet*	15 (16)	12 (15)	16.7 (14)	13.5 (20)
Pilipili*	40 (13)	30.5 (19)	30.7 (13)	14 (4)
Guava*	7(18)	7(7)	7(8)	--
Lemon*	5(19)	5(10)	5(14)	--
Number of respondents	30	30	30	30

Group legend: *Bio*: certified organic farmers with long-run affiliation to Meru Herbs and long-run access to FT channels. *Conversion*: Meru Herbs farmers under conversion towards the organic certification with short-run or starting partnership with FT. *Onlyfruit*: Meru Herbs farmers which are fruit producers and have non systematic relationship with FT. *Control*: farmers not affiliated to Meru and FT who share the same productive environment and advantages of the local irrigation infrastructure with affiliated farmers.

* Price in shillings, with the number of group farmers selling the product on the market in parenthesis

Table III. Price satisfaction, income and quality of living indicators

	Bio	Conversion	Onlyfruit	Control
Weekly household consumption expenditure*	425	510	429	357
Income satisfaction (percent)	75.23	28.14	45.64	22.16
Household monthly earnings*	4,972	5,257	4,394	3,195
Equivalised monthly earnings*	213.7	272.6	216.1	211.6
Infant mortality (percent)	0.14	0.17	0.07	0.29
Desired monthly earnings*	26,333	28,750	31,436	28,000
Share of respondents declaring the highest level of price satisfaction (percent)	7.35	6.26	3.68	0
Share of respondents declaring the next to highest level of price satisfaction (percent)	24	24	19	11
Child labour	0.87	0.55	0.92	0.77
Human capital investment	0.09	0.35	0.04	0.19
Number of respondents	30	30	30	30

Variable legend. *Income satisfaction*: share of respondents declaring the highest or next to highest income satisfaction; *Equivalised monthly earnings*: household monthly earnings scaled by AE where $AE = 1 + 0.5 (N_{adults} - 1) + 0.3 N_{children}$, according to the OECD equivalised income standard. *Infant mortality*: share of group respondents with a child between 0 and 5 year old died in the last three years; *child labour*: children between 6 and 15 not attending school on the total number of household children in that age cohort; *human capital investment*: children between 6 and 18 going to school on the total number of household children in that age cohort.
Group legend: *Bio*: certified organic farmers with long-run affiliation to Meru Herbs and long-run access to FT channels. *Conversion*: Meru Herbs farmers under conversion towards the organic certification with short-run or starting partnership with FT. *Onlyfruit*: Meru Herbs farmers which are fruit producers and have non systematic relationship with FT. *Control*: farmers not affiliated to Meru and FT who share with affiliated farmers the same productive environment and advantages of the local irrigation infrastructure.
* In shillings.

Table IV. The impact of Meru and FT affiliation on the standardised index of price conditions (SIPC) and on the index of price satisfaction (IPS)

Var. Dip.	SIPC		IPS
Bio	0.033		0.177**
	[0.235]		[0.067]
Conversion	0.648**		0.190**
	[0.253]		[0.073]
Control	-0.020		-0.146**
	[0.253]		[0.075]
Male	-0.152		0.114*
	[0.176]		[0.052]
Birth	-0.012		0.001
	[0.008]		[0.002]
Married	0.032		-0.039
	[0.150]		[0.053]
Schoolyears	-0.011		-0.007
	[0.019]		[0.006]
Famsize	-0.028		0.009
	[0.032]		[0.009]
Catholic	-0.053		-0.017
	[0.172]		[0.049]
Acres	-0.014		
	[0.008]		
Employees	0.037		
	[0.055]		
Othincome	0.062		0.074
	[0.212]		[0.059]
Peoplehome	-0.020		-0.014
	[0.038]		[0.011]
Noothact	0.069		-0.030
	[0.219]		[0.064]
Constant	23.311	Constant	-1.916
	[15.252]]		[3.939]
LR χ2(15)	18.68	LR χ 2 (16)	43.95
Prob> χ 2	0.2857	Prob> χ 2	0.0001
Pseudo R^2	0.0845	Pseudo R^2	0.5729
Observations	90	Observations	106

Variable legend SIPC: standardised index of price condition (SIPC) for the i-th farmer selling the j-th (j=1,…n$_i$) product on the market where

$$SIPC_i = \frac{1}{n_i}\sum_{j=1}^{n_i}\frac{P_{ij}-\mu_{Pj}}{\sigma_{Pj}}$$ with μ_{Pj} and σ_{Pj} being, respectively, the average and standard deviation of the product j price in the overall sample.

