Fair Trade Standards and food security: identifying potential impact pathways

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Abstract

Sustainability standards and their labels aim to promote sustainable development for certified farmers and the environment. However, the creation of an increasing number of schemes seems to have occurred independently of the debates in the international community about development and food insecurity issues. Fair trade (FT) standards, which have historically targeted the social dimension of sustainability and small farmers from the South, do not seem to develop requirements on the food security issue. In spite of many improvements in living and trading conditions experienced by affiliated small farmers, the food insecurity they face is still unresolved. Yet, very few studies measure the impacts of FT certification on food insecurity. This paper intends to make a methodological contribution to the literature. To illustrate our purpose, we analyze FT standards in order to understand how they address food security issues and how changes induced by certification could constitute potential impact pathways to improve/undermine food security for certified producers. The design of an analytical framework allows us to conclude that while FT mechanisms could help improve food security, unexpected and controversial changes could indirectly worsen food security.

Key words: FairTrade, food security, impact assessment, causality pathways, developing countries.

JEL code: O1

I. Introduction

Driven by growing concern regarding methods of producing trade goods, sustainability standards have been created to encourage stakeholders to behave in accordance with a series of rules relating to the three dimensions of sustainability (economic, social and environmental). They generate a financial incentive (generally through a price premium and market access) to encourage producers to respect sustainable production practices. Most sustainability standards are organized around the "International social and environmental accreditation and labelling" initiative (ISEAL) and share common objectives to standardize sustainability. While each of them focuses on different priorities, they all follow a "principle-criteria-indicator" system, which breaks down the meaning of "sustainability" into a standard. According to Dragusanu, Giovannucci and Nunn (2014), "Fair-Trade is one of the many voluntary sustainability standards that have emerged"[2]. Historically, the Fair-Trade movement has been developed as "a response to the failure of conventional trade to deliver sustainable livelihoods and development opportunities to people in the poorest countries of the world" (FTI chart). Focusing on small disadvantaged producers from the South, which are the most vulnerable on the international markets, fair trade certification aims to reduce poverty and promote sustainable development in the developing world.

While most sustainability standards focus primarily on agricultural production from developing countries, their creation and development seem to have occurred independently of the increasing debates on food insecurity issues in the international community. Yet, FAO (2012) argues in its report that "hunger eradication is essential for sustainable development" and that "sustainable consumption and production systems are essential if we are to eradicate hunger". FAO figures show that the prevalence of undernourishment has declined during the past few decades, although there are still more than 800 million people facing food insecurity (FAO) and many more are victims of "hidden hunger". Paradoxically, the large majority of people facing food insecurity live in rural areas and most of them are small farmers. FT-certified farmers are not spared. Since 2007, an increasing amount of literature has focused on the food security situation among communities involved in sustainability standard systems. Some papers argue that the adoption of fair trade standards alone is not sufficient to satisfy the food needs of producers and their families throughout the year (Caswell, Méndez and Bacon 2012, Bacon et al. 2014). Gendron, Bisaillon and Torres (2009) argue that "in the official bodies of fair trade certification, food security and food sovereignty issues are clearly not a priority" (Gendron et al. 2009).

Many empirical studies have documented food insecurity in the context of the FT certification system (Morris, Mendez and Olson 2013, Caswell et al. 2012, Caswell et al. 2014, Bacon et al. 2008, Bacon et al. 2014, COSA 2013). However until now, few of them examine and assess the direct impacts of certification on farmers' food security (Chiputwa and Qaim 2014, Becchetti and Costantino 2008, Méndez et al. 2010).

Statements on food insecurity and the lack of impact assessments justify the need to consider how sustainability standards could contribute to improving the food security of certified

[2] Fair Trade was a pioneer in ISEAL as it was one of the four sustainability standards - Forest Stewardship Council (FSC), the International Federation of Organic Agriculture Movements (IFOAM), Fairtrade and Marine Stewardship Council (MSC) - that came together to discuss the feasibility and benefits of working together at the end of the 1990s. They created the formal organization ISEAL in 2000 and FT has been a full member since then.

farmers. Agricultural and market interventions are "nutrition-sensitive" and transition from subsistence to cash crop farming implies opportunities but also risks (DeWalt 1993). In order to assess the impacts of sustainability standards on certified farmers' food security, we first need to understand how (i.e. which pathways) the certification of cash crops could have an impact on the food security of the farmers cultivating them. This paper intends to make a methodological contribution to this gap by constructing an analytical framework to assess the impacts of sustainability certification on small-farmers' food security.

This article is organized as follows: in the second section, we return to the literature that addresses food insecurity in the context of sustainability standard certification. The third section provides the analytical framework drawn from the literature on food security and the transition to cash cropping that we use to build causality pathways. The fourth section presents the results. We analyze Fair Trade standards in two steps. First, we show how standard specifications address food security issues. Second, we identify how these standards can affect (positively or negatively) certified small producers' food security by constructing potential causality pathways. In the fifth section, we conclude that when FT certification does not explicitly address food security issues as one of its driving principles, it can still have an impact via many different causality pathways. While some FT principles seem to have a positive impact on food security, others are more controversial and some unexpected outcomes may appear. This paper intends to make a contribution in methodological terms. It constitutes a preliminary study before undertaking a more in-depth impact assessment.

II. Literature Review

II.1 Food insecurity and FT certified farming households

Concerns about food insecurity have been studied and are a major preoccupation in coffee growers' communities. Caswell et al. (2012) point out that multiple risk factors could explain the food insecurity experienced by these communities: depletion of natural resources, exogenous shocks (natural disaster, conflicts, prices), seasonal changes in food production and food prices. In these communities, small-scale farmer households experience periods of food shortage, known as "thin months". These often occur at three specific times in the year: the rainy season when the delivery of goods is compromised, the planting season for food crops when scarce resources are spent on farm inputs, which competes with food purchases, and lastly, the early months of the coffee harvest when the income from the previous year's payments has been spent (Caswell et al. 2012).

Recent literature has also identified the gravity of the food insecurity phenomenon among certified farming households. Caswell et al. (2012) argue that while certification helps provide better market outlets to small coffee producers, it has "not resolved the challenges of food security and poverty for small-scale farmers". They review previous studies that focus on the spread of food insecurity among certified coffee producers (organic, fair trade, Utz, conventional). In these analyses, we note that between 30% and 100% of households have difficulty satisfying their food needs at some point during the year, independently of whether or not they are conventional or certified households. According to the COSA study (2013), which examined the effects of certification in coffee and cocoa value chains in 12 developing countries: "Food security was often better on certified farms, but not always, and it is worth noting that many certified producers faced significant challenges in meeting their food needs even when their income was higher than that of conventional producers" (COSA 2013).

Some academics and coffee roasters have identified this phenomenon in Mesoamerica. They have implemented a 5-year project to improve livelihoods and food security — diversification of activities (animals, home garden, honey, etc.), education, coffee quality, etc. - among certified coffee growers (organic, fair trade, both, Utz). They report improved though, as yet, unsatisfactory outcomes. Many families still report food shortages lasting 3 to 4 months. The period of inadequate household food provisions decreased from 3.81 months a year on average in 2007 to 2.83 months in 2013. The findings show that both farm size (hectares) and the number of different sources of income determine the duration of seasonal food insecurity.

