

Human capital, externalities and tourism: three unexplored sides of the impact of FT affiliation on primary producers¹

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Abstract

We evaluate the impact of fair trade (FT) affiliation on a sample of around 250 producers from two different fair trade projects which widely differ in terms of average FT affiliation and local standard of living. On the descriptive side we find evidence of two types of externalities (FT affiliates have higher bargaining power also with local intermediaries and, in one project but not in the other, FT improves conditions also of local non FT affiliates). The FT price premium (difference between FT and traditional importers price) is substantial even though “ethical travelers” pay a price even higher than FT importers.

On the econometric side we observe that, in both projects, producers’ income, weekly food consumption expenditure, the non food consumption share on total income, self evaluated relative standard of living and professional self esteem are significantly and positively correlated with affiliation years. Through its impact on consumption share and relative standard of living fair trade is also shown to have indirect significant effects on producers’ life satisfaction.

We also find weaker but significant effects of fair trade affiliation on last year savings, while we do not observe significant differences between the treatment and control sample in terms of wealth proxies. Finally, with backcast panel data we reconstruct farmers yearly decisions to send their children to school and find that FT affiliation has a significant and positive effect on them when children are between 15 and 18. The effect is stronger in the project in which producers have higher standard of living.

Keywords: fair trade, human capital investment, life satisfaction

JEL Numbers: O19, O22, D64.

1. Introduction

A well established empirical and anecdotal evidence shows that unlimited supply of labour (Deaton, 1999) and excess market power of local intermediaries and moneylenders often lead marginalised primary agricultural and textile workers to low (below the marginal product value) earnings which prevent rescue from poverty (Ray, 2000; Becchetti and Trovato, 2000).

Fair trade is an initiative promoted by European and North American trade organisations aimed to tackle this problem via the creation of alternative value chains which provide higher economic value and social benefits to these workers. The fair “trade package” includes capacity building, a price premium which compensates primary producers’ for their low market power and never falls below a defined “subsistence threshold”,² a prefinancing scheme which is aimed to break the

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² Evidence for such premium on prices of coffee beans and cocoa in the last 20 years is well known, available from the authors upon request and omitted here for reasons of space.

monopoly of local moneylenders and an extra premium to finance local public goods (via training courses, health facilities, schooling support) provided by the local producers' association.³

The FT initiative has significantly gained momentum in the recent past (Moore, 2004; Hayes, 2004). In the last five years net sales in Europe have grown by 40 percent per year and FT products (sold not only by specialised retailers such as "world shops" but also by most supermarket chains)⁴ have conquered significant market shares (49 percent of bananas in Switzerland, around 20 percent in the UK and 3.3 percent in the US of ground coffee according to data of the FT importers' association).

The growing interest among policymakers and researchers on the issue does not depend just on its increasing market relevance. FT is an important example of the new bottom-up participation of concerned consumers which "vote with their portfolio"⁵ to promote environmental and social sustainability of corporate practices. It is therefore a concrete example of how it is possible to increase market democracy and consumers participation. The FT incorporated price premium⁶ demonstrates that it is possible to create (economic) value with (social and environmental) values. Finally, FT is also an economic process which extends traditional market functions. If traditional welfare theory tells us that the market cannot have redistributive properties or cannot affect endowment gaps of the transactors, the opportunity of buying FT gives to the market a new capacity of addressing directly social imbalances, thereby overcoming one of its traditional limits.

Given their interesting potential fair trade initiatives aroused a wide debate⁷ but also many criticisms which only rigorous impact analyses, such as the one we try to develop in this paper, may partially address.

First, the price premium has often been seen as a distortion from the market clearing equilibrium, which creates wrong incentives to primary producers and leads to excess production in low added value sectors. Second, it has been argued that the more standard approach of combining the purchase of a standard product with a donation is welfare enhancing (it costs less to consumers and provides the same benefit to producers) with respect to the fair trade alternative (LeClair, 2005). Third, it has been questioned that the benefit provided to fair trade affiliates may, at the same time, reduce welfare of other producers operating in the area if it turns into a reduction of demand for their products.⁸

³ According to IFAT (the main federation gathering producers and fair trading organizations) fair trade criteria are: i) Creating opportunities for economically disadvantaged producers; ii) Transparency and accountability; iii) Capacity building; iv) Promoting Fair Trade; v) Payment of a fair price.; vi) Gender Equity; vii) Working conditions; (*healthy working environment for producers. The participation of children (if any) does not adversely affect their well-being, security, educational requirements and need for play and conforms to the UN Convention on the Rights of the Child as well as the law and norms in the local context.*); viii) The environment; ix) Trade Relations. (*Fair Trade Organizations trade with concern for the social, economic and environmental well-being of marginalized small producers and do not maximise profit at their expense. They maintain long-term relationships based on solidarity, trust and mutual respect that contribute to the promotion and growth of Fair Trade. Whenever possible producers are assisted with access to pre-harvest or pre-production advance payment*).

⁴ One of the most remarkable features of the fair trade phenomenon is the contagion of big players in the production and distribution industry (Nestlé started in October 2005 to introduce a fair trade product in its product range, Coop UK launched its own fair trade product line, Starbuck rapidly became the main seller of FT coffee in the last years). Becchetti et al. (2005) show that, in a horizontal differentiation duopoly in which firms compete on prices and ethical features of the product, partial adoption of FT practices is the optimal strategy for profit maximising incumbents after fair trader's entry.

⁵ Samuelson and Nordhaus (2005).

⁶ Becchetti and Rosati (2005) in their econometric study calculate the willingness to pay for the social and environmental content of FT products. The authors find a significant cohort effect and a strong positive relationship with knowledge of FT criteria.

⁷ For an evaluation of the effects of FT from the perspective of traditional trade theories see Maseland and De Vaal (2002). Other relevant papers dealing with various aspect of the impact of FT are those of Moore (2004), Hayes (2004) and Redfern and Snekter (2002).

⁸ In a fundamental paper LeClair (2002) argues that, if the price premium increases the number of worked hours, there can be an increase in supply which may ultimately lead to a lower price and to a potential reduction of income of non

On the first point it can be argued that the price premium may correct a market distortion insofar as the non FT price is driven below the competitive one by the monopsonistic power of local intermediaries. In addition to it, fair trade can be conceived as a *general purpose innovation* which creates a new variety of products. Hence the FT price is not a distortion of the traditional product price but the intermediate price of a new product variety.⁹

The second critique hinges on the assumption of unsegmented labour markets. However, in many situations, marginalised producers have often neither the skills nor the organisation to access foreign markets and FT importers often have a crucial role in promoting producers access to them.¹⁰ Hence it is not said that, even in case of a higher number of hours worked, the supply on the local market is increased. What could happen is quite the contrary (more production sold abroad and less on the local market). Given these equally plausible alternative scenarios the question needs to be addressed empirically.

On the third point it may be argued that the critique is valid in case of full employment and not in presence of unemployment or underemployment. Furthermore, if we again assume inequality in bargaining power when producers contract sale conditions with local intermediaries, the entry of FT intermediaries in the market may even generate a positive externality by raising the outside option and bargaining power of non FT affiliated producers, provided that entry into FT circuit is free and there are no limits of total products that can be distributed along that chain. Again the answer to this third point needs empirical testing.

This synthetic presentation of the main open issues clearly demonstrates that the fair trade debate urgently requires empirical evidence which can be obtained with impact analyses of the effects of FT affiliation on local producers.

With this respect the literature is scant and limited to a few well structured case studies (Bacon, 2005; Pariente, 2000; Castro, 2001; Nelson and Galvez, 2000; Ronchi, 2002). The only relevant exception at the moment is the econometric analysis on FT/Meru Herbs producers developed by Becchetti and Costantino (2007) showing that, after controlling for selection bias, fair trade affiliation has a significant impact on several wellbeing indicators, even though it does not seem to improve significantly human capital investment.¹¹

In this paper we aim to push further the analysis with three main innovations.

First, we directly address the problem of externalities by evaluating whether: i) fair trade affiliation leads to improved sale conditions also on other trading channels for affiliated producers; ii) the introduction of fair trade affects wellbeing of non affiliated producers in the area.

Second, we reconstruct with a backcast panel approach all schooling decisions of affiliated producers in order to evaluate the impact of fair trade on human capital investment.

Third, we introduce a comparison of fair trade prices not just with prices of sales to traditional local intermediaries but also to socially responsible tourists.

The paper is divided into five sections including introduction and conclusions. In the second section we describe characteristics of the two projects highlighting the the specific FT features. In the third

FT producers. In addition to it, the author argues that a lower price translates into reduced income only if price elasticity is low (which is however highly likely to be the case for agricultural products).

⁹ In this perspective the price premium is therefore not the distortion of the (unique standardised “capital c”) Coffee price but an element which creates a new product whose (final consumer) price is determined by the crossing of supply and demand on the product market. Hence, the “downstream price distortion” is the innovation which creates additional demand on the final product and such “distortion” (a different partition of value between producers and importers in the value chain) can be justifiable as far as it meets consumer ethical tastes (or as far as consumers are willing to pay for it).

¹⁰ In most projects within the FT circuit, access to foreign markets is originated by the FT relationship (see the Meru Herb case in Becchetti-Costantino (2007)).

¹¹ The relevance of these studies is also practical since the publication of paper’s results led the Meru Herbs organisation to promote a system of scholarships for affiliates’ children in order to improve its human capital performance.

and fourth section we present descriptive and econometric analysis respectively. The final section concludes.

2.1 The Juliaca project characteristics

Fair trade importers of one of the two projects under consideration (those working in the Juliaca area) have a long term relationship with a second level producer association called Minka.¹² The goal of Minka is that of “promoting the development of producers’ organisations by respecting their cultural traditions and the local environment together with the full satisfaction of consumers”. To achieve this goal Minka operates with Fair trade organisations.

Minka buys products from 61 (first level) groups¹³ of producers from different areas of the country (Piura, Callao, Lima, Ayacucho, Puno, etc.). The second largest group (after that working in Lima) operates in the District of Juliaca (Department of Puno) located around the Titicaca lake.

Living conditions of producers in the district of Juliaca are close to the subsistence level. The traditional activity in the area is agriculture but its extremely low returns and high risk, due to the local atmospheric conditions (drought in summer and frost in winter), led producers to add craftsmanship to their original activity. For Minka and fair trade affiliates craftsmanship has gradually become the main activity.

In order to fulfill its mission Minka declares to adopt the following key operating principles: i) payment to producers of higher prices than those of traditional local intermediaries without exploitation of the informational asymmetries of producers with respect to market prices, demand conditions and final consumer tastes; ii) commitment to buy highest quality wool for producers; iii) prefinancing up to 50 percent of the production of first level groups with which it concludes contracts; iv) use of part of its earnings according to the needs manifested by producers’ groups and generally to finance training courses and other local public goods (for instance restoration of local council buildings, construction of bathroom facilities, building of piers in the Taquile island). Finally, Minka has recently promoted a circuit of “socially responsible tourism”¹⁴ which helps local producers to obtain prices still higher than those paid by FT intermediaries and to reinforce their self esteem with a tangible and direct demonstration of the final consumers appreciation for their culture and products.