The number of products sold (n) is indexed by i since it is different for each farmer.
$IPS_i = (3*muchperc + 2*enoughperc + afewperc)/3$ where *muchperc* is the share of products sold on the market on which the farmer declares highest price satisfaction, *enoughperc* (*afewperc*) the share of products sold on the market on which the farmer declares next to highest (next to lowest) price satisfaction.

The two indexes are dependent variables (in columns 1 and 2) in Tobit specifications since both dependent variables have upper and lower bounds.
Legend of regressors: *Control (Bio, conversion)*: dummy variable taking the value of one if the farmer belongs to the Control (Bio, conversion) group and zero otherwise, *male*: dummy variable taking the value of one for male respondents and zero otherwise; *birth:* year of birth; *married*: dummy variable taking the value of one for married respondents and zero otherwise; *schoolyears*: schooling years of the respondent; *Famsize*: number of the respondent children; *catholic*: dummy variable taking the value of one if the farmer is catholic and zero otherwise; *acres*: extension in acres of the farmer land; *Employees*: number of employees hired during the harvesting season; *Othincome*: dummy variable taking the value of one if the respondent has additional sources of income and zero otherwise; *peoplehome*: number of persons living at the respondent's home; *noothact*: dummy variable taking the value of one if the respondent has another working activity and zero otherwise.
Results on ethnic group affiliation dummies are omitted for reasons of space. * 90 percent significance, ** 95 percent significance. Robust standard errors in square brackets.

Table V. The impact of FT and Meru affiliation on household weekly food expenditure (FOODCONS) and dietary quality (QUALCONS)

Dep. Var.	FOODCONS	FOODCONS	QUALCONS	QUALCONS
Atallperc		-185.903**		
		[97.365]		
Control	-133.097**		-0.351*	
	[65.947]		[0.202]	
Workyear				0.040**
				[0.017]
Male	-13.396	-8.020	0.203	0.105
	[59.380]	[65.202]	[0.167]	[0.198]
Birth	3.257	3.189	0.007	0.008
	[2.458]	[2.208]	[0.008]	[0.008]
Married	-19.195	-10.549	0.040	0.189
	[33.269]	[38.916]	[0.142]	[0.117]
Schoolyears	-2.803	-0.455	0.022	0.034
	[8.530]	[8.822]	[0.022]	[0.024]
Famsize	18.178	19.361	0.009	-0.039
	[15.361]	[14.059]	[0.033]	[0.038]
Catholic	-93.542	-75.179	0.120	0.110
	[71.555]	[63.736]	[0.167]	[0.186]
Acres	-2.225	-55.694	0.010	0.011
	[1.924]	[74.683]	[0.010]	[0.009]
Employees	-0.103	0.770	0.021	0.103**
	[12.777]	[2.142]	[0.029]	[0.043]
Othincome	-11.402	45.094*	-0.0959	0.018
	[72.734]	[26.359]	[0.232]	[0.260]
Peoplehome	-13.252	-2.547	-0.043	-0.053
	[14.982]	[14.218]	[0.035]	[0.052]
Noothact	-87.470	-95.768	0.381	0.647**
	[70.467]	[70.028]	[0.220]	[0.249]
Chickens				0.649*
				[0.381]
Goats				-0.500
				[0.256]
Cows				0.666**
				[0.212]
Pigs				0.281
				[0.454]
Constant	-5714.546	-5793.393	-10.628	-14.396
	[4815.826]	[4332.480]	[15.216]	[15.747]
R^2	0.1007	0.1373 R^2	0.1664 R^2	0.3581
Observations	102	105 Observations	103 Observations	75

For the specification of estimates in columns 1 and 2 see equation (4) in the paper. The dependent variable (*Foodcons)* is monthly household food expenditure. For variable legend see Table IV. In columns 3 and 4 the dependent variable (*qualcons*) is an index of nutritional quality built as an unweighted average of frequencies of consumption (more than once a day, once a day, once every three days, once a week, rarely, never) of the following food items (*ugali, chapati, rice, maize, beans, eggs, milk, chicken, other meat, fish, tubers (potatoes), greens, fresh fruit)*. On this basis we build an index of dietary quality giving descending values from a maximum of five to a minimum of one to the above mentioned frequency modalities and we finally calculate our synthetic index as an average of the values for each food item. The third column regression is estimated with a Tobit model since the dependent variable has upper and lower bounds. Column 3 variable legend: *atallperc*: share of products sold on the market for which the farmer is not at all satisfied about price conditions over products sold on the market. Column 4 legend: *chickens*, *goats*, *cows*, *pigs*: dummy variables taking the value of one if the relevant animal is raised and zero otherwise. For the other variables see Table IV legend. * 90 percent significance, ** 95 percent significance. Robust standard errors in square brackets.