In Nicaragua, Bacon et al. (2014) explore determinants of seasonal food insecurity among certified (FT and FT-organic) coffee growers. Combining observations, interviews, focus groups and a survey of 244 certified producers, they report that the coffee growers report facing on average 3.15 thin months a year (Bacon et al. 2014). They find expected significant correlations between higher household income, higher corn production, larger farm area, improved grain storage, and a shorter period of thin months. Unexpected results revealed that households with more fruit trees experience fewer thin months, while environmentally friendly practices (including organic coffee growing) are not correlated to less seasonal insecurity. While certification seems to help, the authors call for more investments and integrated strategies to reduce threats to food security, which households face each year and for a duration that can last several months per year.

Finally, Morris et al. (2013) made a contribution to the literature about the effects of organic label. They provide an in-depth analysis of the nature of seasonal food insecurity for 29 coffee growers certified by an organic label in Salvador. They explore qualitatively how and why 97% of households suffer from a food shortage at some period in the year. The two main causes are lack of income to buy food and running out of staple food crops. Households try to maintain a balance between coffee and staple food production, and failed to secure their access to food. They cope with seasonal food shortages by borrowing money and food, seeking work outside the community, selling livestock and changing their diet. Morris et al. (2013) underline the fact that these organic farmers are highly vulnerable to food insecurity.

These studies have the advantage of providing precious information on the extent of the food insecurity phenomenon among certified producers. They have all identified food security as a challenge for all producers, including those involved in sustainable standards networks. They highlight correlations between self-reported food shortages and different farms' characteristics or conditions of sale. However, none of them assess the real impact of certification on food insecurity.

II.2 Impact assessment studies

As far as we know, very few studies have been done with the objective of measuring the impact of sustainability standards on certified producers' food security. We have identified four papers.

Becchetti and Costantino (2008) aim to measure the impacts of four different degrees of FT affiliation (long term, short term, partial, without) on fruit producers' welfare, including food consumption (30 households by group) in Kenya. In order to assess food consumption and diet quality, they use data on food expenditure and a food frequency questionnaire. In both analyses, FT producers eat more in terms of quantity and eat more diverse food than conventional producers. As far as diet quality is concerned, the longer producers are affiliated to FT, the better the quality of their diet (even when the authors checked for selection biais). In their study, FT producers are more diversified than conventional farmers. The authors

argue that crop diversification stimulates greater on farm-consumption of more diversified food (Becchetti and Costantino 2008). This is particularly true in the fruit production sector, since fruit production is commonly diversified and can be used for home-consumption. Nonetheless, the authors have not proven this causality pathway.

Jaffee (2008) published a comparison between organic-FT coffee growers (26 households) and unorganized conventional ones (25 households) in Mexico. He shows that on average conventional households are in a more precarious position than FT households, both in terms of food expenditure and diversity of food consumed. FT households are less likely to experience shortages of food and to run out of staple foods. They also have a wider range of options for obtaining food provisions thanks to a higher income from coffee sales and staggered coffee payments throughout the year. However, the analysis still reports that one third of FT households do not always have adequate food to meet the needs of the entire family.

Finally, Chiputwa and Qaim (2014) assess the impact of some sustainability standards (UTZ, FT, organic) on coffee-growers' nutrition in Uganda. Thanks to a 7-day recall, they measure the calorific (quantity) and nutritive (quality) consumption of 419 certified or conventional households. By checking other factors, they show positive causalities between certification and both food security indicators. They identify two significant pathways: certification increases income and improves gender equality (in terms of control over income), and both factors contribute to improve the households' food security.

These studies show that sustainability standards can contribute to improving household livelihood and food security. However, as Chiputwa and Qaim (2014) note "results should not simply be generalized". Indeed, these studies are very specific to location and crop. They lack a global analysis of the complexity of livelihood from a food security perspective. Thus, these various results are not conclusive. For instance, Chiputwa and Qaim (2014) highlight two pathways. However, other pathways could explain these positive results and, on the contrary, some unexpected negative pathways could undermine the impact of certification. Indeed, Fair trade is not a single tool but a set of tools developed under the same project and yet, identified studies do not attempt to identify whose that play a role. In particular, current analyzes focus on the household level only and neglect the potential role of producers' organization. Yet, FT staleholders debate a lot about the importance of collective factors to enhancing sustainable development and there are many fair trade tools that go through collective organizations. Some factors (at household and/or organization scale) could have a substitution effect, by offsetting or indirectly worsening the food security situation.

In their household-level paper, Méndez et al. (2010) show contradictory FS outcomes. They measure the effects (prices, gross revenue, credits, savings, education, migration and food security) of FT and organic certification on certified coffee-growers involved in 18 cooperatives in four Latin American countries. Coffee is the main income-generating activity for most of these 469 households, either from the sale of their own production or from a coffee-related off-farm employment. As far as food security is concerned, on average 63% of households report difficulties in satisfying their food needs. But, significantly, more certified households (organic, FT) report difficulties than non-certified ones. Moreover, there is no significant difference in terms of gross revenue between food secure and food insecure households. However, having more sources of income is correlated with a greater capacity to meet food needs.

Based on the previous investigations, this paper proposes an approach to understanding the links between food security and certification in a more complete and comprehensive way,

particularly, identifying the potential role of the most crucial FT tool. We identify potential pathways by which FT standards can affect (positively or negatively) certified producers' food security.

III. Analytical framework and data analyse

III.1 Analytical framework

III.1.1 Food Security concept

According to the FAO definition adopted at the *World Food Summit plan of action* in Rome in 1996, "Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 1996). Food security (FS) is commonly divided into four dimensions: availability, access, use, and stability that we will explain separately. They are derived from a historical evolution of the food security concept. In the early 70s, FS referred to physical availability of food. According to this, the green revolution and policies aim to intensify agriculture in order to increase cereal production. However, a rise in food production has not necessarily led to an improvement in FS for all. This is due to unfair food distribution between countries, regions, households and also individuals. Hence, since the 80s, the food security concept has become more holistic with emphasis on the dimension of access. This conceptual evolution from food availability to food access was accompanied by a change of scale. While the focus was geared to FS on a global and national level, the question also considered the household and individual level (Coates 2013, Maxwell 1996, Barrett 2010, Webb et al. 2006). Amartya Sen showed that food could be available although not every individual actually has access to it. He introduced the notion of "food entitlements" and connects the concepts of hunger and poverty (Yaro 2004). Finally, availability and access are necessary but not sufficient to provide FS given that food has to be used in an appropriate way. Use refers to food consumption and to the biological utilization of food on an individual level, which relates more to nutrition (Barrett 2010, Webb et al. 2006, Webb and Rogers 2003). It is noteworthy that food security differs from nutritional security. FS is only one input of nutrition. Nutrition also depends on health care and sanitation. In this paper, we limit our analysis to the FS concept. While sustainability standards can obviously contribute to improve health and sanitation, we will not include this factor in our discussion. In addition to the three dimensions presented above, "stability" which is a cross-cutting temporal factor, was added in 2005 driven by Webb and Rogers (2003). The stability factor takes better account of the risks that limit improvement in terms of food availability, access and use. This factor follows previous and fundamental discussions on sustainability from a food security perspective (Chambers and Conway 1992) and on vulnerability to the food insecurity concept (Watts and Bohle 1993, Chambers 1989). In the literature on food security, vulnerability is defined as being relative to the negative result of falling or remaining food insecure, both in the short and long term (Lovendal and Knowles 2006). Therefore, this perspective makes it possible to integrate uncertainty, which influences households' decisions both in terms of generating resources (food or income) and food consumption (Coates 2013).