2.2 The Chulucanas project characteristics

The second project under consideration is located in a village called Chulucanas (Department of Piura), and is connected to a trading company called ALLPA¹⁵. ALLPA was originally a Trading Project initiated by the Peruvian Institute of Research and Development (IPID) in 1981. Its main objective is to improve the economic situation of Peruvian craftsmen helping them to sell their products in the market. In 1986 ALLPA became a private company owned by IPID with other individual partners. ALLPA objective is to enhance the market accessibility of low-income handicrafts producers allowing them to improve their standards of living through the pursuance of a

¹² The concept of “Minka” in the quechua language can be translated as “reciprocal help” intended as social cohesion within a village or among a group of people (www.altromercato.it).

¹³ Beyond groups there may be various organisational forms (family labs, cooperatives, microenterprises).

¹⁴ Ethical and responsible tourism is a worldwide initiative which aims at organising tourist activities which take special care for environmental and social sustainability of travellers’ impact on the visited countries and foster social-cultural exchange with the people met. The socially responsible aspect generally implies that a higher share of the value generated by this kind of tourism goes to the local population.

¹⁵ Allpa in the quechua-ayacuchan language means “earth” (soil) and this name has been chosen because symbolize the raw material used for all their handicrafts products: clay, metal, wood, stones, cotton and alpaca.

customer oriented vision. The company mission consists of “making the production of handicrafts a source of sustainable employment for a major sector of the Peruvian population. It also hopes to contribute to the good positioning of Peruvian handicrafts in the international market. The intention is that it achieve this through the re-evaluation of handmade items for use as home and apparel accessories, compounding the ability of the craftsmen with their market needs.”

ALLPA is a profit oriented company focusing on the marketing aspects and its development strategies are aimed at product differentiation, innovation and quality. ALLPA works both with Fair Trade organizations and private companies, market importers, department stores and distributors in Europe, North America, Mexico and Australia. The main market is Europe (60% of the total export) and the Fair Trade share in export is 60-70 percent¹⁶.

ALLPA market share is 2 percent of the total handicraft export in Peru in 2006 (Prompex 2007). The headquarter in Lima has a highly qualified team of 17 people, and there are more than 2,000 craftsmen distributed throughout 20 communities and 100 handicraft workshops under a subcontracting system in different areas of Peru (Lima, Cusco, Huancavelica, Chulucanas, Junin, Pucallpa, Puno, Ayacucho). The production consists of 4 main lines: pottery (Chulucanas), jewelry, knits and wooden furniture and painted glass.

ALLPA aims to behave responsibly towards its employees, the artisans who work in the handicraft workshops and their customers. ALLPA deems it important to verify that all workshops are able to produce high-quality handicrafts maintaining social benefit (health, labor hygiene and security) and fulfilling the Peru’s labor legislation. From this perspective, one of the first actions taken consisted of creating social benefits for employees and artisans such as health insurance and paid leave.

To achieve its goals of efficiency and competitiveness, ALLPA delivers effort to enhance orders and to support technologic innovation and investments for all the workshops to increase productivity, to improve quality and therefore easing artisans’ entrance in the market. ALLPA usually finances in advance up to 50 percent of the production of workshops, it manages training courses for artisans and employees, it provides loans and offers technical support and supervision.

Chulucanas (the place in which we realized our survey) is a small village where the economy is based mainly on highly organized pottery production. The production system is very well developed and artisans are organized in small-medium size workshops with an average of 15 employees within a high management layout. The local artisans developed a type of ceramic pottery based on ancient techniques of "negative painting"¹⁷ combining new elements. It is innovative and thus much sought after in the local market. This placed Chulucanas at the top of fine ceramic production in northern Peru.

In the Chulucanas project, ALLPA has highly improved productivity to introduce the electric wood-turning to substitute the traditional “paddle - made” method and has conducted studies on oven performance refinement¹⁸. Moreover, from the social point of view, legal assistance was implemented by ALLPA in Chulucanas to enhance social benefit for the workers and health insurance was provided to full time workers.

3. Descriptive findings

¹⁶ ALLPA, “Plan de negocios 2007-2011”.

¹⁷ Chulucanas pottery can be considered a true inheritance from the Precolombian art of the Vicus, not only because of its quality but also because its artists have captured the techniques that were developed more than 2,000 years ago in the northern coasts of Peru. The negative-positive technique was refined and its renewed use has now evolved into a wide variety of shades ranging from light to a dark, almost black ocher. The color is obtained by selecting several fuels such as tender or ripe (fresh or dry) leaves from banana and mango trees.

¹⁸ New electric ovens were introduced to improve cooking capacity (up to 80 pieces at time).

As it has been clearly shown in the previous section the rationale for the joint analysis of the two projects lies in the fact that they both concern marginalised producers living in the same country with three qualifying differences: i) products are different (pottery in Chulucanas and apparel in Juliaca); ii) the relationship of Chulucanas producers with FT is much more recent; iii) the standard of living of Chulucanas producers is significantly higher than that of Juliaca ones which are around the subsistence level.

Our survey is based on direct interviews done in August 2007 by two researches on randomly selected control and treatment samples in the two projects.¹⁹ On the whole 240 producers have been interviewed, distributed into three groups: i) 80 producers from Juliaca, affiliated to Minka (FT organization); ii) 80 producers from Chulucanas, affiliated to Allpa (FT organization); iii) 80 producers from Juliaca and Chulucanas (40 from each project) not affiliated to the two fair trade organizations (control sample).

Descriptive statistics on the main survey variables give a synthetic outlook of the characteristics of our sample (Table 3).²⁰ The average (including treatment and control samples from both projects) monthly yield of the main productive activity is 396.7 soles per month while weekly food consumption amounts to 81.9 soles. This implies that, on average, by considering a thirty day month length, 91.4 percent of such income goes away for food.

If we sum up all activities we get a total monthly yield of 436.7 soles, with the food consumption share falling to 83 percent. Only 54 percent of producers declare they could save something in the last year. 64 percent of producers have a property house. The average number of children of interviewed producers is around 2.5, their average age is around 35 years and average FT affiliation in the two treatment groups is of 5.9 years²¹. The last son born has been vaccinated in the 95 percent of cases.

These mean values hide strong differences across subgroups. To illustrate them we present (separately for each treatment and control group) means and 95 percent confidence intervals for the most relevant variables (Table 2).

A first point which worth mentioning is that the difference in terms of affiliation years between the two (Juliaca and Chulucanas) treatment samples is strong (around 15 against 3). This is an important point because it allows us to compare the impact of FT on producers welfare at two markedly different phases of FT affiliation. When looking at living standards we observe that income from the main activity is 199 against 60 soles (219 against 64 soles for all activities) in the Juliaca, while 663.7 and 559.5 soles (745 against 622 for all activities) in the Chulucanas case for treatment and control sample respectively. Considering the exchange rate with dollar at the time of the survey (3.18 soles per one dollar) this means that the control group of Juliaca producers living on the Titicaca lake area is well below the poverty line of one dollar per day (PPP ?), while FT affiliates in the same area are slightly above two dollars per day. Economic conditions in the Chulucanas area are much better since the control group earns slightly less than seven and the treatment group above eight dollars per day.

The average weekly consumption expenditure is 53 against 15.9 soles in the Juliaca and 91.4 against 95.6 in the Chulucanas case for the treatment and control sample respectively.

The food consumption share is 49 percent against 61 percent in the Chulucanas case and 99 against 96 percent in the Juliaca one. Another significant difference we observe is related to age. The Chulucanas treatment group is significantly younger than the control group in the same area and, more generally, than all the other three groups.

¹⁹ The research has been developed according to the following timetable: i) July 28 – August 2, 2007: Lima - Allpa and Minka offices: research beginning; ii) August 5 – 17, 2007: Juliaca - community analysis and interviews; iii) August 20 - 28, 2007: Chulucanas - community analysis and interviews; iv) August 29 – September 10, 2007: Lima - Allpa and Minka offices: organizations analysis and research ending.

²⁰ Legend and summary statistics of the selected variables are presented in Tables 1 and 2 respectively.

²¹ The maximum of 40 years is justified by the existence of producers which started the relationship at the beginning of Minka activity with FT features in 1967.

With regard to other descriptive variables, 45 percent of FT affiliates saved money in the last year in the Juliaca project against 30 percent of control sample producers, while the same numbers are 78 against 46 percent in the Chulucanas case. We do not observe significant differences between control and treatment groups in terms of proxies of “wealth” such as ownership of radio, television, electricity, bathroom in the house and drinkable water (even though the percent of radio owners is quite stronger for treatment producers in the Juliaca case (93 against 77 percent)). Consider that some of these variables (such as electricity and drinkable water) depend on the local supply of infrastructure, which is beyond FT control.

Finally, there are no significant differences in the number of children in Juliaca (around three both in the treatment and control sample), while the treatment group in Chulucanas has significantly smaller families than the control group. On the whole, Chulucanas producers also have smaller families than Juliaca ones. Adults’ school years are not significantly different between control and treatment groups in the two projects, while Chulucanas producers (more than 8 years in the control and more than 9 in the treatment sample) have on average around two years more of education than Juliaca ones (around 6 years). Juliaca treatment group has significantly larger property extensions than the control one while the same extension is even lower for the two Chulucanas groups (remember that, differently from the Chulucanas case, the main activity before FT was agriculture in the Juliaca area).

These important differences in characteristics among the four groups make necessary an econometric analysis in which the effect of FT on producer welfare is controlled for all discriminating factors (age, schooling years, family size, FT affiliation years) in order to avoid spurious relationships.

4. Price premium and FT externalities

One of the main goals of our descriptive analysis is to verify the existence of a price premium consistent with FT criteria. In handicraft production it is hard to find a standard product on which comparisons between prices of FT and traditional intermediaries can be done. In the Juliaca project we may identify it in a typical model of wool gloves to both FT and local intermediaries. We find that FT importers pay for this product a price which is 4.6 times larger than that paid by local intermediaries. It is not possible to do the same comparison with the control sample for Chulucanas producers for lack of a sufficient number of observations on a common standardized product. What however surprises us is that the price paid by (socially responsible) tourists to Juliaca (Chulucanas) producers is around 50 (29) percent higher than that paid by FT importers. Hence, socially responsible tourism transfers even more value to local producers than fair trade does. What we obviously have to consider in this comparison is that the price paid by responsible travelers is the final consumer price, while that paid by FT and local intermediaries is an intermediate one (as it is easy to imagine the average final price of FT imported products in Europe and the US is generally higher than that paid by responsible tourists locally). Furthermore, it is fair trade together with Minka that promotes “responsible travel” in the area.²²

As we explain in the short survey sketched in the introduction another critical point discussed in the fair trade literature is related to externalities. If FT affiliates are made better off and increase the total number of working hours supplied locally, does FT reduce overall market prices, thereby reducing welfare of non FT producers (LeClair, 2002)? The answer that non FT producers give to a direct question on the effects of FT entry on their welfare shows that this is not the case for around

²² The limit of responsible travelers is that they cannot ensure stable and sufficient product demand. Furthermore, they do not provide all FT importer services (capacity building, prefinancing schemes, financing of local public goods) and are of no help in further diversification of trade channels.