Table VI. The impact of FT and Meru affiliation on life satisfaction and on infant mortality

Dep. Var.	LIVSAT	LIVSAT	TECHASS	TECHASS	INFMOR	INFMOR
Bio	1.134**				-1.888*	
	[0.559]				[1.110]	
Control						1.641**
						[0.786]
Workyear		0.083**	0.277**	0.255**		
		[0.042]	[0.073]	[0.087]		
Male	0.073	0.081	-0.946	-0.392	1.393	0.782
	[0.428]	[0.427]	[0.585]	[0.701]	[0.852]	[0.722]
Birth	-0.010	-0.009	-0.033	-0.041	-0.060	-0.061
	[0.018]	[0.018]	[0.028]	[0.031]	[0.042]	[0.038]
Married	-0.048	-0.023	-1.221	-2.113		
	[0.319]	[0.319]	[1.054]	[1.265]		
Schoolyears	-0.051	-0.055	0.162**	0.156**	-0.010	0.009
	[0.047]	[0.047]	[0.062]	[0.070]	[0.093]	[0.083]
Famsize	-0.055	-0.057	-0.026	0.077	0.166	0.157
	[0.079]	[0.079]	[0.124]	[0.148]	[0.180]	[0.155]
Catholic	0.528	0.551	-0.237	-0.271	0.004	0.042
	[0.434]	[0.434]	[0.534]	[0.623]	[0.770]	[0.702]
Acres	0.006	0.006	-0.021	-0.043	-0.181	-0.177
	[0.020]	[0.020]	[0.043]	[0.051]	[0.112]	[0.089]
Employees	-0.003	0.003	-0.058	0.008	0.170	0.120
	[0.083]	[0.083]	[0.119]	[0.126]	[0.144]	[0.127]
Othincome	1.781**	1.819**	0.826	0.552	-2.611**	-1.946*
	[0.538]	[0.539]	[0.693]	[0.799]	[1.321]	[1.190]
Peoplehome	-0.138	-0.149	0.206	0.264	-0.054	0.050
	[0.097]	[0.097]	[0.135]	[0.155]	[0.191]	[0.160]
Noothact	-0.259	-0.346	-0.170	-0.739	1.218	1.251
	[0.524]	[0.521]	[0.686]	[0.843]	[1.107]	[0.997]
Chickens	0.281	0.403		0.092	-3.132**	
	[0.610]	[0.600]		[0.860]	[1.361]	
Cows	0.498	0.547		0.762	-0.497	
	[0.522]	[0.527]		[0.784]	[0.927]	
Goats	-1.210	-1.166		1.577	0.314	
	[0.636]	[0.631]		[0.920]	[1.030]	
Pigs	2.001	2.018		-1.640	-0.432	
	[1.445]	[1.451]		[1.982]	[2.300]	
/cut1	-22.007	-19.131	Constant 64.976	80.194	Constant 110.2892	114.8003
	[35.377]	[35.472]	[55.999]	[60.392]	[82.155]	[75.167]
/cut2	-20.609	-17.740				
	[35.364]	[35.460]				
/cut3	-18.350	-15.482				
	[35.342]	[35.439]				
LR χ2(19)	29.04	28.78	LR χ2(20) 15.80	46.71	LR χ(20) 20.85 (15)	15.80
Prob> χ2	0.0654	0.0696	Prob> χ2 36.83	0.0006	Prob> χ2 0.4058	0.3956
Pseudo R²	0.1059	0.1050	Pseudo R² 0.282	0.3582	Pseudo R² 0.2620	0.1985
Observations	103	103	Observations 96	96	Obs. 86	86

The dependent variable of the first and second column regression (LIVSAT) is the answer to the following question: *Are you satisfied with your household's living conditions?* We give the following score to qualitative answers: a lot=3; enough=2 a little=1 not at all=0. The specification is estimated with an ordered logit approach. For variable legend see Table 4 The dependent variable of the third and fourth column (TECHASS) is a dummy variable which takes the value of one if the respondent received technical assistance and zero otherwise. The dependent variable of the fifth and sixth column (INFMOR) is a dummy taking the value of one if the respondent had episodes of infant mortality in the last three years and zero otherwise. For variable legend see Table 4.
* 90 percent significance, ** 95 percent significance. Robust standard errors in square brackets.