III.1.2 Food security indicators

Current understanding of food security emphasizes its multidimensional nature and the need to analyze not only agricultural supply, but also the physical and economic access, use of food and regularity in time and space. First, we need to improve our understanding of the factors

that influence food security at the farming household level. Even if we focus on farming households, it is important to bear in mind the fact that differences exist on an intra-household scale. Indeed, household members have various capabilities, obligations and needs in relation to food (Niehof 2004). For this purpose, we follow Coates (2013) suggestions and break down the concept of FS in order to reconstruct it in relation to our specific objective. We explore the quantity, quality, social acceptability and stability of food consumption. **The availability** of sufficient, nutritive and safe food is the first step (Table 1). At the farm level, farming households often grow at least part of their food needs. Sufficient and diversified food availability depends on the farm area dedicated to food crops, natural resources (quality of soil, water, etc.), crop diversity and varieties grown, capital investment (economic and time), agricultural skills, yield, quality and seasonality of food crops grown. Crop diversification has long been a livelihood strategy in order to ensure food sovereignty for a family and help manage risks. This strategy is widely practiced among smallholders and is viewed as a form of self-insurance in rural contexts where insurance markets are inexistent or weak (Niehof 2004). Furthermore, according to the literature, FS can be threatened by a reallocation of farmland from subsistence crops to cash crops, which reduces food availability at the farm level (Anderman et al. 2014). However, if a share of home-consumption is maintained, which seems essential both culturally (Morris et al. 2013) and in order to reduce households' vulnerability (Caswell et al. 2012), there is not a consensual correlation between crop diversity and food security (regarding both the quantity and quality dimensions). Indeed, when households run out of staple food stocks, they can purchase food from the market. Nevertheless, it is important to ensure that there is sufficient, diversified and safe food available on the local food market and an adequate regional food supply. Once food is available, farming households should also have **physical, economic and social access** to it (Table 1).

First, food should be physically accessible in terms of adequate infrastructure (roads, market locations, etc.) and a reasonable time of transport to reach markets. Otherwise, physical access to food also includes the possibility to access a common natural ecosystem for hunting or fishing.

Secondly, economic access to food depends on income from both cash crops and off/non-farm activities[3]. Cash crops are "crops produced for sale and sold for cash" (DeWalt 1993). Income from cash crops depends on the farm area dedicated to cash crops, natural resources (quality of soil, water, etc.), capital invested (economic and time), agricultural skills, yield, quality and type/number of cash crops grown. It also depends on opportunities to generate an economic return from the cash crop: prices, price stability, volume sold, modality of payments, stability of outlets and insurance. Farm production for sale has been introduced into rural development as a key strategy to raise income and fight poverty and food insecurity among small-scale farmers. Despite this commonly held view of the benefits of commercialization, there is still controversial evidence regarding the relationship between cash cropping and food security among households that grow cash crops (Anderman et al. 2014). In some cases, a rise in income enables households to increase their food expenditure and, thus, improves their access to food. Yet, many empirical studies reported in the literature show that a rise in income is not always accompanied by greater food security (DeWalt 1993, Von Braun 1995).

[3] Off-farm activity refers to farming employment on another farm. Non-farm activities are own activities in a non-agricultural sector (craft, tourism, processing, etc.)

Table 1: Analytical framework illustrating FS indicators of food availability, access and use at farming household level

Dimensions of Food security	Criteria		Indicators
Availability of food and its stability	Home-consumption	Food crop production on-farm	Area Natural resources (quality of soil, water, etc.) Diversity of crops and varieties Capital invested (economic and time) Agricultural skills Yield and quality Seasonality of food crop farming
	Buying in	Food availability at market	Quantity Diversity Local/National origin
Access to food and its stability	Physical access		Infrastructure (roads, market location, etc.) Means of transport Access to common natural ecosystem for hunting or fishing
	Economic access	Income from cash crop(s) (related to conditions of production)	Area Natural resources (quality of soil, water, etc.) Agricultural skills Capital invested (economic and time) Yield and quality Number of cash crops
		Income from cash crop(s) (related to marketing conditions)	Price level Price stability Volume sold Modality of payment Outlet stability Insurance
		Income from off/non-farm work	Time spent doing off/non-farm work Stability of employment/remunerative opportunities (inter+intra annual) Wages/Market prices
		Access to credit	With low interest Without interest (pre-financing)
		Control over income	Women's control over income
	Social access	Social aid	Access to social programme - NGO, cooperatives, government
		Social capital	Aid from family, friends, neighbourhoods
		Social position	Social position in the family, in the community
Food use and stability			Storage Food preferences (varieties) Nutritional knowledge Cooking knowledge and time available Intra-household distribution

Note: The FS dimensions improve as more "indicators" increase.

Several unintended risks have been identified in the literature. Indeed, the transition to cash cropping can increase the dependence of farming households on local market availability and prices (Anderman et al. 2014). Local market availability is influenced by regional dynamics in terms of rural development. For instance, a large incentive to export-oriented farming may decrease the availability of locally-consumed and culturally-adapted foods. It may also raise food prices as subsistence agriculture declines. Thus, food prices may reduce access to food for households that are particularly dependent on local markets (DeWalt 1993, Dury, Alpha and Bichard 2014). Cash cropping transition can entail a reallocation of capital investment (time and money) from off/non-farm activities to cash cropping. Indeed, incomes from off/non-farm activities depend on capital investment (time and money), stability of employment and remunerative opportunities, wages from off-farm employment and market prices for non-farm products (Table 1). In literature on cash cropping, authors highlight the unintended correlation between a rise in income and degraded FS in situations where there is a reduction in other sources of income (Dury et al. 2014). Increased dependence on income from a single cash crop may lead to several additional risks. First, farmers become more vulnerable to price variability in the short and long term (Anderman et al. 2014, Dury et al. 2014, DeWalt 1993). Secondly, literature on cash cropping argues that changes in flows of income (including frequency of payments) may increase household vulnerability to food insecurity (Anderman et al. 2014). Indeed, the amount spent on food using money generated by incomes from lump sum seasonal payments is lower than that spent on food using money from regular incomes. Third, the nature of the cash crop influences outcomes in terms of food security benefits. Several studies show that the commercialization of food crops generates a cash income and, at the same time, stabilizes subsistence production and household food security. On the contrary, shifting from a food crop to a cash crop that cannot be used for home-consumption for food security (cotton, coffee, tea, etc.) is more risky. The studies show the worst FS outcomes occur for households that grow this type of cash crop (DeWalt 1993).

Access to credit could influence food security by allowing capital investments for cropping and household expenditure. Credit could be provided with or without interest rates. Finally, economic access to food may be affected by an unexpected expenditure due to a shift in the control of income to the detriment of women (Dury et al. 2014, DeWalt 1993, Anderman et al. 2014, Von Braun 1995). Indeed, women are central to economic and food vulnerability in households (Dury et al. 2014, Charlier 2007). Traditionally, women are involved in subsistence production, services, crafts, combining a cash and subsistence rationale. They are responsible for the distribution of food in the household. A woman's income has an impact on the family's health and food, which is 4 to 8 times greater than that of the impact of men's income (Charlier 2007, Dury et al. 2014). Moreover, depending on the country and the kind of crops, income from the sale of cash crops is either managed by men or women. Therefore, if agriculture or trading interventions encourage cash crop production, which is usually controlled by men, it shifts the control of income within households to the detriment of women. Consequently, this could have a detrimental impact on the economic access to food.

Finally, social access to food depends on social aid (social programme organized by NGO, government, cooperatives), social capital of households (family, friends, neighbourhoods) and/or social position, both in the family and the community.

Once food is available and accessible, it should be used in an appropriate way. **Food use** depends on ability to store grains during the year in order to stabilize food use. Cultural preferences related to food should also be respected, mainly through the use of appropriate varieties and food types. Food use also depends on nutritional knowledge, cooking practices, time available and intra-household distribution (Table 1).