59 percent of cases for the Juliaca²³ and for 39 percent of cases in the Chulucanas control sample.²⁴ Evidence is therefore mixed and the LeClair effect seems to apply in one but not in the other project.

A second relevant externality is related to the effect of FT affiliation on sale conditions with local intermediaries. On this point we have consistent evidence from two different sources. First, local intermediaries pay higher prices on wool gloves to FT affiliates than to the control sample in the Juliaca project where the comparison among homogeneous products is possible (3.11 against 2.1 soles).²⁵ Second, 58 percent of Juliaca producers confirm in direct qualitative questions that FT affiliation improved sale conditions with local intermediaries in the area. The share of positive answers to the same question is even higher (71 percent) for Chulucanas producers even though in this case limits in our data make impossible a direct price comparison.

Consider that the two observed externalities affect also our comparison between treatment and control group and must therefore be taken into account when commenting econometric results in the section which follows. The first one (FT also improves the well being of non affiliated producers) tends to narrow differences and may lead to an underestimation of the FT effect, the second one (FT increases bargaining power of affiliated producers also with local intermediaries) tends to increase differences even though also the positive external effect is due to fair trade and therefore does not produce a bias in terms of evaluation of the total FT effect. Hence, according to these considerations, the total FT effect could be slightly underestimated in the Juliaca (but not in the Chulucanas) case.

A final interesting finding is related to the perceived relative standard of living with respect to the average standard of the area. Here the producer is asked whether his/her standard of living is far superior, slightly superior, equal, slightly inferior or far inferior to the average one in the area. We give value of four to the first answer, three to the second, up to zero to the last one. Results on this point show that Juliaca producers judge their standard slightly above average (an average value of 2.18) while the control sample more than slightly below average (an average value of .75). The distance is narrower in the Chulucanas case (2.08 against 1.82). We consider Juliaca results as particularly relevant since the observed difference in the perceived relative standard of living does not depend just on the declaration of FT affiliates but also on that of control sample producers which acknowledge that their standard of living is below the average (to which FT-Minka affiliates significantly contribute since they approximately represent one fourth of producers in the area).

5. Econometric findings

Our econometric analysis aims to test the statistical and economic significance of the observed differences in target performance variables between treatment and control samples of producers in the two different areas.

Our standard specification (see Tables 4.1-4.8) includes as regressors standard demographic dummies such as age, gender, education (schooling years of the respondent), family status dummies and number of children. The last two types of variables are important to know the number of

²³ Our investigation in the area finds that the phenomenon may be explained by two factors: training courses which are open to non FT affiliates and increased bargaining power of both FT and non FT producers in the area. A very strong anecdotal proof on this second point is the change in the traditional wholesale market in the area after FT entry. Before it there were two weekly market sessions (one of them at late night), after it the supply to local intermediaries dropped and the night session has been eliminated.

²⁴ Here again additional investigation leads us to discover that affiliated producers sell to FT importers large quantities of products at relatively low prices. These transactions had the effect of reducing the price of control sample producers which do not have the advantage of the long term relationship with FT importers ensuring the sale of large quantities at such prices.

²⁵ What commented in footnotes 15 and 16 on the transformation of local wholesale markets after FT entry in the area is consistent with this evidence.

household members.²⁶ Finally, we consider whether the individual has more than one productive activity, other sources of income and we use land size as a proxy of wealth. Given the focus of our analysis we add the number of trading channels as a measure of the effects of trade diversification on economic and subjective wellbeing.

Results presented in Table 4.1 show at first that FT affiliation years have a positive and significant nonlinear (concave) effect on the yield of the main producer activity in the overall sample estimate. The result is robust in separate estimates of the two different projects. The marginal effect of FT affiliation is of 22 soles the first year (12.5 for Juliaca producers and 90 for Chulucanas producers only) and falls up to 8.2 soles in the 10th year (6.15 for Juliaca producers and 4.67 for Chulucanas producers only). The estimated cumulated ten year effect is of 163 soles in the same year (93 for Juliaca producers and 268 for Chulucanas producers only). Even though the magnitude of the Chulucanas effect is larger than the Juliaca one, the latter is more significant in terms of percent change with respect to the average control sample income in the area (the ten year effect of FT affiliation is a 150 percent increase for Juliaca against a 40 percent increase for Chulucanas producers).

The nonlinearity of the effect of FT affiliation years is an unexpected discovery in our analysis. The two likely rationales for it are that capacity building effects of FT have decreasing marginal returns and that the positive externality of the higher bargaining power with local intermediaries is typically concave (and mainly determined by a strong initial effect).

With regard to control variables the significance of age and education years is what we traditionally expect from wage equations. The gender effect is severe, with women reporting significantly lower wages. Two additional significant factors, which are typical of this context, are the negative impact of self production (a substitute for market wage) and the positive effect of the number of trading channels. An additional trading channel adds extra 116 soles on the total sample, which decomposes into 28 and 228 in the Juliaca and Chulucanas case respectively. Consider however that part of this effect is due to FT affiliation since FT definitely adds one trading channel to the existing ones. This implies that a total FT effect should be close to the sum of the FT affiliation and the number of trading channels effects (this implies also that the nonlinearity of FT effect regards only the first and not the second effect).

Results on the effect of FT affiliation on the total return from all producer activities are substantially in the same direction as those registered on the income from the first activity (the reader may note that magnitudes are slightly smaller here) (Table 4.2).

To sum up, our findings seem to outline two separate FT effects. A nonlinear one concave in affiliation years presumably capturing increased productivity and capacity building and a linear one related to the opening of a new trade channel.

We wonder whether the positive impact of FT affiliation on the remuneration of the first activity translates into a higher weekly food expenditure. We observe that this is the case in the overall sample and in the Juliaca, but not in the Chulucanas case (Table 4.3). This is reasonable in the perspective of the Engel's law, given the position below one dollar the poverty line of Juliaca producers and the relatively higher wellbeing of Chulucanas ones who can expand with additional income their non food expenditure. From a quantitative point of view the ten year effect of FT affiliation on expenditure is just 26 soles in the Juliaca case.

This consideration induces us to measure directly the effect of FT affiliation on the consumption share as a proxy of poverty. Note that the analysis on this variable provides additional information with respect to the already described findings on the two separate components (as it tells us whether

²⁶ We prefer not to divide the income source for the number of household members (and leave the number of members as regressors) since there is a wide debate on the right formula to use when calculating equivalised household income. As it is well known the OECD standard establishes a .5 weight for the partner and a .3 weight for each children. Development empirical studies tend to build equivalence scales by attributing unit weights to all members when working with poor household since it is more difficult to realise economies of scale in food consumption (Deaton and Paxson, 1998).

the income change is used to increase expenditure beyond basic needs). The effect in this case is negative, significant and linear (Table 4.4). The magnitude is quite strong. Each year reduces by 5 percent (18 percent) the consumption share for Chulucanas (Juliaca) producers. The effect is somewhat consistent with the strong difference between the magnitudes of the wage effect and that of the food consumption one. Other significant variables are gender and absence of a second working activity in the Chulucanas case and self production and number of trading channels in the Juliaca case.

To check if results from quantitative variables are confirmed by qualitative ones we measure the impact of FT affiliation on professional self esteem²⁷ (Table 4.5) and self declared “relative” standard of living compared with the average one in the area (Table 4.6).

In the two cases we find a significant and positive effect of FT affiliation both in the overall sample and in the project specific estimates. From a quantitative point of view the magnitude of our coefficients implies that five years of affiliation produce a positive change in perceived relative standard of living which corresponds to the cross sectional standard deviation of the same variable. The effect of FT affiliation on professional self esteem is concave exactly as that on income from the first activity and weekly consumption expenditure. In the Juliaca case we also find that absence of a second activity and the number of trading channels are significantly and positively related to professional self esteem.

We finally want to evaluate the general effect of FT affiliation on producers’ happiness. According to the recent empirical literature,²⁸ robust evidence has been found on the significant effects of income, unemployment, age, gender, marital status and quality of relational life on self declared happiness. Based on this evidence we argue that FT affiliation should affect indirectly life satisfaction via its impact on the consumption share and the perceived relative standard of living. This last measure is particularly important in this literature since one of the most established and debated new contributions of happiness estimates is related to the important role of relative income.²⁹

We therefore estimate a three equation system in which the main equation has self declared happiness as dependent variable and the standard controls as regressors. The two additional equations are those already estimated by measuring the impact of FT affiliation on consumption share and perceived relative standard of living.

Our findings demonstrate that the indirect effect is significant. While results of the two “ancillary” equations remain those found in single equation estimates presented above, the main equation confirms the positive and significant impact of our proxies of poverty and subjective standard of

²⁷ While psychologists tend to believe that self-esteem is mainly determined by the ego structuring during childhood, economists emphasize that it can be significantly affected by life events. Economic studies on the determinants of self esteem as still very few. For a reference see Checchi and Pravettoni (2003) and Plotnick, Klawitter and Edwards (2005).

²⁸ The empirical literature on the income-happiness nexus is extremely vast (see, among others, Blanchflower and Oswald, 2004; Di Tella et al., 2001 and 2003; Easterlin, 2003; Frey and Stutzer, 2002; Graham, 2005; Luttmer, 2005; Winkelmann and Winkelmann, 1996; Oswald, 1997 and 2005; Price, 2005 and Van Praag and Ferrer-i-Carbonell, 2005). In support for the reliability of happiness estimates we remind that i) they have a longstanding tradition in psychology and sociology and have therefore passed a process of “cultural Darwinian selection” in these disciplines (Alesina, Di Tella and MacCulloch, 2004); ii) significant and positive links have been found between self declared happiness and healthy physical reactions such as smiling attitudes (Pavot 1991, Eckman et al., 1990) and heart rate and blood pressure responses to stress (Shedler, Mayman and Manis, 1993); iii) neurosciences have identified a nexus between positive feelings and physical measures of brain activity (higher alpha power in the left prefrontal cortex) while, at the same time, measures of hedonic well being, such as self declared life satisfaction, have been shown to be related with the same activity (Clark et al., 2006); iv) individuals choose to discontinue activities associated with low levels of well-being (Frijters, 2000 and Shiv and Huber, 2000) and v) happiness scores of respondent’s friends and family members are significantly correlated with the respondent’s own report (see Sandvik et al., 1993; Diener and Lucas, 1999).