Table VII. Effects of FT affiliation on nutritional quality and living condition satisfaction when controlled for the FT selection bias

Dep. Var.	QUALCONS		FTRADE	
	coeff.	s.e.	coeff.	s.e.
Workyear	0.038**	0.018		
Male	0.163	0.203	-0.554	0.306
Birth	0.002	0.007	-0.007	0.013
Married	0.008	0.147	0.039	0.307
Schoolyears	0.040*	0.020	0.035	0.031
Famsize	0.011	0.030	-0.010	0.064
Catholic	0.114	0.158	0.065	0.288
Embu	-0.837	0.576	-0.485	1.113
Meru	0.217	0.314	-0.695	0.588
Tharaka	-0.112	0.230	0.293	0.397
Acres	0.003	0.011	0.057	0.027
Employees	0.046	0.091	0.361**	0.123
Othincome	0.054	0.194		
Peoplehome	-0.034	0.037		
Noothact	0.397*	0.201		
FTRADE	-0.163	0.639		
Constant	-1.695	13.751	13.072	26.394

N. of observations 106
Log L -176.201

Dep. Var.	LIVSAT		FTRADE	
	coeff.	s.e.	coeff.	s.e.
Workyear	0.038**	0.018		
Male	-0.065	0.304	-0.526	0.350
Birth	-0.006	0.009	-0.008	0.013
Married	-0.026	0.167	0.010	0.317
Schoolyears	-0.014	0.026	0.031	0.030
Famsize	-0.029	0.035	-0.017	0.064
Catholic	0.228	0.190	0.088	0.296
Embu	-1.563*	0.697	-0.408	1.246
Meru	-0.068	0.400	-0.635	0.587
Tharaka	-0.406	0.287	0.273	0.387
Acres	0.018	0.017	0.059	0.032
Employees	0.104	0.161	0.355**	0.128
Othincome	0.904**	0.221		
Peoplehome	-0.058	0.042		
Noothact	-0.171	0.230		
Chicken	0.142	0.274		
Sheep	-0.033	0.287		
Cows	0.161	0.216		
Goats	-0.581*	0.260		
Pigs	1.159	0.601		
FTRADE	-0.362	1.376		
Constant	12.756	17.748	3.756	5.728

N. of observations 106
Log L -186.418

Legend: the two equation treatment regression model is described in section 6 (equations 6.1 and 6.2). Variable legend: see Tables V and VI. * 90 percent significance, ** 95 percent significance.

Table VIII. The impact of Meru and FT affiliation on human capital investment and child labour

	NOCHILDLAB		NOHUMCAP		ESTPUCAP15	ESTPUCAP18
Conversion	1.022*	Conversion	-1.230*	Totpoth	-0.006	-0.004
	[0.559]		[0.671]		[0.007]	[0.007]
Bio	-0.027	Bio	-0.350	Bio	-0.035	-0.036
	[0.655]		[0.813]		[0.060]	[0.060]
Eqincome	-0.001			Conversion	0.164**	0.167**
	[0.001]				[0.077]	[0.076]
		Montavearn	0.0001	Onlyfruit	-0.025	-0.025
			[0.0001]		[0.053]	[0.054]
Male	0.536	Male	-0.928	Age	-0.049**	-0.049**
	[0.470]		[0.592]		[0.003]	[0.003]
Birth	0.049	Birth	-0.044	Workyear	-0.004	-0.004
	[0.034]		[0.038]		[0.016]	[0.016]
Married	-0.989	Married	0.132	$[Workyears]^2$	0.000	0.000
	[0.845]		[0.430]		[0.001]	[0.001]
Schoolyears	-0.009	Schoolyears	-0.016	Constant	2.477**	2.464**
	[0.041]		[0.048]		[0.125]	[0.1247]
Famsize	-0.064	Famsize	0.086			
	[0.097]		[0.119]			
Catholic	-0.322	Catholic	0.593			
	[0.445]		[0.613]			
Acres	-0.006	Acres	0.023			
	[0.034]		[0.043]			
Employees	-0.024	Employees	0.098			
	[0.201]		[0.245]			
Othincome	0.785	Othincome	-0.460			
	[0.567]		[0.683]			
Peoplehome	0.046	Peoplehome	-0.141			
	[0.110]		[0.138]			
Noothact	-1.063*	Noothact	1.318*			
	[0.510]		[0.643]			
Constant	-95.767	Constant	87.222			
	[67.295]		[74.415]			
LR χ^2 (19)	30.490		30.770	F(93,996) #	8.41	F(93,994) #	8.28
			0.050	F(25,996)	45.03	F(25,994)	45.31
Pseudo R^2	0.310		0.350	Observations	1115		1113
N of observations	70		69	Groups	94		94