III.2 Data and empirical strategy

III.2.1 Fair trade labels, standards and their technical specifications

We specifically chose to analyze FT certification because FT explicitly aims to improve the living conditions for certified farmers. Besides we assume that food security is at the root of "good living conditions". Fair Trade includes several FT labels[4] conceived and governed by various organizations (PFCE 2015). These FT labels are visible on products destined for sale and offer a guarantee to consumers in terms of methods of production, processing and sale according to specific criteria. These criteria are defined in the standards. Under a single FT label, different standards can exist and each one is translated into a technical specification. Technical specifications are organized with principles, criteria and indicators.

FT labels differ depending on their governance, values, technical criteria, as well as the type of farming targeted by the standards. For instance, should large plantations and non-organized farmers be eligible for FT? The type of farming targeted has been a source of major disagreement in the last few years. Historically, FT labels were oriented towards small producers' organizations[5]. Now, the main FT labels manage three standards: one for small producers' organizations, one for large-scale plantations and their workers and one for independent producers under contract. This is the case with Fair Trade International (previously Fairtrade Labelling Organizations International). Established in 1997, FTI coordinates national FT initiatives (such as Max Havelaar in France) under a common label. FTI is the main FT label with 80% of FT products sold and 1.4 million farmers and workers certified in 2014. There has been a move towards more standards. However, the USA's Initiative (initially Transfair USA) split from the FTI consortium in 2012 because it considered that plantations and non-organized farmers should be certified with no restrictions regarding value chains and geographic zones (which are limited in FTI standards[6]). They argue that this will enlarge the impact of FT and boost demand. Thus, they launched a parallel label, Fair trade USA, and three standards available to everybody and for all the value chains. In FTI and FT USA standards for small organized and unorganized farmers, at least 50% of members must be "small" (FairTradeInternationalOP 2011), i.e. when "farm work is mostly done by members and their families" and when "they do not hire workers all year round". FTI and FT USA do not limit the size of the remaining 50% of the farms.

On the contrary, in 2006, the main small farmers' network involved in FTI, which represents Latin American farmers' organizations (Coordinadora Latinoamericana y del Caribe de Comercio Justo, CLAC), decided to develop an alternative movement. They created the label *Simbolo de Pequinos Productore*s (SPP) with only one standard, which is exclusively dedicated to small producers' organizations. They opposed the inclusion of plantations and independent farmers because they consider that it conflicts with the initial values of the FT movement[7]. Producers manage the standard by themselves. They strive to keep decision-making in the farmers' hands and to promote alternative values of sovereignty, economic justice and family farming. In order to promote family farming and exclude competition between large- and small-scale farming under the same label, SPP is more demanding in

[4] Fair Trade International, FT USA, Fair For life from IMO, Simbolo de Pequinos Productores, WTFO, Naturland Fair, Forest Garden Products, ESR from Ecocert. PFCE. 2015. Guide international des labels de commerce équitable.

[5] Except for bananas, flowers and tea.

[6] In FTI, plantations may be certified for bananas, flowers, teas, fruit and vegetables, and independent farmers are restricted to basmati rice and cotton in India, dried fruit and cotton in Pakistan, and cocoa in Oceania (PFCE, 2015).

[7] Several evolutions of FTI have provoked reactions from CLAC. In addition to the plantation question, 'Fairtrade Sourcing Program' FSP has been adopted despite the CLAC's vote against it. This new label defines a fair trade product as a processed product composed of several products and including a single fair trade product.

targeting small-producers. For each product sold under the SPP label, 85% of producers must be small (a small farmer is defined as having a maximum of 15 ha of land, or 1 ha if crops are grown under glass). The remaining 15% should not crop areas larger than twice that of the small producers (SPP, 2014). By encouraging family farming, they claim to be ideologically detached from Fairtrade International and FT USA. In 2014, 63 producers groups were certified by SPP.

Given the high prevalence of food insecurity among farming households, we chose to focus on small farming households[8] involved in FT networks.

III.2.2 Technical specifications - analysis and literature review

In this paper, we examine the technical specifications of the FT standards in order to understand how FS issues are taken into account (directly or indirectly). Thanks to this analysis, we can explain FT mechanisms and identify the ones that contribute to food security.

Secondly, we examine the existing literature to understand how changes induced by certification, directly or indirectly, may influence the FS criteria and indicators in our analytical framework and to identify the positive, negative or controversial pathways. Therefore, we use nine FT impact reviews (Le Mare 2008, Nelson and Pound 2009, Chan and Pound 2009, Blackman and Rivera 2010, Vagneron and Roquigny 2010, Tallontire et al. 2012, COSA 2013, Terstappen, Hanson and McLaughlin 2012, FAO 2014) and several empirical studies, which highlight some of the potential impacts of FT.

As coffee is the most important product in the FT market and coffee-growing communities are particularly affected by food insecurity (Caswell et al. 2012), most of the empirical studies reported concern this commodity. Thanks to this analysis, we were able to identify evidence or counterevidence about the potential positive causality pathways induced by FT mechanisms. We also report new unexpected causality pathways.

IV. Results and discussion

IV.1 Absence of FS concerns in the FT standards

Our analysis shows that, in general, Fairtrade labels and standards have not directly integrated food security issues. Our analysis shows that the terms "*vulnerability*" and "*food security*" are completely absent from the technical specifications of FTI and FT USA. This absence is very common in sustainability standards[9]. Among FT labels, we distinguish three labels that take into account food security concerns in some way. First, SPP can be distinguished by the fact that it promotes food sovereignty by supporting "*food sufficiency and autonomy of local economy*" (SPP 2010). Food sovereignty depicts a new paradigm based on food as a basic right, gender equality, genuine agrarian reform, protecting natural resources, reorganizing food trade, ending the globalization of hunger, social peace and democratic control (Fernandez, Mendez and Bacon 2013). Food sovereignty is embedded in a sociological and political movement linked to political agroecology and the concept of livelihoods (Fernandez

[8] In this paper, we will not discuss effects on the food security of workers in certified plantations.

[9] Among the different initiatives, including RSPO, RTRS, Bonsucro, RSB, FT hired labour and FSC, the Round Table on Sustainable Biofuels is the only one that addresses this issue. They uphold a principle that states that biofuel production operations "*shall ensure the human right to adequate food and improve food security in food insecure regions*." (Sirdey, 2014)

et al. 2013). SPP's reference to the concept of food sovereignty represents an ideological distinction from FTI. The standards of the label Naturland Fair address household vulnerability and food security (PFCE 2015). This standard promotes local consumption and culturally-adapted crops. Finally, the standard called "Equité, Solidarité et Responsabilité" (ESR) developed by the certification organization Ecocert is the only one that introduces FS at the indicator level[10] even if FS does not appear at the principle level. In addition, some occasional communication campaigns launched by NGOs involved in FT (such as Oxfam, Artisans du Monde, or Minga networks in France) focus on the food sovereignty question (Gendron et al. 2009).

IV.2 Fair Trade mechanisms: potential positive causality pathways

Even if Fair Trade (FT) constitutes an alternative market, it remains based on the promotion of cash crop production as a way of improving incomes and livelihoods. Academic literature has long since identified the relationship between cash crop production and food security for farmers (see section III.1.2). As we have shown, promoting cash cropping could cause food insecurity risks. However, FT is different as much as it requires some environmental, social and economic criteria in "response to the failure of conventional trade to deliver sustainable livelihoods and development opportunities" to farmers (FTI chart). This paper examines whether some causality pathways are different in term of the FS impact when a cash crop is FT certified. We propose exploring how FT production and trade-related mechanisms could counterbalance food insecurity risks caused by a single cash crop farming incentive.