²⁹ On this point see, among others, Ferrer-i-Carbonell (2005) .

living. The estimate of the system also shows that FT has no direct positive effects on happiness beyond the two indirect ones. The magnitude of the indirect effect of FT affiliation on life satisfaction may be calculated by evaluating first the two effects on the consumption share and on the perceived relative standard of living and, after that, the impact of the latter variables on happiness. From this point of view the estimated magnitude of the system coefficient in the overall sample implies that ten years of FT affiliation produce a .22 change of the happiness indicator which is around one fourth of its cross sectional standard deviation. The effect is probably underestimated as it does not take into account the positive impact of the number of trading channels on the perceived relative standard of living.

6. The selection bias problem

As it is well known a first best impact analysis should compare the observed effects of a given factor with the counterfactual situation (what would have happened to the same individual in absence of the treatment). Unfortunately this is not possible and a second best approach is that of building control samples which are as homogeneous as possible with respect to treatment ones. We do this by using as control sample producers working in the same field of activity and living in the same area of FT affiliates. Another good practice would be that of using a difference in difference approach and therefore of considering target indicators in differences and non in levels. Unfortunately this is extremely time and resource costly in case of development studies.

Alternatively, what we tried to do to avoid spurious effects is to look at the effect of treatment length (affiliation years) on the group of FT farmers.

However a main problem remains: as it is well known, the positive performance of the treated may depend not on the effectiveness of the treatment but on an ex ante qualitative difference between producers in the treatment and control sample. The second effect is almost inevitable, for instance, in microfinance studies in presence of a proper screening activity of the financial intermediary.³⁰ The risk is less severe in FT impact studies if access to the producer association affiliated to FT is not based on the evaluation of the quality potential of the applicants (explicit selection) or if it is proved that not only the most enterprising producers enter it (implicit selection).³¹

We aim to control for implicit and explicit selection with a three step approach. First, we introduce in our survey a question on whether affiliated producers found it difficult to associate. Second we estimate a logit equation in which the dependent variable takes value of one if the response is yes and regress it on a set of controls. Third, we use significant controls as regressors in the selection equation in a treatment regression model in which affiliation to the association working with FT is controlled for.

The second step reveals that the number of children and the presence of an additional source of income affects positively the probability of affiliation while age (and marriage) (weakly) negatively (Table 6). We therefore introduce these four variables in the selection equation. The estimate is obviously run only on the respondents belonging to the two treatment groups. Separate estimates for the two groups confirm these findings.

Results from the treatment regression models confirm the significant nonlinear effect of FT affiliation on weekly consumption expenditure and comparative standard of living, the linear one on professional self esteem and the negative linear one on the consumption share.

The new (overall sample) quantitative effects of FT affiliation are 15.79 soles on income from first activity in one year and 90.99 soles in ten years (2.14 soles for food expenditure in one year and 15 soles for 10 years on aggregate). Here again the overall FT effect on income from the first activity

³⁰ Among the main contributions trying to tackle the issue see Hulme and Mosley (1996), Pitt and Khandker (1998) and Coleman (1999).

³¹ Becchetti and Costantino (2007) in their impact analysis of FT affiliated farmers belonging to the Meru association in Kenya find anecdotal evidence of an implicit selection and control their findings for this effect.

must be larger since one additional trading channel increases wage from the first activity by 119 euros.

7. The effect of FT affiliation on human capital

In measuring the effect of FT affiliation on human capital we have an important advantage with respect to previous estimates. We in fact can create backcast panel data by asking to each producer the number of his/her offspring, the age and the number of schooling years for each of them. To complete our information, we also ask to producers the age at which each child entered the school and whether there were cases of exits and re-entries. With this information we can reconstruct with precision schooling decisions of the household year by year and regress them on a set of controls which are time invariant during the panel period (gender, father and mother schooling years, participation to the treatment or to the control sample of one of the two projects) or whose variation can be reconstructed without problems (age, FT affiliation years).

Once we build the database we can calculate for each producer a time varying index of human capital investment represented by the schooling decisions taken on the total number of potential ones (represented by the number of children which were in schooling age in the given year).

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

$$HHCI_{it} = \frac{\sum_{j=1}^{n_i} TOTSCH_{ijt} \mid Entryage_{ijt} \leq Age_{ijt} \leq Endage_{ijt}}{\sum_{j=1}^{n_i} TOTPOTH_{ijt} \mid Entryage_{ijt} \leq Age_{ijt} \leq Endage_{ijt}} \quad (1)$$

Where the $HHCI_{it}$ index is the sum of the children of the i -th farmer in the school age cohort (where *Entryage* is five or six according to respondent declaration and *Endage* is 18 (17 when school entry was at 5) or below when we are interested to look at schooling decisions up to a given threshold below 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 cohort³² in the same period ($TOTPOTH_{ijt}$).³³

The dependent variable is regressed in a fixed effect model on year dummies and years of FT affiliation (the effect of other variables such as gender and respondent schooling years are captured by fixed effects which also capture other omitted individual time invariant characteristics).³⁴

Our estimates show that in the Chulucanas case FT affiliation significantly contributes to the schooling decision from 18 to 14 years (Table 7). More specifically, in the Chulucanas project each affiliation year increases by 3 percent the household human capital investment rate when our upper bound is 18 years. The effect declines as far as we lower the upper bound but remains significant up to the 14 year threshold (see Figure 1). The Chulucanas effect is clearly visible also from descriptive evidence. The human capital investment rate for the 15-18 year cohort rises from 58 to 72 percent after FT affiliation.

In the Juliaca case the effect vanishes below the 16 threshold and its magnitude is smaller.

By considering the differences in starting living conditions in the two groups the different effect in the two projects is consistent with the well known luxury axiom hypothesis³⁵ establishing that parents start to send children to school when they overcome a given threshold of household income.

8. Conclusions

³² The school age cohort has a lower bound in *Entryage* (5 or 6 year according to the questionnaire declaration). The upper bound varies according to our investigation goals (we move it from 10 to 16 years according to different estimates).

³³ The total number of children for each farmer (n_i) is indexed to account for heterogeneity in household size.

³⁴

³⁵ The *luxury axiom*, postulates that children enter the job market if household income does not overcome a given subsistence threshold (Basu, 1999; Basu and Van, 1998).

The empirical investigation on the impact of FT on apparel and pottery producers in two different areas of Peru on projects which markedly differ in terms of length of FT relationship and producers' standard of living in the area provides us with a rich set of empirical findings.

Such findings improve significantly our knowledge on the consequences of FT relationships and provide important insights for further refinement of these initiatives and, more in general, development policies.

First, we observe a clear positive and nonlinear pattern in the impact of FT affiliation years on producers' income, food expenditure and food consumption share and provide tentative rationales in order to explain concavity in returns of FT effects (decreasing marginal returns of capacity building and positive FT externalities in the area). To this nonlinear effect we must add a linear one determined by trade channel diversification which is mostly attributable to the availability of the FT option.

Second, two kinds of externalities are clearly measured providing empirical evidence on a typical debate on FT effects (LeClair 2000 hypothesis). On the one side we find that FT definitely helps producers to improve bargaining power with local intermediaries. Evidence on this point is supported by two independent sources (comparison of prices with non FT intermediaries for the treatment and control samples and producers answers to a direct question on this issue). On the other side we find that, in one project but not in the other, conditions of non FT producers in the area are improved by FT presence. This implies that the LeClair's hypothesis is not rejected in one out of the two cases.

Third, an unexplored role of FT and its impact (the alliance with responsible tourism) is documented for the first time. Responsible travelers pay even more than FT producers but their presence is promoted by FT and their role is complementary to that of FT.

Fourth, some indirect consequences of FT affiliation on producers life satisfaction are clearly identified. More specifically, FT affiliation years are shown to increase perceived relative standard of living and to reduce food consumption share. These two changes have in turn positive and significant effects on life satisfaction.

Fifth, with a backcast panel approach the paper develops an original method which allows to evaluate the effect of affiliation on schooling decisions. With this respect we observe that in the Chulucanas project FT affiliation years have a significant and positive effect on producers' decision to send their children to school between 15 and 18 years. The effect is weaker for Juliaca producers and vanishes below the 16 year upper threshold.

In this concluding remarks we want to mention some policy considerations which stems from our results. First, descriptive evidence on the price premium and FT externalities and the robustness of the impact on wage, food consumption, consumption share, professional self esteem, perceived comparative standard of living and happiness documents that FT may be an effective instrument to improve economic wellbeing and life satisfaction of producers by easing market access, capacity building and for its antitrust effects on the market power of local intermediaries.

Second, further progress needs probably to be done in the "scaling up" perspective by strengthening the link between fair trade, schooling decision and wealth accumulation. To this purpose it may be probably useful in the future to link FT intervention to institutional complementary actions on infrastructure and schooling policies.

References

- Alesina A., Di Tella R., MacCulloch R., 2004. "Inequality and happiness: are Europeans and Americans different?". *Journal of Public Economics*, 88, pp. 2009–2042.
- Basu K., (1999), "Child Labor, cause, consequence and cure, with remarks on international 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
- 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(3), 497-511.
- L. Becchetti,, M. Costantino, 2006, Fair Trade on marginalised producers: an impact analysis on Kenyan farmers, working paper CEIS 220 and *World Development* (forth.)
- L. Becchetti, F. Rosati, 2007, Globalisation and the death of distance in social preferences and inequity aversion: empirical evidence from a pilot study on fair trade consumers, *The World Economy*, 30 (5), 807-30.
- Becchetti, L., & Trovato G. (2005). The determinants of child labour: the role of primary product specialization. *Labour* 19(2), 237-271.
- Castro, J.E. (2001a). Impact assessment of Oxfam's fair trade activities. The case of Productores de miel Flor de Campanilla. Oxford: Oxfam.
- Castro, J.E. (2001b). Impact assessment of Oxfam's fair trade activities. The case of COPAVIC. Oxford: Oxfam.
- Checchi D. and Pravettoni G. (2003), "Self-esteem and Educational Attainment", *Departmental Working Paper*, No. 2003-30, Department of Economics University of Milan Italy.
- Clark, A.E., Frijters, P., Shields, M.A., 2006, Income and Happiness: Evidence, Explanations and Economic Implications, *Paris Jourdan Sciences Economiques*, working paper 2006-24.
- Coleman B. (1999) The impact of group lending in Northeast Thailand, in: *Journal of Development Economics*, Vol. 60, pp. 105-141.
- Deaton, A., and Paxson C. (1998). Economies of Scale, Household Size and the Demand for Food. *Journal of Political Economy* 106(5), 897-930
- Diener E., Lucas R. E., 1999. "Explaining Differences in Societal Levels of Happiness: Relative Standards, Need Fulfillment, Culture, and Evaluation Theory". *Journal of Happiness Studies*, Vol. 1, pp. 41-78.
- Di Tella, R. and MacCulloch, R. (2003). "The Macroeconomics of Happiness", *Review of Economics and Statistics*. November 2003, 85(4): 809–827, MIT Press.
- Di Tella, R., MacCulloch, R. and Haisken-DeNew, J.P. (2005). Happiness adaptation to income and to status in an individual panel. *Harvard Business School Working Paper*.
- Di Tella, R., MacCulloch, R. and Oswald, A. (2001). "Preferences over Inflation and Unemployment: Evidence from Surveys of Happiness". *American Economic Review*, 91(1): 335-341.
- Ekman, P. Davidson, R. and Friesen W., 1990, The Duchenne smile: emotional expression and brain physiology II, *Journal of Personality and Social Psychology*, 58, 342-353.
- Fair Trade Advocacy Office (2005a). Fair Trade rules! <http://www.ifat.org/downloads/advocacy/FairTradeRules_oct%202005.pdf>. Brussels.
- Fair Trade Advocacy Office (2005b). Fair Trade in Europe 2005. <<http://www.fairtrade.net/uploads/media/FairTradeinEurope2005.pdf>>. Brussels.
- Ferrer-i-Carbonell, A. (2005). "Income and well-being: An empirical analysis of the comparison income effect". *Journal of Public Economics*, vol. 89, pp. 997-1019.
- Frijters P. , 2000. "Do Individuals Try To Maximize General Satisfaction?"
- Hayes, M. (2004). Strategic management implication of the ethical consumer. <<http://www.fairtraderesearch.org>>.