The first two columns present cross-sectional Tobit estimates and the second two columns panel fixed effect estimates. The specifications are described in section 7 (equations 7 and 9). Dependent variables: *nochildlab*: children between 6 and 15 attending school on the total number of household children in that age cohort; *nohumcap*: children between 6 and 18 not attending school on the total number of household children in that age cohort; *estpucap15*: children between 6 and 15 attending school on the total number of household children in that age cohort; *estpucap18*: children between 6 and 18 attending school on the total number of household children in that age cohort

F- test on the null hypothesis of the joint insignificance of the fixed effects. * 90 percent significance, ** 95 percent significance. Robust standard errors in square brackets.

Appendix 1 Survey questionnaire

N°	Question	Alternatives
1	Case number	number (001-100 TG) (101-200 CG) (phase)
2	How long have you been working with Meru Herbs? (Have you never worked with Meru Herbs? If you had, how long?)	years (never worked: 0)
3	Sex	female [1]
		male [3]
4	When were you born?	Year
5	Which ethnic group do you belong to?	embu [1]
		kalenjin [3]
		kamba [5]
		kikuyu [7]
		kisii [9]
		luhya [11]
		luo [13]
		maasai [15]
		meru [17]
		mijikenda [19]
		somali [21]
		taita [23]
		tharaka [25]
		turkana [27]
		kuria [29]
		other [31]
6	Which is your civil status?	Unmarried [1]
		Cohabiting [3]
		divorced [5]
		Separated [7]
		married [9]
7	How long have you attended to school?	years
8	Which religion do you practise?	catholic [9]
		Protestant [7]
		muslim [5]
		other [3]
		no religion [1]
9	How many children do you have?	children
10	How old are they? How many school years have they attended? What kind of job do you do? No children: [0]	age [ ], school years [ ], kind of job [ ]
		inside family [1]
		irregular outside family [3]
		regular autonomous [5]
		regular dependent [7]
		no job [9]
	first child	
	second child	
	third child	
	fourth child	
	fifth child	
	sixth child	
	seventh child	
	eighth child	
	nineth child	
11	Generally speaking do you consider yourself:	very happy [7]
		happy enough [5]

		not very happy [3]
		not happy at all [1]
12	Usually, whom do you apply to, in case of illness?	yourself, at home [1]
		traditional doctors [3]
		Dispensary [5]
		public hospital [7]
		private clinic [9]
		other [11]…………………………………..
13	Where was your last son born? (no children:[9])	at home [1]
		in a clinic [3]
		in hospital [5]
		other [7]……………………………………
14	Who did help you/your wife during last birth? (no children: [11])	nobody [1]
		friends/relatives [3]
		traditional doctor [5]
		nurse [7]
		doctor [9]
15	Your children have been vaccinated? (no children:[9])	yes [3]
		no [1]
16	Have you lost children in tender age in last five years? (no children:[9])	yes [3]
		no [1]
17	When did they die? (no children lost:[9])	during the birth [1]
		in the 1st year [3]
		2nd-5th year [5]
		after the 5th year [7]
	first child	
	second child	
	third child	
18	In the last year how many working days have you lost for illness?	none [1]
		less than 5 days [3]
		6-15 days [5]
		more than 15 [7]
19	Have you never seriously injured yourself on your work place during the last year?	no, never [1]
		one time [3]
		two times [5]
		more than 2 times [7]
20	During the last year have you bought one or more of these things for your children? (no children in school age:[9])	yes [3]
		no [1]
	Books	
	pens and pencils	
	Uniforms	
	Workbooks	
	Bags	
21	Usually do you manage to have the following meals during the day?	yes [3]
		no [1]
	Breakfast	
	Lunch	
	Dinner	
22	How many times do you usually eat the following food?	more than once a day [11]
		once a day [9]
		once every three days [7]
		once a week [5]