We can identify several key mechanisms in fair trade standards (Dragusanu et al. 2014): minimum guaranteed prices, FT collective premium, stability and access to credit, working conditions, collective action, institutional structure and transparent governance, and environmental protection with technical training. It is noteworthy that while ideology can be very different (Sirdey 2014, Renard and Loconto 2012), the mechanisms governing production and trade are pretty similar among FT labels. We highlight the potential causality relationships that have food security aspects. We present them and indicate any existing differences between FT labels.

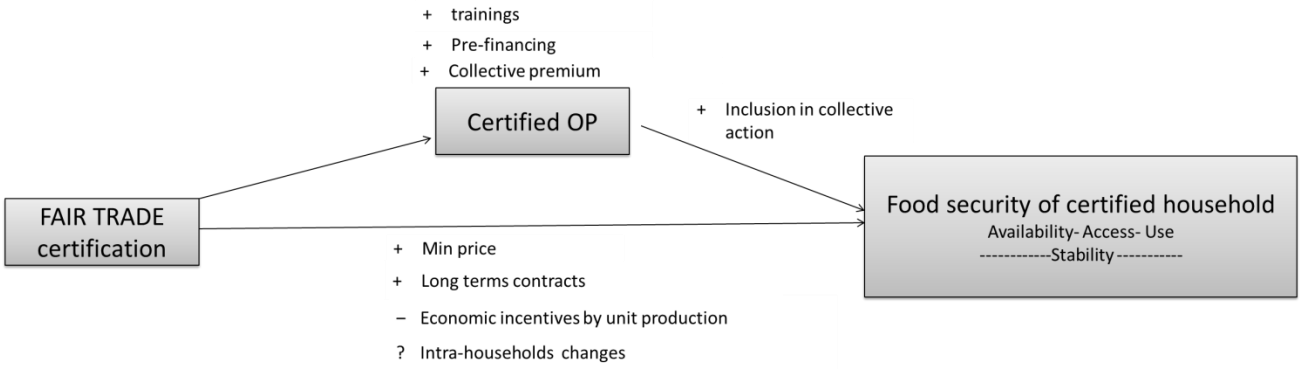

Figure 1: Direct pathways and those through certified producers'organization

[10] Food security included in a minor indicator: "If [the buyer] imports food products from developing countries, the operator seeks information on the induced impacts on food security of local population. [buyer] takes measures to eliminate the induced negative impacts" (ESR standard).

We identify six FT mechanisms that could contribute to improving food security among farming households (in green), one mechanism that could potentially undermine food security (in red) and finally one uncertain pathway (mixed red/green) (figure 2).

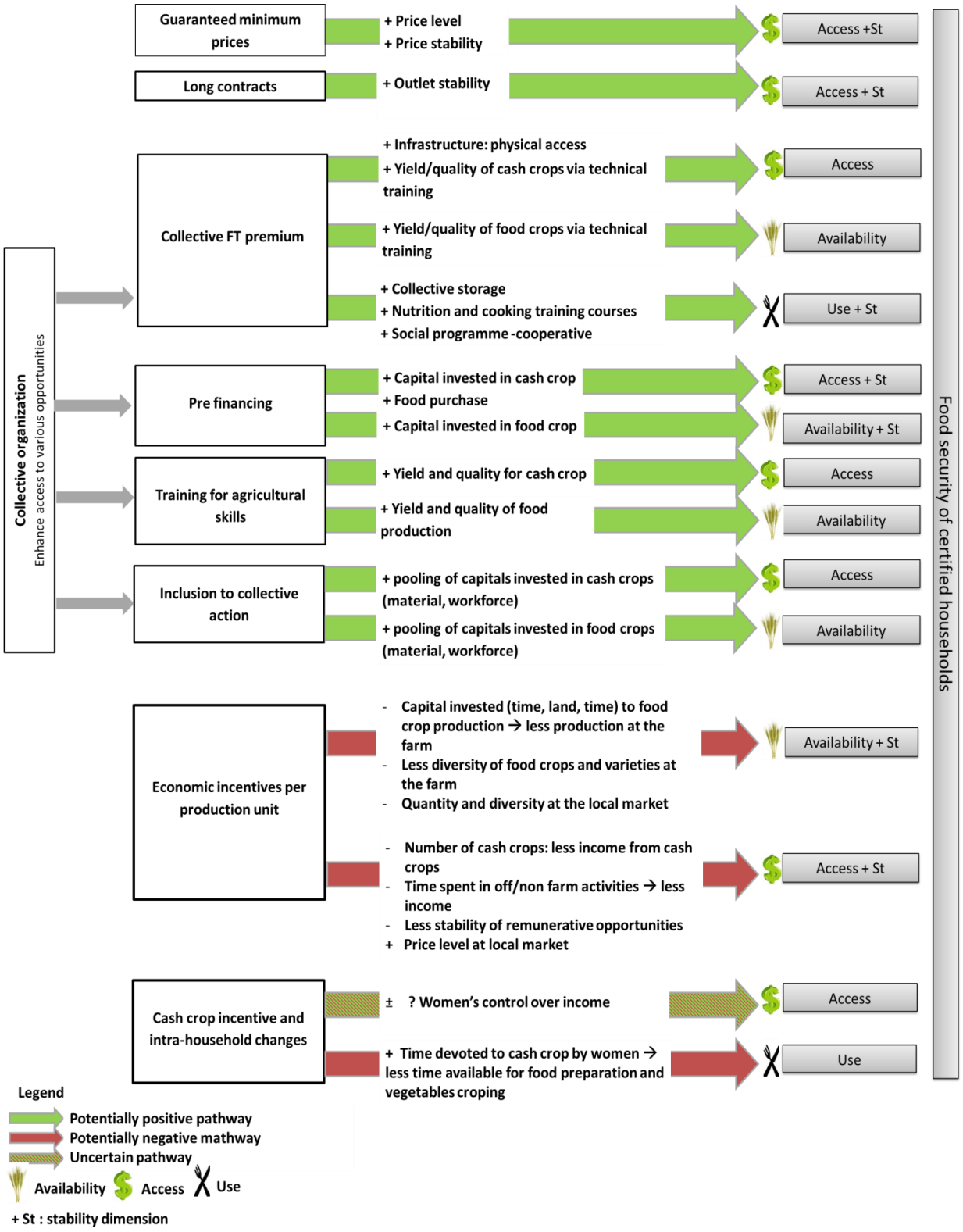

Figure 2: Positive, negative and uncertain potential causality pathways allowed by FT mechanisms

IV.2.1 “Direct” pathway to certified households

IV.2.1.1 Guaranteed minimum prices

The first mechanism is **guaranteed minimum prices**. Academic literature has shown that cash crop markets may cause increased vulnerability to fluctuations in price (Anderman et al. 2014). Guaranteed minimum prices are a response to the failure of cash cropping incentives. They aim to ensure that producers receive prices that cover the average costs of sustainable production. When the minimum price exists, it is the "lowest price possible that a buyer can pay for a product to producers". When the market price is higher than the FT minimum price, the market price must be applied (at minimum). Even if it is based on the same mechanisms, SPP uses different terminology. The minimum price is called "minimum sustainable price” "which recognizes the costs of direct production, decent compensation for farmers and workers, the costs of the democratic self-management of the organization, social responsibility costs and environmental” costs. Using this different terminology, the SPP label claims that their ideology contrasts with what they call "charity" prices (Hussey and Curnow 2013, Naylor 2013, Nelson and Tallontire 2014). In addition, an organic premium exists for dual-certified organic and FT products.