- Hulme D. and Mosley P. (1996) Finance against poverty. Vol. I, II. Routledge, London.
- Leclair, M. S. (2002). Fighting the tide: Alternative trade organizations in the era of global free trade. *World Development* 30(7), 1099–1122.
- Maseland, R., & De Vaal, A. (2002). How Fair is Fair Trade? *De Economist* 150(3), 251-272.
- Moore, G. (2004). The Fair Trade Movement: parameters, issues and future research. *Journal of Business Ethics* 53(1-2), 73-86
- Mosley, W.H., & Chen, L. C. (1984). An analytic framework for the study of child survival in developing countries. *Population and Development Review* 10, 25-45.
- Nelson, V. & Galvez, M. (2000). Social Impact of Ethical and Conventional Cocoa Trading on Forest-Dependent People in Ecuador. University of Greenwich.
- Oswald, A.J. and Powdthavee, N. (2005). Does happiness adapt? A longitudinal study of disability with implications for economists and judges. *University of Warwick Working Paper*, Department of Economics.
- Oxford Policy Management (2000). Fair trade: overview, impact, challenges. <www.opml.co.uk/docs/ACF3C8C.pdf>
- Pavot, W., 1991, Further validation of the satisfaction with life scale: evidence for the convergence of well-being measures, *Journal of Personality assessment*, 57, 149-161.
- Pitt, M. and Khandker, S. (1998a) Household and intra-household impact of the Grameen Bank and similar targeted credit programs in Bangladesh, in: *Journal of Political Economy*, Vol. 106, 558-596
- Pariente, W. (2000). The impact of fair trade on a coffee cooperative in Costa Rica. A producers behaviour approach. Université Paris I Panthéon Sorbonne
- Plotnick, R., Klawitter, M. and Edwards, M. (XXX), “Do Attitudes and Personality Characteristics Affect Socioeconomic Outcomes? The Case of Welfare Use by Young Women”, *Institute for Research on Poverty Discussion Papers*, No 1161-98, University of Wisconsin
- Redfern, A. & Snedker P. (2002). Creating market opportunities for small enterprises: experiences of the fair trade movement. ILO, Geneva.
- Ronchi, L. (2002). The impact of fair trade on producers and their organizations: a case study with Coocafè in Costa Rica. University of Sussex
- Senik, C. (2004). When information dominates comparison: A panel data analysis using Russian subjective data. *Journal of Public Economics*, vol. 88, pp. 2099-2123.
- Shedler, J., Mayman, M., & Manis, M. (1993). The illusion of mental health. *American Psychologist*, 48 (11), 1117–1131.
- Shiv B., Huber J., 2000. “The Impact of Anticipating Satisfaction on Consumer Choice”. *Journal of Consumer Research*, Vol. 27, pp. 202–216.

Table 1 Variable legend

Ftage	Number of affiliation years to Fair Trade (FT)
Ftdummy	Dummy variable taking value of one if the producers is affiliated to FT and zero otherwise
Age	Producer's age
Female	Dummy variable taking value of one if the producer is a woman and zero otherwise
Ha	Land size in hectares
Selfprod	Dummy variable taking value of one if the producer has selfproduction activities
Selnumtot	Number of trading channels
Othincome	Dummy variable taking value of one if the producer has more than one source of income and zero otherwise
Secactno	Dummy variable taking value of one if the producer has not other productive activities beyond the main one
Married	Dummy variable taking value of one if the producer is married and zero otherwise
Divorced	Dummy variable taking value of one if the producer is divorced and zero otherwise
Separated	Dummy variable taking value of one if the producer is separated and zero otherwise
Schoolyears	Number of producer's schooling years
Numson	Number of producer's children
Wageact1	Producer's monthly income from the main activity
Houseprop	Dummy taking value of one if the responder owns his house and zero otherwise
Lastsonvac	Dummy taking the value of one if the last son has been vaccinated and zero otherwise
Wagetot	Overall producer's monthly income
Foodcons	Weekly food consumption expenditure
Compstandliv	Perceived standard of living with respect to average standard of living in the area
Happy	Self declared life satisfaction (discrete variable ranging from 1 to 10)
Pricediftur	Price differential on a standard pair of wool gloves between the price paid by socially responsible tourists (P_T) and that paid by fair trade importers (P_{FT}) $[(P_T - P_{FT})/P_{FT}]$
Pricedifint	Price differential on a standard pair of wool gloves between the price paid by fair trade importers (P_{FT}) and that paid by local intermediaries (P_{LI}) $[(P_{FT} - P_{LI})/P_{LI}]$
Sinceminkaext	Dummy taking the value of one if the (FT affiliated) respondent declares that FT affiliation improved his/her sale conditions also with local intermediaries
Improveminkarea	Dummy taking the value of one if the control sample respondent declares that FT affiliation improved his/her wellbeing
Consshare	Share of food consumption on total producer's income
Profesteem	Self declared professional self esteem (discrete variable ranging from 1 to 10)
Humancap__	Household human capital investment rate (HHCI) given by the following expression $HHCI_{it} = \frac{\sum_{j=1}^{n_i} TOTSCH_{ijt} Entryage_{ijt} \leq Age_{ijt} \leq Endage_{ijt}}{TOTPOTH_{ijt} Entryage_{ijt} \leq Age_{ijt} \leq Endage_{ijt}}$ <p>Where the $HHCI_{it}$ index is the sum of the children of the i-th farmer in the school age cohort 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 ($TOTPOTH_{ijt}$). The school age cohort has a lower bound in $Entryage$ (5 or 6 year according to the questionnaire declaration). The upper bound ($Endage$) varies according to our investigation goals (we move it from 10 to 18 years according to different estimates).</p>

Table 2 Economic and socio-demographic characteristics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Guantintcost	77	3.168831	3.029211	0,5	18
Age	241	35.06639	12.02098	25	82
Schoolyears	241	7.780083	3.628214	0	20
Ftage	240	5.920833	8.941815	0	40
Ha	241	1.5861	3.918719	0	40
NumSon	241	2.473029	2.309468	0	10
Selnumtot	241	1.116183	1.050291	0	3
Foodcons	240	81.91667	43.22358	10	300
Wageactl	241	396.6888	481.7903	40	1400
Total income	240	436.8755	499.5936	53	2000
Consumption share	240	.7323	2.143	.13	100
Houseprop	241	0.6390041	0.4812889	0	1
Trusttot	241	1.477178	0.5532397	0	3
Lastysavtot	241	0.5394191	0.6827503	0	3
Lastsonvac	187	0.9518717	0.214612	0	1
Happy	241	2.112033	0.7527037	0	3
Standlivcomptot	241	1.854772	0.8264306	0	4
Pricediftur	77	0,4989067	0,3414161	0,1666667	1,5
Pricedifint	23	4,261594	3,352571	-0,2	12

Variable legend: see Table 1

Table 3. Summary characteristics of the four farmer groups

	Juliaca treatment	Juliaca control	Chulucanas treatment	Chulucanas control
Guantintcost	3.109524	2.0675	2.828427	5.714286
Guantturcost	17.56164	6	10.5	12.88889
Age	40.2625	38.7	28.5875	34.02439
Schoolyears	6.475	6.325	9.4625	8.463415
Ftage	14.93671	0	3.0125	0
Ha	3.2	1.15625	0.9375	0.1219512
NumSon	3.525	3.225	1.225	2.121951
Selnumtot	2.1875	1.025	0.2375	0.8292683
Avbasfood	0.0178571	0.0285714	0.0142857	0.0139373
Wageact1	199	50	663.775	599.5122
Wagetot	219.91	64.26	745.632	622.213
Houseprop	0.7375	0.5	0.5375	0.7804878
Trusttot	1.529167	1.366667	1.616667	1.211382
Lastysavtot	0.45	0.3	0.7875	0.4634146
Envirespecttot	2.3625	1.925	2.575	0.9756098
Lastsonvac	1	0.825	0.9545455	1
Happy	2.3	1.325	2.175	2.390244
Numlostson	0.556962	0.6315789	0.0875	0.4146341
Standlivcomptot	2.1875	0.75	2.0875	1.829268
Sicurezza	2.8875	2.875	2.95	2.853659
Avfruit	0	0	0.0125	0.0487805
Avveg	0	0	0.025	0
Avmeat	0.025	0	0.0375	0.0243902
Avchick	0.075	0.1	0	0.0243902
Avmilk	0	0	0.2	0.1463415
Pricediftur	0.5100993		0.2946429	
Pricedifint	4.669048		- 0.0166667	
Sinceminkaext	0.5833333		0.75	
Improveminkarea		0.5833333		0.3846154
Human capital 18	0.7650711	0.7514489	0.8872035	0.8299883
Human capital 16	0.792945	0.8019406	0.9176136	0.8813549
Human capital 14	0.8275862	0.8483333	0.9248366	0.9173482