		Rarely [3]
		Never [1]
	Ugali	
	Chapati	
	Rice	
	Maize	
	Beans	
	Eggs	
	Milk	
	Chicken	
	other meat	
	Fish	
	tubers (potatoes)	
	Greens	
	fresh fruit	
23	How many acres do you/your family own?	Acres
24	How many workers do you employ during the harvesting season?	employees
25	Which of the following food do you grow for self-consumption?	yes [3]
		no [1]
	Maize	
	other cereals	
	Beans	
	tubers (potatoes)	
	Greens	
	Fruit	
26	Which of the following animals do you breed?	yes [3]
		no [1]
	Chickens	
	Sheep	
	Cows	
	Goats	
	Pigs	
	horses/donkeys	
27	Usually how much do you spend in food for all your family in a week?	shillings
28	When has been your house built?	year
29	In the last five years have you renewed your house?	yes [3]
		no [1]
30	If you had, what? (if not: [9])	yes [3]
		no [1]
	Roof	
	Floor	
	Walls	
	more rooms	
	other ……………………………………………	
31	How many people do usually live in your house?	people
32	Which is the main building material used for your house?	straw and mud [1]
		timbers [3]
		bricks [5]
		other [7]
33	Which kind of floor is there in the house?	bare ground [1]
		cement [3]
		wood boards [5]
		tiles [7]

		other [9]
34	Does your family have access to electricity?	yes [3]
		no [1]
35	Bathroom location and sharing:	inside and exclusive [9]
		inside and shared [7]
		outside and exclusive [5]
		outside and shared [3]
		no bathroom [1]
36	Which is the main light source you have at home?	electricity [9]
		gas [7]
		oil lamp [5]
		other [3]……………………………….
		nothing [1]
37	What type of fuel does your household mainly use for cooking?	wood [1]
		coal [3]
		gas [5]
		electricity [7]
		other [9]…………………………………..
38	Which is your main activity?	agriculture [1]
		handicraft [3]
		working in Meru Herbs [5]
		other [7]…………………………………..
39	Besides this, Do you do another activity?	no [0]
		agriculture [1]
		handicraft [3]
		working in Meru Herbs [5]
		other [7]…………………………………..
40	Please, tell me, for each activity the kind of payment:	per kilo/piece work [1]
		per day [3]
		fixed weekly [5]
		fixed monthly [7]
		other [9]…………………………………..
	main activity	
	second activity (no: [0])	
41	Please, tell me, for each activity your monthly average earning:	shillings
	main activity	
	second activity (no: [9])	
42	How many weeks have you worked for each activity last year?	all the year [1] or number of weeks
	main activity	
	second activity (no: [9])	
43	Whom do you usually sell your products to?	not sold [0]
		directly to clients at the market [1]
		to middlemen [3]
		to Meru Herbs (your organization) [5]
	Papaw	
	Mango	
	french beans	
	Okra	
	Karkade	
	Camomille	
	Lemongrass	
	Tobacco	
	Banana	

	Potatoes		
	soia beans		
	Maize		
	Sorghum		
	Millet		
	Tomatoes		
	Pilipili		
	Guava		
	lemon		
44	How much are you paid per kilo for the following?	sh/kg	
	Papaw		
	Mango		
	french beans		
	Okra		
	Karkade		
	Camomille		
	Lemongrass		
	Tobacco		
	Banana		
	Potatoes		
	soia beans		
	Maize		
	Sorghum		
	Millet		
	Tomatoes		
	Pilipili		
	Guava		
	lemon		
45	When are you paid for your products?	in advance [1]	
		upon delivery [3]	
		after the delivery [5]	
	Papaw		
	Mango		
	french beans		
	Okra		
	Karkade		
	Camomille		
	Lemongrass		
	Tobacco		
	Banana		
	Potatoes		
	soia beans		
	Maize		
	Sorghum		
	Millet		
	Tomatoes		
	Pilipili		
	Guava		
	Lemon		
46	Are you satisfied by the price of the following?	a lot [7]	
		Enough [5]	
		a little [3]	
		Not at all [1]	