According to our analytical framework, once FT labels pay a guaranteed minimum price, this is likely to increase farmers' incomes, decrease their vulnerability to price variability and, thus, promote their economic access to sufficient and diversified food (Table 2).

According to the literature review on FT, there is a consensus on the capacity of FT to increase and stabilize prices received by producers from sales of certified products (Chan and Pound 2009, Blackman and Rivera 2010, Méndez et al. 2010, Vagneron and Roquigny 2010, Ruben 2008). Producers seem to have the share this point of view. For example, Becchetti and Costantino (2008) show that satisfaction with the selling price of coffee in Kenya significantly increases when producers are certified by FT. However, although certification helps, Giovannucci and Ponte (2005) argue that a weakness persists due to “dependency, hidden costs and vulnerability” faced by small farmers. Even if sale prices increase, net income benefits are unclear. It is shown that if prices, volume and gross revenues tend to increase, earnings do not always suffice to achieve a living wage (Nelson and Pound 2009), not all basic needs (including food) are satisfied (Chan and Pound 2009) and livelihoods are not sustainable (Méndez et al. 2010). We identify three main reasons in the FT literature: additional costs, limited volume sold and the relativity of the price floor.

- Costs issue: Literature does not differentiate clearly between income from certified crops, gross income and net income (Nelson and Pound 2009, Méndez et al. 2010, Vagneron and Roquigny 2010). The study conducted by Jaffee (2008) illustrates why this matters. While gross household incomes are largely positive, net total incomes are negative for both FT and conventional farmers even though net coffee income is still slightly higher for FT farmers (Jaffee 2008). Certification generates increased costs (certification fee, the cooperative’s administrative costs, investment, increased labour, marketing costs). The exact figures for these additional costs are not always available, which means that it is unclear whether or not net producer income actually increases (Nelson and Pound 2009, Terstappen et al. 2012, Giovannucci and Ponte 2005, Bacon et al. 2008). For instance, for production costs, Terstappen et al. (2012) reviewed 20 studies demonstrating the increased workload following FT certification. Nine studies report that FT certification leads to an increase in seasonal employment and, thus,

increased labour costs for small farmers (Terstappen et al. 2012). On the contrary, it represents a labour opportunity for unemployed family members.

- Volume sold: FT cooperatives have variable access to the FT market. The cost of certification and compliance costs and the limited sales to the FT market significantly reduce net incomes (Bacon 2005, Méndez et al. 2010, Valkila and Nygren 2010, Ruben and Fort 2012, Caswell et al. 2014). Limited sales are due to several factors, such as: limited market demand, higher quality standard requirements, cooperative quotas or the need for farmers to sell part of their production to intermediaries during the harvest season to obtain cash (Caswell et al. 2014).

- Relativity of price floors: in 2010 Bacon indicated that FT price floors lost 40 % in value between 1988 and 2008 (adjusted for inflation). The decline in real prices shows that the minimum price does not have the same weight as before (Bacon 2010). In addition, the relative advantage of FT minimum prices depends on world market prices. When conventional prices are high, competition between different markets intensifies and FT cooperative sales may be altered (Valkila and Nygren 2010). Finally, price floors are defined either at the farm gate or at exportation ("free on board: FOB"). When the price floor is a FOB price, producers do not receive the minimum price, so the potential positive effect of price floor is reduced.

Lastly, it is important to bear in mind that, according to FT literature, food security outcomes (quantity and stability dimensions) are not always correlated to income per person, as reported by several empirical studies (Morris et al. 2013, Méndez et al. 2010). This is consistent with literature on cash crops, which argues for more caution about the assumption that income rises necessarily imply an improvement in food security and nutrition (Dury et al. 2014, DeWalt 1993, Von Braun 1995, Anderman et al. 2014).

IV.2.1.2 Long-term contracts

Dependence on market demand increases the risks facing small farmers each year. Finding buyers and maintaining long-term relationships can be complex, costly and time consuming for small farmers' cooperatives.

Another core principle in FT consists of **long-term contracts**. Facilitating long-term trading partnerships may enable greater producer control over the trading process because it leads to better access to information and a better understanding of market mechanisms. According to our analytical framework, long-term contracts may improve outlet stability, income from cash crops and, thus, improve access to food stability (Table 2). Most FT standards claim to involve long-term partnerships. However, requirements vary according to the FT labels. For instance, FTI and FT USA require a minimum contract duration of 1 year, which is relatively short considering that many products are harvested and sold once a year. The ESR label is more demanding, as it requires at least a 3-year contract. Finally, SPP asks buyers to make a long-term commitment to the SPP movement. After 2 years of certification, SPP certified products should represent at least 5% (in value) of the total purchases made by the buyer and sold under its brand. After the second year, the share of SPP certified products should increase by at least 5% a year, until 25%.

In the FT literature, Nelson and Pound (2009) show that fair trade leads to more stable income, partly thanks to the establishment of long-term contracts. This greater stability (outlets and income) reduces farmers' economic vulnerability and may be favourable to food

security (Bacon 2005, Giovannucci and Ponte 2005, Chan and Pound 2009, Nelson and Pound 2009, Ruben and Fort 2012).

IV.2.2 Pathways via producers'organization

IV.2.2.1 FT Collective premium

Another FT mechanism is the **FT collective premium** paid to small producer organizations by the buyer (or to the Market Access Partner, in the case of standards for independent farmers). This is an extra payment for investment in business or for the socio-economic development of producers, workers and their communities. In SPP, the "premium" is called "small producer incentive symbol". The producers themselves determine democratically how the FT collective premium is used.

According to our analytical framework, the collective FT premium is more than just a single incentive to cash crop farming because it helps farmers and provides additional resources. The collective premium could be used to improve infrastructure and, thus, increase physical access to food markets (Table 2). The premium could also be used to fight against the risk of food insecurity, for example by developing collective storage for food crops, providing collective nutritional training or developing social programmes in the cooperative (like a canteen where meals are provided to children on school days). Indirectly, premiums can also be used to increase crop productivity via agricultural training courses on both food and cash crops. This would involve an increase in the productivity of staple foods (increased food availability) and a rise in farm income (better economic access to food). For instance in FTI standards, since 2008, the premium for coffee is 20 cents per pound, including 5 cents that have to be invested in improving productivity (Dragusanu et al. 2014).

However, according to literature on FT, a subtle distinction should be made for food security benefits generated by the collective use of the FT premium. Firstly, several investigations show that a large number of certified farmers are unaware of the collective premium and claim not to receive the benefits (Valkila and Nygren 2010, Ruben and Fort 2012). Secondly, it is important to note that the FT collective premium never seems to be directly used to address food security issues because the premium is largely devoted to technical assistance, access to credit or investment in technology (Saenz-segura and Zuniga-Arias 2008). In contrast, improvements in social access, food storage or food-use pathways do not exist.

IV.2.2.2 Access to pre-financing

Dependence on the cash flow generated from the sale of cash crops increases the cash flow stress on small farmers during the growing season and prior to harvest. Consequently, most farms require loans to cover input costs, resulting in additional costs due to the interest rate imposed on credit – in cases where farmers do have access to credit. According to Fairtrade International, which quotes a survey conducted in 2012 with 456 Fairtrade producers, "91 percent of them had unfulfilled credit needs. Of this, 65 percent were in need of investment credit and 29 percent for input (seasonal) finance" (FTI website).