Variable legend: see Table 1

Table 4.1 The impact of Fair Trade on producers' income from the first activity

	All sample	Juliaca	Chulucanas	All sample	Juliaca	Chulucanas
ftage	25.33857 (2.67)	12.84943 (4.11)	95.50413 (3.21)			
ftagesq	-0.9323025 (-2.81)	-0.3540344 (-3.4)	-4.882053 (-2.1)			
ftdummy				120.2079 (2.17)	176.0818 (7.4)	266.3497 (2.65)
age	8.094547 (2.37)	0.5544015 (0.59)	24.67557 (2.78)	8.08705 (2.35)	0.7380204 (0.9)	26.75697 (2.95)
ha	-4.730618 (-0.64)	6.651505 (2.23)	-11.63419 (-1)	-12.14018 (-1.76)	4.050592 (1.89)	-7.383997 (-0.63)
female	-433.056 (-7.01)	59.16293 (1.62)	-135.27 (-1.04)	-409.3326 (-6.62)	64.14203 (2.05)	-98.46668 (-0.74)
selfprod	-39.63933 (-3.12)	-3.303933 (-0.89)	-19.7601 (-0.63)	-37.94702 (-3.02)	-2.713259 (-0.84)	-17.65717 (-0.56)
selnumtot	115.5068 (3.48)	27.83594 (1.69)	228.2533 (3.81)	120.94 (3.77)	-23.02034 (-1.35)	272.4474 (4.36)
othincome	-32.09856 (-0.34)	-18.69825 (-0.48)	-17.04092 (-0.12)	-49.19113 (-0.52)	-41.06399 (-1.21)	7.11911 (0.05)
secactno	124.7176 (1.92)	12.10239 (0.56)	82.25605 (0.72)	127.4553 (1.96)	5.39712 (0.29)	48.4533 (0.42)
married	157.6157 (2.41)	21.99528 (1.03)	220.4504 (1.91)	137.4435 (2.11)	14.16241 (0.79)	198.593 (1.69)
divorced	382.0981 (1.36)	54.81368 (0.59)	561.2817 (1.19)	337.7364 (1.21)	-59.7867 (-0.76)	562.9607 (1.16)
separated	74.73194 (0.42)	13.30345 (0.25)	-225.0817 (-0.66)	54.47552 (0.31)	8.809383 (0.19)	-306.8021 (-0.89)
schoolyears	17.47896 (1.94)	7.418183 (2.5)	31.30754 (1.93)	18.19607 (2.02)	7.199996 (2.83)	29.2476 (1.76)
numson	-28.60147 (-1.57)	5.21878 (1.08)	-105.6242 (-2.09)	-29.50943 (-1.62)	5.121578 (1.21)	-113.3401 (-2.2)
constant	124.9298 (0.76)	-107.4783 (-1.41)	-515.8752 (-1.62)	81.87615 (0.48)	-80.80065 (-1.21)	-601.263 (-1.81)
Number of obs.	238	119	119	239	120	119
R²	0.4077	0.4093	0.4532	0.3994	0.5404	0.4242
F	10.96	5.15	6.16	11.51	9.59	5.95

Table 4.2 The impact of Fair Trade on producers' total income

	All sample	Juliaca	Chulucanas	All sample	Juliaca	Chulucanas
ftage	19.6404 (1.99)	7.800681 (1.94)	92.12733 (3.05)			
ftagesq	-0.7458314 (-2.16)	-0.2181925 (-1.63)	-4.637185 (-1.97)			
ftdummy				133.2783 (2.32)	161.6925 (5.11)	293.4434 (2.92)
age	7.369017 (2.07)	0.3846568 (0.32)	26.0258 (2.89)	7.546151 (2.13)	0.5966763 (0.55)	28.18923 (3.1)
ha	-1.700602 (-0.22)	17.31155 (4.52)	-13.0767 (-1.11)	-8.565659 (-1.2)	16.22478 (5.68)	-9.329442 (-0.79)
donna	-474.1562 (-7.36)	51.49187 (1.09)	-123.8623 (-0.94)	-451.4446 (-7.07)	61.99625 (1.49)	-87.28764 (-0.66)
selfprod	-52.09709 (-3.94)	-5.598876 (-1.17)	-29.44171 (-0.93)	-51.03047 (-3.93)	-5.372755 (-1.25)	-26.05367 (-0.83)
selnumtot	105.1762 (3.04)	32.95064 (1.55)	214.9125 (3.54)	105.0305 (3.17)	-27.85578 (-1.23)	262.3626 (4.19)
othincome	-32.77874 (-0.34)	-6.812107 (-0.13)	-43.72746 (-0.31)	-53.76623 (-0.55)	-19.68145 (-0.43)	-20.68943 (-0.15)
Secactno	-36.58143 (-0.54)	-10.68418 (-0.39)	-217.3766 (-1.88)	-28.13747 (-0.42)	-14.29146 (-0.58)	-244.9631 (-2.13)
married	152.4314 (2.24)	22.74013 (0.82)	227.0881 (1.95)	132.6753 (1.97)	18.86096 (0.79)	198.0178 (1.68)
divorced	323.1719 (1.1)	40.77409 (0.34)	553.9625 (1.15)	296.9361 (1.03)	-36.75359 (-0.35)	568.452 (1.17)
separated	63.95869 (0.35)	-16.94949 (-0.25)	-249.2215 (-0.72)	54.06869 (0.29)	-16.75032 (-0.27)	-327.7798 (-0.95)
schoolyears	20.4442 (2.17)	9.808245 (2.57)	35.59548 (2.16)	20.89121 (2.24)	10.12795 (2.99)	32.92359 (1.97)
numson	-26.9732 (-1.42)	5.342328 (0.86)	-109.0423 (-2.13)	-27.28425 (-1.45)	4.491585 (0.8)	-115.2054 (-2.24)
constant	340.5462 (1.98)	-85.77711 (-0.87)	-267.7629 (-0.83)	275.4932 (1.56)	-65.0302 (-0.73)	-379.5696 (-1.14)
Number of obs.	238	119	119	239	120	119
R²	0.4014	0.4165	0.4476	0.4037	0.5128	0.4307
F	10.68	5.3	6.02	11.72	8.58	6.11

Table 4.3 The impact of Fair Trade on food consumption expenditure

	All sample	Juliaca	Chulucanas	All sample	Juliaca	Chulucanas
ftage	3.082881 (3.05)	2.675424 (1.88)	0.808377 (0.31)			
ftagesq	-0.08849 (-2.5)	-0.0726 (-1.53)	0.096311 (0.48)			
ftdummy				16.95219 (2.87)	26.11048 (2.13)	8.084938 (0.95)
age	0.402608 (1.1)	-0.02662 (-0.06)	1.310968 (1.71)	0.443867 (1.21)	-0.00864 (-0.02)	1.332858 (1.73)
ha	-0.32024 (-0.41)	-0.25695 (-0.19)	0.328732 (0.33)	-0.75781 (-1.03)	-0.87245 (-0.79)	0.363819 (0.36)
female	-16.8509 (-2.55)	20.17316 (1.21)	8.84121 (0.78)	-14.7424 (-2.24)	19.49823 (1.21)	8.216754 (0.73)
selfprod	-2.64429 (-1.95)	0.568654 (0.33)	-2.88093 (-1.06)	-2.16804 (-1.62)	0.679795 (0.41)	-2.08288 (-0.78)
selnumtot	4.642905 (1.31)	11.54956 (1.54)	9.521 (1.84)	6.367761 (1.87)	6.780176 (0.77)	10.52051 (1.98)
othincome	-5.41886 (-0.54)	-21.58 (-1.21)	-2.91611 (-0.24)	-7.04773 (-0.71)	-26.3713 (-1.51)	-1.85759 (-0.15)
secactno	13.64817 (1.97)	7.929182 (0.81)	7.912905 (0.8)	13.4896 (1.95)	6.433985 (0.67)	8.934308 (0.92)
married	3.334 (0.48)	3.104864 (0.32)	4.358292 (0.44)	2.012991 (0.29)	1.184159 (0.13)	5.974965 (0.6)
divorced	24.57413 (0.82)	6.091053 (0.14)	23.02738 (0.56)	16.39197 (0.55)	-16.4065 (-0.4)	25.3357 (0.62)
separated	-4.14959 (-0.22)	-9.89624 (-0.41)	-15.613 (-0.53)	-6.36327 (-0.34)	-11.4779 (-0.48)	-17.128 (-0.58)
schoolyears	0.101249 (0.11)	-1.18928 (-0.88)	1.391052 (0.99)	0.032671 (0.03)	-1.33485 (-1.02)	1.409935 (0.99)
numson	1.219353 (0.63)	2.793143 (1.26)	-1.37724 (-0.32)	1.402278 (0.72)	2.937219 (1.35)	-1.49668 (-0.34)
constant	61.55655 (3.49)	14.02993 (0.4)	31.65302 (1.15)	53.9395 (2.97)	19.21488 (0.56)	25.68681 (0.91)
Number of obs.	238	119	119	239	120	119
R²	0.1591	0.2241	0.2223	0.1526	0.2275	0.2083
F	3.01	2.15	2.12	3.12	2.4	2.12

Variable legend: see Table 1

Table 4.4 The impact of Fair Trade on food consumption share

	All sample	Juliaca	Chulucanas	All sample	Juliaca	Chulucanas
ftage	-0.09869 (-3.75)	-0.09171 (-1.99)	-0.0253 (-1.63)			
ftagesq						
ftdummy				-1.81303 (-4.62)	-3.84039 (-3.35)	-0.22254 (-2.02)
age	0.053157 (2.16)	0.06239 (1.53)	-0.01369 (-1.37)	0.041533 (1.71)	0.051625 (1.31)	-0.01472 (-1.48)
ha	0.02778 (0.54)	0.066874 (0.62)	0.013076 (1.01)	0.006875 (0.14)	-0.00985 (-0.1)	0.012981 (1.01)
female	1.883655 (4.25)	1.103274 (0.69)	0.245826 (1.69)	1.817473 (4.16)	1.320886 (0.88)	0.240327 (1.66)
selfprod	0.328688 (3.6)	0.302781 (1.86)	0.05156 (1.49)	0.276479 (3.11)	0.292308 (1.87)	0.040911 (1.19)
selnumtot	-0.4116 (-1.74)	-1.49666 (-2.26)	0.037689 (0.56)	-0.50448 (-2.23)	-0.12844 (-0.16)	0.007057 (0.1)
othincome	0.342067 (0.51)	1.196882 (0.7)	-0.11287 (-0.72)	0.518215 (0.78)	1.618835 (0.99)	-0.12522 (-0.81)
secactno	0.325409 (0.7)	0.602588 (0.65)	0.341342 (2.71)	0.247404 (0.54)	0.617822 (0.69)	0.325416 (2.59)
married	0.04159 (0.09)	0.074447 (0.08)	-0.21179 (-1.64)	0.007138 (0.02)	-0.23229 (-0.27)	-0.19699 (-1.53)
divorced	-0.31794 (-0.16)	-1.18159 (-0.3)	-0.4993 (-0.94)	0.118029 (0.06)	0.567123 (0.15)	-0.5552 (-1.05)
separated	-2.01988 (-1.58)	-2.93337 (-1.26)	0.056453 (0.15)	-2.12334 (-1.69)	-3.14936 (-1.4)	0.083793 (0.22)
schoolyears	-0.10024 (-1.55)	-0.17482 (-1.35)	-0.01289 (-0.7)	-0.07473 (-1.17)	-0.14979 (-1.22)	-0.01064 (-0.58)
numson	0.002139 (0.02)	-0.11652 (-0.55)	0.056658 (1)	-0.05073 (-0.39)	-0.07971 (-0.39)	0.05541 (0.98)
constant	-0.37754 (-0.32)	2.928225 (0.88)	0.960373 (2.7)	0.966148 (0.8)	2.425655 (0.75)	1.109802 (3.05)
Number of obs.	238	119	119	239	120	119
R²	0.2825	0.2374	0.2001	0.3011	0.2827	0.2106
F	6.78	2.51	2.02	7.45	3.21	2.15