	Papaw	
	Mango	
	french beans	
	Okra	
	Karkade	
	Camomille	
	Lemongrass	
	Tobacco	
	banana	
	potatoes	
	soia beans	
	maize	
	sorghum	
	millet	
	tomatoes	
	pilipili	
	guava	
	lemon	
47	Has the price of the following decreased in the last 3 crops?	Yes [3]
		no [1]
	papaw	
	mango	
	french beans	
	okra	
	karkade	
	camomille	
	lemongrass	
	tobacco	
	banana	
	potatoes	
	soia beans	
	maize	
	sorghum	
	millet	
	tomatoes	
	pilipili	
	guava	
	lemon	
48	Have it never happened to you to not manage to sell the crop?	Yes [3]
		no [1]
	papaw	
	mango	
	french beans	
	okra	
	karkade	
	Camomille	
	Lemongrass	
	Tobacco	
	Banana	
	Potatoes	
	soia beans	
	Maize	
	Sorghum	

	Millet	
	Tomatoes	
	Pilipili	
	Guava	
	lemon	
49	Have you ever been asked by Meru Herbs (your organization) to:	yes [3]
		no [1]
	to participate in meetings to take decisions	
	to vote your representatives	
50	When you sell your products to Meru Herbs (your buyers):	yes [3]
		no [1]
	are you sure to sell always your crop?	
	do you sign contracts for selling the crop?	
51	Have you never received technical assistance by Meru Herbs (your buyer)?	yes [3]
		no [1]
52	Does your family have other incomes than the work income?	yes [3]
		no [1]
53	If it does, where do they come from? (if not: [9])	yes [3]
		no [1]
	from the community	
	from the state	
	from the church	
	from private persons	
	from ngos	
	from development agencies	
	other ……………………………………………………….	
54	Are you satisfied with your household's living conditions?	very satisfied [7]
		satisfied enough [5]
		satisfied a little [3]
		not satisfied [1]
55	In your opinion, how much should your monthly wage be to live in a satisfactory way?	shillings
56	Which of the following things does your family own?	yes [3]
		no [1]
	Tv	
	Radio	
	Fridge	
	Bicycle	
	Motorcycle	
	Car	
	Truck	
	mobile phone	
57	Which of the following things have you bought in the last two years?	yes [3]
		no [1]
	Tv	
	Radio	
	Fridge	
	Bicycle	
	Motorcycle	
	Car	
	Truck	
	mobile phone	

58	Have you ever asked/reiceived loans in last three years/before?	asking [ ] receiving [ ] in last 3 years; asking [ ] receiving [ ] before
		asked in last three years si [3]/no [1]
		reiceived in last thrre years si [3]/no [1]
		asked before si [3]/no [1]
		reiceived before si [3]/no [1]
	friends/relatives	
	privates	
	community funds	
	Meru Herbs (your Organization)	
	ngos	
	bank	
	S.A.C.C.O.	
	financial institutions	
	other……………………………………………..	
59	Last year have you managed saving a part of your earning?	a lot [7]
		enough [5]
		a little [3]
		no [1]
60	Last year have you bought the following tools for your activity?	yes [3]
		no [1]
	seeds	
	manures (concimi)	
	ploughs (aratri)	
	other tools	
61	How do you buy the raw materials necessary for your work?	yes [3]
		no [1]
	with your work earnings	
	asking a loan	
	receiving a part of the payment in advance	
	other …………………………………………………..	
62	Whom do you buy from the raw materials and the tools for your work?	yes [3]
		no [1]
	from the trader	
	at the local market	
	from Meru Herbs (your organization) for free	
	from Meru Herbs (your organization) discounted	
	from private persons, used	
	other……………………………………………………	
63	Have you ever been in one of the following places in the last five years?	yes [3]
		no [1]
	other districts of the same province……………………………………	
	other provinces…………………………………………..	
	bordering countries………………………………………..	
	other countries…………………………………………….	
64	Why? (if not: [9})	for work reasons [1]
		to visit parents/relatives [3]
		other [5]…………………………………..
65	In your family has someone never moved for work reasons?	yes [3]
		no [1]
66	If he/she had, where? (if not: [9])	in a rural area in kenya [1]
		in a city in kenya [3]
		abroad [5]