One of the fundamental principles of Fair Trade is the possibility of acquiring **pre-financing** for producers who ask for it. Pre-financing is the short-term finance advanced on the contract value to the farmer. When it is transferred before the harvest, it may allow producers to invest in their cultivation and harvest. When it is transferred just after harvest, it may allow producer organizations to purchase agricultural produce from their members before they sell it to another trader. This tool is more relevant for Fairtrade producers working with cash crops

who require large amounts of cash in a short period of time (e.g. coffee, cocoa and cotton). On the contrary, it is less relevant for producers who grow crops with a constant cash flow (e.g. flowers, tea and bananas)(FTI website, 2015).

Most of the Fair Trade standards offer the possibility of pre-financing crops when the producers' organizations request it (except for Forest Garden Product). The pre-financing ceiling is generally 60% of the sale contract, except for Fair for Life and WFTO, which have defined 50% for the ceiling, and with the SPP, which stipulates 60% as the flooring percentage for pre-financing (PFCE 2015). According to the standards, the buyer is allowed to charge interest on pre-financing, but with attractive interest rates (or at least no more than the company's own cost of borrowing).

According to our analytical framework, we can assume that pre-financing can increase the food security of farmers via at least three pathways. First, it allows them to optimize capital investment to produce food and cash crops, which may increase yield, productivity and, therefore, income (in the case of cash crops). It leads to better economic access to food (Table 2). Indeed, we can assume that buyers pre-finance and charge no interest because the loan is guaranteed against the coffee harvest. Yet, in situations of zero interest (or at least, limited interest)[11], producers tend to base their financial capital requirement on an optimum level of production (Basu 1989). The credit does not represent any cost in the production. Secondly, contracts with pre-financing may act as a vector of innovation since they reduce risks for producers, who provide no collateral for the credit other than their produce. In this case, it is possible to introduce innovations to improve the productivity of production processes, which are often considered too risky for small-scale producers (Giné and Klonner 2007). Finally, so far we know little about how pre-financing is used by farmers' organizations. However, we can assume that, if required, it can contribute to a direct improvement in food security via collective or individual food expenditure. Indeed, pre-financing is given to farmers just before or during harvest time, which is one of the worst periods of food insecurity for small farmers (Morris et al. 2013).

According to the literature review on FT studies, several papers document that fair trade certification leads to a lower debt ratio among farmers (COSA 2013, Hussey and Curnow 2013, Bacon 2005, Giovannucci and Ponte 2005, Valkila and Nygren 2010, Ruben and Fort 2012, Ruben 2008, Bacon et al. 2008), including women (Terstappen et al. 2012, Bacon et al. 2008). This could confirm the positive pathway to food security with a more stable and less risky income. Otherwise, Ruben (2008) mentions that farmers who have been involved with the FT cooperatives for a long period of time have better access to credit and are less risk-adverse. FT farmers seem to be more innovative with regard to implementing improved farming practices and resource conservation practices (Bacon et al. 2008).

Nonetheless, some authors are more discerning and emphasize the fact that pre-financing does not enable cooperatives to provide loans with favourable terms to their members. Credits remain short term (which prevents major investments) and interest rates offered by cooperatives are high. For instance, Valkila and Nygren (2010) show that FT Nicaraguan cooperatives charge higher interest rates to farmers than conventional export companies, which provide short-term pre-financing during the harvest season with no interest (Valkila and Nygren 2010). In addition, empirical evidence has revealed situations where so-called "market-driven" buyers refuse to purchase certified production from cooperatives that require pre-financing (Raynolds 2009, Milford 2014).

[11] Generally, a trader aims to maintain supply and reduce risks rather than to make profits from interest rates.

IV.2.2.3 Access to technical training

Small farmers often face difficulties in maintaining productivity and labour efficiency in a context of uncertainty in terms of production, climate and prices. They are highly reliant on natural resources and their capacity to access inputs and labour. Together with the commercialization of cash crops, technical training has long been recommended in order to raise productivity, encourage sustainable farming practices and reinforce farmers' capacities.

Most FT standards require that cooperatives (or the Market Access Partner in the case of independent farmers) provide various technical training courses to certified farmers for the management of erosion, pests, inputs, waste and water. According to our analytical framework, the sustainable management of agronomic resources tends to decrease production risks and improve yields and quality of both food and cash crops (Table 2). This leads to an increase in both access to food and food availability at the farm level.

According to FT literature, FT certified farmers receive more technical training, devote considerably "more labour resources to crop management and quality maintenance activities" (Ruben 2008), and implement improved farming practices and resource conservation practices (Bacon et al. 2008). In the coffee sector, Vagneron and Roquigny (2010) argue that FT economic incentives and training led to an increase in production and to an improvement in quality. Sometimes, the FT premium and technical training can also encourage a conversion to organic production (Tallontire et al. 2012). Although we can identify a causality pathway between improved farming practices and food security, the characteristics of this causality are unclear and probably constitute a medium-/long-term effect. For instance, Bacon et al. (2014) show unexpectedly that environmentally friendly farming practices – including organically grown coffee — have no correlation with the seasonal food shortages reported by FT certified coffee farmers in Nicaragua. In addition, Caswell et al. (2012) argue that technical training should be more oriented to whole farm management (not only certified crops) in order to satisfy farmers' needs to increase productivity, as well as develop sustainable management practices for their food crop production.

IV.2.2.4 Inclusion to collective action

Participating to collective organization is often an essential step for the poor and marginalized households to make their voice heard and engage in a process of social change (Panet and Duray-Soundron 2007). Indeed, they have neither the resources nor the power to affect their situation through individual actions while it could be possible through collective action. According to Stewart (2005), groups are constructed as tools for broader objectives. Some groups have economic objectives (economic efficiency), like producers organizations have in fair trade networks, while others are trying to create favorable conditions for the fulfillment of social needs, or resource sharing ("claim" objective) (Stewart 2005). We could consider that Fair trade movement aims to enhance a combination of both objectives. Producers' organizations that follow these two objectives could favor the empowerment, the resources access and opportunities of FT households.

Indeed, according to our analytical framework, some food security indicators are linked to the access to both resources and social opportunities. First, participating to collective action could favor pooling of resources like materials ones (for quality measurement of certified crop for example) or like labor force (with work exchange practices for instance). Secondly, participating to collective action could have a catalytic role in facilitating access to broader spaces by households. With Fair Trade certification, they could gain a facilitated access to

credit (pre-financing tools), to technical trainings, and to a collective premium. Moreover, access to broader spaces leads to new relationships with others institutions or organizations (social organizations, market, civil society, government actors) where households could act to defend their interests. Bebbington (1999) argue that these relationships can theoretically provide a space to reaffirm or renegotiate the rules that govern access to resources, or struggle to improve what they get out from the transformation of their capitals into sustainable livelihood strategies.

According to FT literature, FT producers' organizations have better capacities to provide financial services to their members. Vagneron and Roquigny (2010) argue for instance that "in an environment where financial institutions have withdrawn the agricultural sector, producer organizations represent a unique opportunity for producers' access to financial services". They also show a better capacity of FT producers' organizations to offer social services to their members. These positive trends constitute most of studies even if some weaknesses exist.

Fair trade tends to improve self-esteem, confidence and social capacities that improve the ability to households to deal with other institutions. According to Le Mare (2008), the establishment of strong producer organizations has a big role and certified farmers have more opportunities compared to conventional ones.

However, according to FT literature, horizontal inequalities among members are still numerous. Thus it should be kept in mind this weakness when assuming that positive results and new opportunities permitted by producers' organizations contribute to all their members. Moreover, the ability of producers' organization to help their members to secure their livelihoods and access to food is linked to at least two key factors. According to the literature review led by Vagneron and Roquigny (2010), firstly, support from subsidized external programs to these organizations play a key role, and FT acts as a "catalyst" for developing that kind of partnership; and secondly, the more performant are the results of the producers' organizations, the greater effect of FT happens.