Variable legend: see Table 1

Table 4.5 The impact of Fair Trade on professional self esteem

	All sample	Juliaca	Chulucanas	All sample	Juliaca	Chulucanas
ftage	0.227923 (4.84)	0.248762 (3.54)	0.270987 (2.32)			
ftagesq	-0.00472 (-3.06)	-0.00583 (-2.58)	-0.01764 (-2.06)			
ftdummy				1.880556 (6.75)	2.469679 (4.03)	1.090516 (2.78)
age	-0.02021 (-1.24)	-0.01255 (-0.64)	0.010855 (0.31)	-0.01761 (-1.08)	-0.01406 (-0.72)	0.012967 (0.37)
ha	-0.01071 (-0.35)	0.000845 (0.01)	-0.03657 (-0.95)	-0.01803 (-0.64)	-0.03723 (-0.78)	-0.02808 (-0.74)
female	-0.44071 (-1.5)	-0.14183 (-0.19)	0.86677 (1.59)	-0.33331 (-1.14)	-0.41206 (-0.59)	0.962756 (1.77)
selfprod	-0.05468 (-0.92)	-0.03131 (-0.4)	0.211937 (1.74)	-0.00951 (-0.16)	-0.03041 (-0.39)	0.202322 (1.68)
selnumtot	0.069264 (0.43)	0.845522 (2.36)	-0.07995 (-0.35)	0.31585 (2.09)	0.559958 (1.41)	0.111384 (0.47)
othincome	0.080058 (0.17)	1.060776 (1.02)	-0.46937 (-0.84)	0.111798 (0.25)	0.499778 (0.53)	-0.34583 (-0.64)
secactno	0.806799 (2.57)	0.849567 (1.75)	0.552609 (1.23)	0.804663 (2.61)	0.688888 (1.46)	0.514486 (1.16)
married	0.143424 (0.47)	0.41992 (0.91)	0.197228 (0.45)	0.048859 (0.16)	0.305968 (0.69)	-0.00993 (-0.02)
divorced	0.176657 (0.16)	0.484665 (0.3)	0.59364 (0.38)	-0.70709 (-0.58)	-1.86922 (-1.19)	0.686303 (0.44)
separated	0.024269 (0.03)	0.25772 (0.2)	-0.37201 (-0.27)	-0.00347 (0)	0.450518 (0.35)	-0.54932 (-0.41)
schoolyears	0.066007 (1.61)	0.08249 (1.34)	0.055494 (0.89)	0.041037 (0.98)	0.050277 (0.84)	0.037655 (0.59)
numson	-0.01351 (-0.16)	0.017774 (0.17)	-0.14918 (-0.74)	0.044824 (0.53)	0.051412 (0.51)	-0.13401 (-0.67)
/cut1	-4.67074 (-6.7578)	-2.12704 (-5.50654)	-1.26383 (-3.77053)	-3.82706	-2.87673 (-6.22476)	-0.92582 (-3.45558)
/cut2	-3.06605 (-4.74959)	-0.44831 (-3.59899)	-0.24977 (-2.70681)	-2.2201	-1.1876 (-4.3043)	0.108421 (-2.37621)
/cut3	-2.61385 (-4.24008)	0.063552 (-3.0496)	0.937332 (-1.52679)	-1.77256	-0.67232 (-3.74956)	1.303847 (-1.19006)
/cut4	-1.50116 (-3.03227)	1.021548 (-2.04691)	2.142702 (-0.34176)	-0.64958	0.311155 (-2.71383)	2.501178 (-0.01311)
/cut5	-0.63979 (-2.14998)	2.011807 (-1.06935)	2.981099 (0.473483)	0.238763	1.323476 (-1.70402)	3.348918 (0.811496)
/cut6	0.364635 (-1.14692)	3.113369 (-0.00343)		1.254997	2.38009 (-0.67096)	
/cut7	1.485171 (-0.04099)	4.409601 (1.242171)		2.414357	3.675785 (0.587759)	
/cut8	1.993946 (0.45549)	4.569946 (1.394207)		2.939255	3.836679 (0.742049)	
Number of obs	238	119	119	239	120	119
Pseudo R²	0.0645	0.138	0.036	0.075	0.1346	0.0426
Log likelihood	-413.88	-194.391	-192.85	-410.535	-196.426	-191.523

Variable legend: see Table 1

Table 4.6 The impact of Fair Trade on producers' perceived relative standard of living

	All sample	Juliaca	Chulucanas	All sample	Juliaca	Chulucanas
ftage	0.257205 (4.57)	0.267845 (3.32)	0.498904 (3.07)			
ftagesq	-0.00558 (-2.95)	-0.00575 (-2.2)	-0.02932 (-2.41)			
ftdummy				2.467968 (6.62)	5.609391 (5.97)	1.667706 (3.11)
age	-0.04045 (-2.27)	-0.01361 (-0.61)	-0.04604 (-1.01)	-0.03186 (-1.77)	-0.01015 (-0.43)	-0.03015 (-0.67)
ha	-0.01903 (-0.46)	-0.01381 (-0.19)	-0.02867 (-0.46)	-0.03246 (-0.81)	-0.01484 (-0.22)	-0.01077 (-0.17)
female	-1.07367 (-3.07)	0.691452 (0.73)	-0.50759 (-0.69)	-0.86886 (-2.49)	0.860155 (0.79)	-0.231 (-0.32)
selfprod	-0.08831 (-1.25)	0.020127 (0.23)	0.151721 (0.92)	-0.03967 (-0.57)	0.01206 (0.13)	0.150992 (0.93)
selnumtot	0.448654 (2.42)	0.626409 (1.51)	1.183015 (3.7)	0.579024 (3.15)	-0.81267 (-1.5)	1.401935 (4.26)
othincome	0.19532 (0.38)	1.018737 (0.99)	-0.72235 (-1.01)	-0.14416 (-0.27)	0.332274 (0.3)	-0.59082 (-0.83)
secactno	0.370368 (1.04)	0.757054 (1.48)	-0.16992 (-0.29)	0.432685 (1.19)	0.589799 (1.12)	-0.40586 (-0.68)
married	0.384489 (1.06)	1.031041 (1.93)	-0.02364 (-0.04)	0.356353 (0.99)	1.287594 (2.39)	-0.29894 (-0.51)
divorced	1.142069 (0.78)	3.791419 (1.63)	0.310919 (0.11)	0.386594 (0.24)	0.765826 (0.29)	0.447105 (0.16)
separated	-0.27597 (-0.29)	-1.71568 (-1.15)	2.758802 (1.57)	-0.46204 (-0.47)	-2.35853 (-1.14)	2.327233 (1.38)
schoolyears	0.011726 (0.23)	0.183104 (2.36)	-0.17897 (-2.22)	-0.00468 (-0.09)	0.161331 (2.05)	-0.19503 (-2.4)
numson	-0.05448 (-0.57)	0.063662 (0.57)	-0.52582 (-2.09)	-0.00529 (-0.06)	0.074302 (0.63)	-0.54903 (-2.22)
/cut1	-3.47977 (-5.3)	2.564853 (-1.1)	-7.73206 (-11)	-2.30293 (-4.20345)	1.779714 (-2.21617)	-7.03847 (-10.7237)
/cut2	-2.1866 (-4)	3.747342 (-0.01)	-5.19284 (-8.4)	-0.92357 (-2.78621)	3.303074 (-0.72695)	-4.513 (-7.8745)
/cut3	1.755646 (-0.07)	7.671161 (3.6)	-0.20016 (-3)	3.283435 (1.35074)	8.107363 (3.75292)	0.448008 (-2.76044)
/cut4	3.416775 (1.4)	9.335303 (5.1)	1.793328 (-1.5)	4.958825 (2.908985)	9.846434 (5.356413)	2.423208 (-0.97086)
Number of obs.	238	119	119	239	120	119
Pseudo R²	0.1303	0.207	0.1754	0.1666	0.3176	0.1731
Log likelihood	-225.317	-115.69	-85.1474	-216.265	-99.9415	-85.3873

Variable legend: see Table 1

Table 5.1 The indirect effects of FT affiliation on producer's happiness

	Happy	standlivco~t	consshare
	All sample	All sample	All sample
standlivco~t	0.187231 (3.38)		
consshare	-0.04977 (-3.22)		
age	-0.00029 (-0.05)	-0.0149617 (-2.35)	0.050422 (2.12)
ha	0.004478 (0.39)	-0.0042374 (-0.31)	0.0037855 (0.07)
female	-0.10948 (-1.02)	-0.418712 (-3.64)	1.942134 (4.53)
selfprod	-0.01262 (-0.59)	-0.0378514 (-1.6)	0.3335306 (3.78)
selnumtot	0.213382 (3.87)	0.1601405 (2.59)	-0.3562114 (-1.54)
othincome	0.291608 (1.88)	0.0824108 (0.47)	0.3534542 (0.55)
secactno	0.158541 (1.48)	0.1039907 (0.86)	0.272858 (0.61)
married	0.130241 (1.2)	0.0853989 (0.7)	-0.0127703 (-0.03)
divorced	0.806654 (1.74)	0.3511271 (0.67)	-0.548134 (-0.28)
separated	-0.17091 (-0.57)	-0.1342095 (-0.4)	-2.170701 (-1.76)
schoolyears	0.020108 (1.34)	0.0006745 (0.04)	-0.0938643 (-1.5)
numson	-0.0268 (-0.89)	-0.0112024 (-0.33)	-0.010022 (-0.08)
ftage		0.086721 (4.91)	-0.2008281 (-3.05)
ftagesq		-0.0018737 (-3.04)	0.0038676 (1.68)
constant	1.475427 (4.88)	2.192825 (7.11)	-0.1575567 (-0.14)
Number of obs.	238	238	238
R²	0.2787	0.2546	0.2909

Table 6.1 Variables affecting difficulties in entering the producers' association

Age	-0.0622434 (-1.92)
Ha	-0.0309302 (-0.48)
Female	-0.4134278 (-0.54)
Selfprod	0.0238112 (0.21)
Selnumtot	0.007776 (0.02)
Othincome	1.920142 (1.82)
Secactno	-0.7642973 (-1.08)
Married	-1.156397 (-1.66)
Schoolyears	-0.0260345 (-0.29)
Numson	0.4127967 (2.34)
Constant	1.678142 (0.77)