67	Actually, would you be ready to move outside your community for work reasons?	never [1]
		for a little period [3]
		forever [5]
	in a rural area in Kenya	
	in a city in kenya	
	abroad	
69	How do you carry on your job?	alone [1]
		with your relatives [3]
		with other farmers [5]
70	**If 69>[3] or [5]:** How do you consider working in group?	useful [3]
		unuseful [1]
71	**If 69>[1]:** Would you be ready to work in group?	yes [3]
		no [1]
72	**If 70>[3] or 71>[3]:** Why?	because working in group is more enjoyable [3]
		because it is possible helping each other [1]
73	**If 70>[1] or 71>[1]:** Why?	because you don't trust other people [3]
		because you have to think for yourself [1]
74	In your opinion, people that do your same job in your province are:	too many [7]
		a lot [5]
		enough [3]
		a few [1]
75	With your job you try to improve the conditions of:	yourself [1]
		your family [3]
		your community [5]
		your country [7]
76	In last two years have you attended training courses?	no [0]
		yes, one time [1]
		yes, two times [3]
		yes, three times or more [5]
77	**If 76>[1];[3] or [5]:** If you had, what kind of courses? If not: [9]	
78	**If 76>[0]:** If you had not, why? If yes: [9]	they don't interest me [1]
		I don't have time [3]
		I can't afford them [5]
		there aren't training courses [7]
79	In your opinion education is:	very important [7]
		important enough [5]
		not very important [3]
		not important at all [1]
80	Besides your mother-tongue, which languages do you speak?	yes [3]
		no [1]
	other local languages	
	ki-swahili	
	English	
	other foreign languages	
81	If possible, would you like to learn another language? If he/she knows other languages: [9]	yes [3]
		no [1]
82	Do you know fair trade?	yes [3]
		no [1]

83	**If 82>[3]:** In your opinion, what does fair trade mean? If not: [9]	does not know [0]
84	**If 82>[3]:** Which of the following statements do you agree the most? If not: [9]	fair trade is sponsoring individuals [1]
		fair trade means getting a better earning[3]
		fair trade is an equal commercial relationship [5]
		fair trade is an alternative approach to conventional international trade which aims at sustainable development for excluded and disadvantaged producers[7]
85	How much are you interested in what happens in the national politics?	a lot [7]
		enough [5]
		a little [3]
		not at all [1]
86	In your opinion how much is it important to vote?	a lot [7]
		enough [5]
		a little [3]
		not at all [1]
87	Did you vote in last elections?	yes [3]
		no [1]
88	Which groups or associations do you participate in or are you more interested in?	yes [3]
		no [1]
	sporting groups	
	religious groups or associations	
	cooperative associations (only control group)	
	local community action groups or associations/women groups	
	trade unions	
	political parties	
	other……………………………………………………	
89	How much do you feel proud of your work?	a lot [7]
		enough [5]
		a little [3]
		not at all [1]
90	How much do you trust the following?	a lot [7]
		enough [5]
		a little [3]
		not at all [1]
	the church	
	government	
	school	
	Meru Herbs (your organization)	
	trade unions	
	political parties	
91	During last five years have you changed your production system?	yes [3]
		no [1]
92	Do you use the same techniques of your grandfather?	yes [3]
		no [1]
93	If possible, would you be ready to use new tools?	yes [3]
		no [1]
95	How important is it to preserve the environment?	a lot [7]
		enough [5]
		a little [3]

		not at all [1]
96	What do you do with your production's wastes?	yes [3]
		no [1]
	You burn it	
	You throw it	
	You re-use it as manure	
	other …………………………………………………………………….	
97	Do you use the following things?	yes [3]
		no [1]
	fertilizers	
	pesticides	
98	Would you like that your children going on studying? No sons: [9]	You wouldn't like at all [1]
		You wouldn't like but You would allow them doing it if they worked to pay their studies [3]
		You would like and You would help them with the school taxes [5]
99	In your opinion, your community's development should be based on:	people's care [1]
		groups and local movements care [3]
		local institutions care [5]
		government's care [7]
		international organizations, ngos, foreign countries care [9]
100	In your opinion, on what does the family well-being depend:	destiny and social origin [1]
		occuring opportunities [3]
		personal care and fate [5]
		only personal care [7]