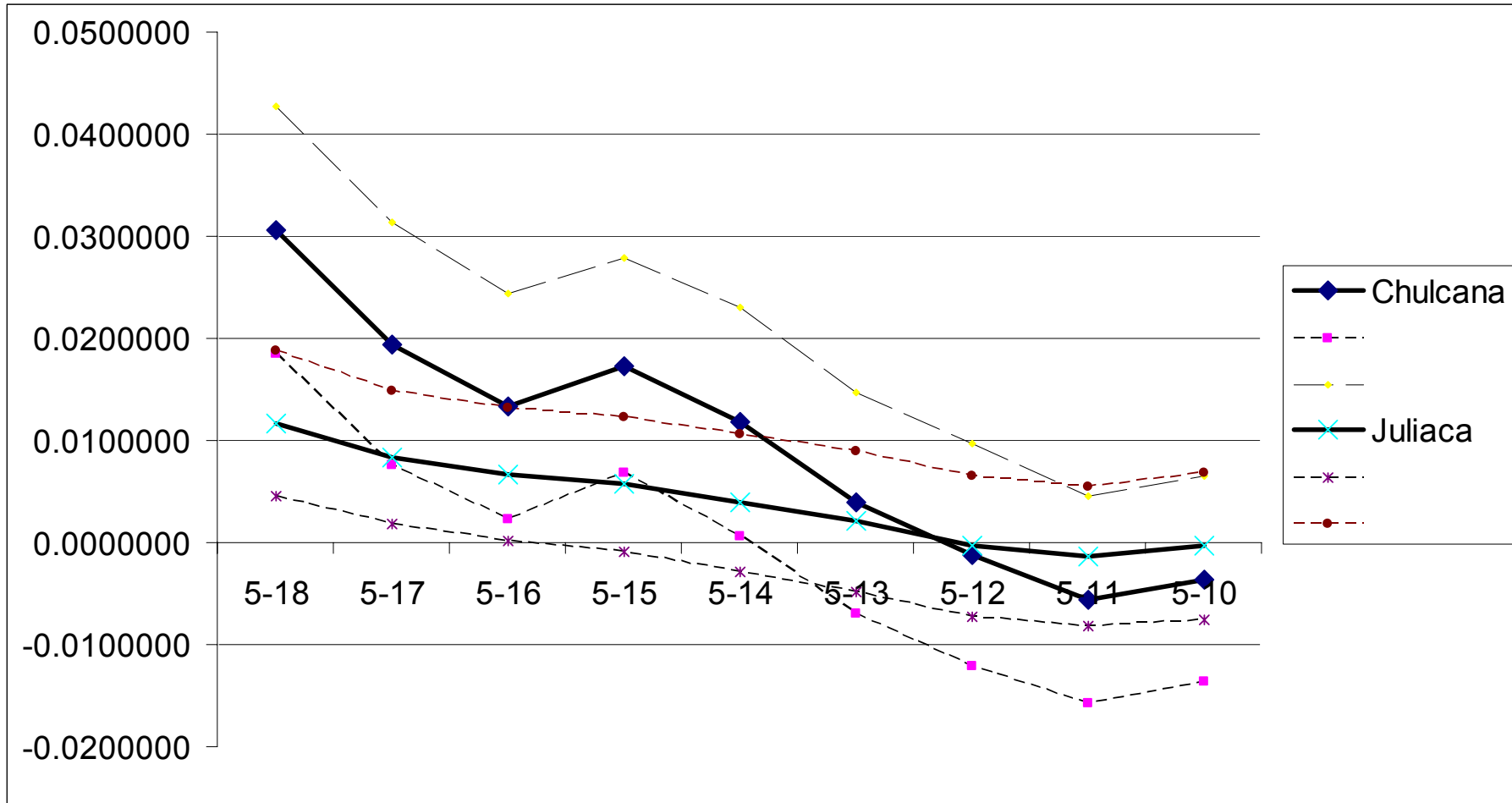
Number of obs	86
Pseudo R2	0.1062
Log likelihood	-50.245162

Dependent variable: 1 if the producers declares he had difficulties in entering the producer's association (Minka in the Juliaca and Allpa in the Chulucanas case) and zero otherwise)

Table 6.2 The impact of FT affiliation after controlling for selection bias

	sonobravo		spesasetcibo		wagwact1		cosshare
	All sample	All sample	All sample	All sample	All sample	All sample	All sample
Age	-0.0154517 (-0.84)	-0.0160461 (-0.94)	0.4736666 (1.3)	8.654344 (2.57)	11.23342 (3.32)	0.0445901 (1.88)	
ha	-0.0240046 (-0.78)	-0.0298714 (-1.02)	-0.4425554 (-0.58)	-5.947649 (-0.83)	-3.835861 (-0.52)	0.0257182 (0.53)	
female	-0.4743728 (-1.83)	-0.4533164 (-1.78)	-16.04598 (-2.51)	-425.0789 (-7.09)	-371.3363 (-6.21)	1.807682 (4.28)	
selfprod	-0.0281196 (-0.53)	-0.0252826 (-0.48)	-2.471651 (-1.88)	-37.90634 (-3.08)	-27.97092 (-2.26)	0.3059036 (3.51)	
selnumtot	0.1954897 (1.42)	0.209358 (1.55)	4.989971 (1.45)	118.9335 (3.7)		-0.4158743 (-1.85)	
othincome	0.004639 (0.01)	0.0129564 (0.02)	-7.602514 (-0.76)	-48.93599 (-0.53)	-49.0006 (-0.52)	0.5273864 (0.81)	
secactno	0.7106944 (2.67)	0.7044057 (2.64)	14.06617 (2.1)	128.8129 (2.06)	139.2863 (2.17)	0.2145668 (0.48)	
married	-0.0456233 (-0.12)	-0.0508824 (-0.15)	2.037789 (0.29)	148.3045 (2.3)	170.3216 (2.58)	0.0783623 (0.17)	
divorced	-0.291059 (-0.25)	-0.3595649 (-0.31)	22.35369 (0.77)	359.9329 (1.33)	522.0353 (1.89)	-0.1722421 (-0.09)	
separated	-0.027792 (-0.04)	-0.0649271 (-0.09)	-4.271746 (-0.23)	74.29412 (0.43)	22.74901 (0.13)	-2.144432 (-1.77)	
schoolyears	0.0479381 (1.29)	0.0485625 (1.31)	0.0326903 (0.04)	16.80971 (1.93)	23.35736 (2.66)	-0.0845481 (-1.37)	
numson	0.0266267 (0.33)	0.0248839 (0.32)	1.433711 (0.75)	-26.72331 (-1.51)	-24.39854 (-1.34)	-0.0330883 (-0.26)	
ftage	-0.0009788 (1.51)	0.0449928 (2.57)	2.20446 (1.8)	16.55013 (1.44)	26.57959 (2.32)	-0.0509859 (-1.75)	
ftagesq	1.976604 (-0.63)		-0.066852 (-1.73)	-0.7157756 (-1.98)	-0.935901 (-2.55)		
ftdummy	6.026045 (0.52)	1.923113 (0.63)	19.55265 (0.76)	147.8308 (0.8)	123.3351 (0.64)	-1.490619 (-1.38)	
constant	0.0739198 (2.09)	6.118952 (2.6)	48.18033 (1.9)	26.52275 (0.13)	-89.39442 (-0.42)	0.7493793 (0.54)	
age	-0.0086223 (-0.82)	-0.0085827 (-0.81)	-0.0085461 (-0.8)	-0.0084978 (-0.8)	-0.0085339 (-0.81)	-0.0085163 (-0.81)	
othincome	0.31834 (1.01)	0.319076 (1.01)	0.3425681 (1.06)	0.3294972 (1.04)	0.3269009 (1.03)	0.3255472 (1.03)	
married	0.2071874 (0.97)	0.2056623 (0.97)	0.1989865 (0.95)	0.2047465 (0.97)	0.20405 (0.97)	0.2022548 (0.96)	
numson	-0.018076 (-0.3)	-0.0174561 (-0.29)	-0.0158167 (-0.27)	-0.016211 (-0.28)	-0.0160418 (-0.27)	-0.0156331 (-0.27)	
constant	0.6460177 (2.12)	0.6438322 (2.12)	0.6405139 (2.13)	0.6380858 (2.12)	0.6393094 (2.13)	0.6377535 (2.12)	
Number of obs	238	238	238	238	238	238	
Wald chi2	34.08	34.2	40.83	163.26	141.41	86.31	
Log likelihood	-597.34661	-597.54636	-1364.2222	-1896.6544	-1903.3048	-718.79127	

Figure 1. The net effect of one year of FT affiliation on the household human capital investment rate



Legend: the net effect on the vertical axis, the considered age cohort on the horizontal axis. Household human capital investment rate (HHCI) given by the following expression

$$HHCI_{it} = \frac{\sum_{j=1}^{n_i} TOTSCH_{ijt} | Entryage_{ijt} \leq Age_{ijt} \leq Endage_{ijt}}{TOTPOTH_{ijt} | Entryage_{ijt} \leq Age_{ijt} \leq Endage_{ijt}}$$

where the $HHCI_{it}$ index 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 ($TOTPOTH_{ijt}$). The school age cohort has a lower bound in $Entryage$ (5 or 6 year according to the questionnaire declaration). The upper bound ($Endage$) varies according to our investigation goals (we move it from 10 to 16 years according to different estimates).

Table 7. The effect of Fair Trade on human capital investment (children from the 5-18 to the 5-15 age cohort)

	humancap18		humancap17		humancap16	
	Juliaca	Chulucanas	Juliaca	Chulucanas	Juliaca	Chulucanas
ftage	0.0116695 (3.22)	0.0305899 (4.96)	0.0083405 (2.50)	0.0194684 (3.20)	0.0067047 (2.03)	0.0133189 (2.36)
Number of obs	1100	551	1085	547	1069	542
F	27.69	21.19	31.78	17.21	30.50	14.44
R-sq within	0.3590	0.4746	0.3949	0.4254	0.3891	0.3857
R-sq between	0.1034	0.0110	0.0962	0.0127	0.0493	0.0040
R-sq overall	0.0637	0.1625	0.0892	0.1431	0.1092	0.1590

	humancap15		humancap14		humancap13	
	Juliaca	Chulucanas	Juliaca	Chulucanas	Juliaca	Chulucanas
ftage	0.0056836 (1.70)	0.017305 (3.22)	0.0039123 (1.14)	0.0118497 (2.08)	0.0020684 (0.59)	0.0039205 (0.71)
Number of obs	1053	534	1031	524	1004	510
F	29.46	12.84	25.70	10.06	21.92	9.35
R-sq within	0.3843	0.3622	0.3579	0.3129	0.3287	0.3041
R-sq between	0.0618	0.0000	0.0447	0.0001	0.0277	0.0015
R-sq overall	0.1338	0.1680	0.1555	0.1608	0.1834	0.1565

	humancap12		humancap11		humancap10	
	Juliaca	Chulucanas	Juliaca	Chulucanas	Juliaca	Chulucanas
ftage	-0.0003217 (-0.09)	-0.0011801 (-0.21)	-0.0014203 (-0.41)	-0.0055577 (-1.08)	-0.0003434 (-0.09)	-0.0035976 (-0.70)
Number of obs	973	490	932	468	870	440
F	21.06	9.98	18.87	9.08	15.16	6.66
R-sq within	0.3277	0.3285	0.3141	0.3200	0.2847	0.2713
R-sq between	0.0122	0.0029	0.0030	0.0078	0.0031	0.0044
R-sq overall	0.2464	0.1631	0.2618	0.1218	0.2262	0.0895