IV.3 Fair Trade standards and their unexpected potential causality pathways

We have seen that FT economic mechanisms may contribute to an improvement in food security. However, beyond the direct impact on welfare, the transition to FT certification may entail structural changes in terms of farm organization and livelihoods. These changes may influence activities and food security, although FT studies often neglect these aspects (Ruben 2008). It is, therefore, particularly important to identify how farmers behave in response to their involvement in FT networks.

IV.3.1 Specialization risk and food security

FT standards target small producers. In doing so, they tend to favour more diversified farms and reduce their vulnerability by providing them with an additional market outlet. However, the economic mechanisms of FT (*i.e.* guaranteed minimum prices, long-term contracts, pre-financing, FT collective premium) are incentives that are awarded per production unit. By providing an economic incentive per production unit, sustainable certification (including FT labels) tends to encourage farmers to increase their cash crop production (Lemeilleur and Carimentrand 2014). This type of incentive may lead to a specialization in certified cash crops. According to our analytical framework and thanks to our analysis of the literature, we identify three potential causality pathways: (Table 3).

First, this specialization strategy may decrease the availability of food at farm level because fewer resources are dedicated to food crops (area, economic capital and time). This constitutes a threat in terms of yields and quality, or because some food crops and varieties are abandoned (Table 3). This is particularly important because in most FT impact studies, certified small farmers are highly reliant on "staple foods" grown for home-consumption (Bacon et al. 2008, Morris et al. 2013, Bacon et al. 2014, Bacon 2005). More specifically, reduced crop diversification constitutes a potential causality pathway, which may be detrimental to the dimensions of food security linked to diversity and cultural preferences. Indeed, the availability of home-grown food may be reduced qualitatively, for example, when farmers stop growing certain varieties (that diversify diet and respect cultural preferences) and replace them with export-oriented crops or varieties (Lemeilleur 2013).

Secondly, this specialization strategy may decrease the access to food. Stopping farm diversification (a smaller number of cash crops or varieties) and devoting fewer resources (time and money) to off/non-farm activities can lead to insecurity in terms of access to food (Table 3). These changes represent a real threat to income levels and stability.

In empirical literature on FT, specialization appears as a real threat to the food security of households farming FT cash crops. Some studies show the fact that FT incentives push farmers to devote more resources (land, labour and financial capital) to certified cash crop production (Chan and Pound 2009, Vagneron and Roquigny 2010) and to abandon less profitable crops and secondary (off / non-farm) activities, formerly used as risk management strategies (Charlier 2007, Chan and Pound 2009, Ruben and Fort 2012, Ruben 2008, Caswell et al. 2012). Although FT tends to increase market integration, a "perverse monopsony market situation [potentially] limits further development options for stepping out of poverty" (Saenz-segura and Zuniga-Arias 2008). This is consistent with FT impact studies, which focus on FS and show that when households earn incomes from more numerous sources, they experience less difficulty in gaining access to sufficient food (Caswell et al. 2014, Méndez et al. 2010). COSA is in line with this analysis and presents correlations between food security and diversity of food crops, as well as diversity of sources of income. COSA argues in favour of diversification in order to decrease vulnerability to food insecurity, which is inherent to dependence on a single crop (COSA 2013).

Thirdly, according to our analytical framework, lack of access to food may occur when farmers run out of food stocks and buy food at the market. Indeed, at the regional level, specialization may lead to a decline in food availability on the market, both in terms of quantity and quality (Table 3). Furthermore, market prices can increase dramatically, which reduces economic access. This trend has been clearly illustrated in the case of voluntary standards for biofuels. Shattuck (2011) points out that, although we cannot ask for voluntary standards to address food security issues, they should prevent production that will "aggravate certain structural inequalities causing famine"[12]. In the case of fair trade, the example of Bolivian quinoa is an emblematic case of specialization in a cash crop resulting from FT certification (Gendron et al. 2009, Lemeilleur and Carimentrand 2014). At the regional level, extreme specialization of land to produce certified quinoa caused a sharp decline in production for local consumption (reduction in food availability). More significantly, farming

[12] In Indonesia, for example, competition between oil palm and existing food crops has been reinforced by the voluntary RSPO standard. Between 1990 and 2005, 44% of oil palm plantations have replaced land for food crops (Oosterveer, Adjei et al. 2014). These changes are compounded by the RSPO certification, which advocates increasing the area of land cultivated by using so-called "degraded" land, which in reality is farmland or traditional land belonging to indigenous communities. Abandoning rice cultivation in these regions has led to increased imports, raising the question of food security and sovereignty for local populations (Oosterveer, Adjei et al. 2014).

households had to cope with higher prices on the local market, which reduces their access to food. It causes changes in food consumption in favour of cheaper less nutritious imported cereals (wheat) to the detriment of local quinoa, which is very high in nutrients (Gendron et al. 2009).

Farming and livelihood diversification strategies have long been recommended in order to reduce the economic and food vulnerability of farming households (Caswell et al. 2012, Michler and Josephson 2015, Caswell et al. 2014). In the context of fair trade certification, diversification also seems to be a positive causality pathway to secure food consumption for smallholders. However, our analysis shows that potential contradictory causality pathways do exist as a result of FT incentives. It is crucial to take this risk of specialization into account in order to assess vulnerability to food insecurity.

IV.3.1 Intra-household changes and food security

Finally, academic literature has identified gender-related changes as potential causality pathways through which agricultural and trade interventions may affect food security (Anderman et al. 2014, Von Braun 1995, Dury et al. 2014). According to FT literature, empirical evidence on gender empowerment is scarce and mainly descriptive. In 2012, using a systematic scoping review on gender issue, Terstappen et al. (2012) show that, in general, women do not benefit equally from certification (Terstappen et al. 2012).

According to our analytical framework, a household's economic access to food can be reduced/favored if the share of income held by the woman declines/increases as a result of FT certification.

Incentives for farming a particular crop, which are usually controlled by men, could increase this asymmetric power relationship (Table 3). According to FT literature, women often have less control over decisions relating to cash crops and monetary income (Ruben 2008). For instance, Bacon et al. (2008) show that while women work more in FT affiliated farms compared to conventional ones (77 days worked per year compared to 33), only 45% of households share incomes from the sale of coffee.

On the contrary, Chiputwa and Qaim (2014) show that fair trade certification of coffee could be seen as an opportunity for women to increase their income. This would be positive for children's food security because women do spend a larger part of their revenue on food and child care (Chiputwa and Qaim 2014). These controversial results are not conclusive. However, we argue in favour of more caution regarding the FT contribution to this, because academic literature has identified spousal control over an income shift as a negative causality pathway. This leads to an uncertain pathway.

In addition, FT may influence the quality of food use, for example, if women are overworked, lack time for food preparation, care or home garden activities (Table 3). According to FT literature, certification leads to an increase in women's workload (Terstappen et al. 2012), given the traditional division of labour within households (women are responsible for the most time-consuming farming tasks, e.g. weeding) (Nelson and Pound 2009, Tallontire et al. 2012, Terstappen et al. 2012) and the increased labour load between conventional and FT markets. For instance, Saenz-segura and Zuniga-Arias (2008) show that in non-FT households, women devote less time to coffee production and are involved in other activities and care. Family farms then have more options for income diversification and can secure and

diversify their food diet with produce from the home garden, which is managed by women. For example, in Nicaragua and Mexico, women contribute to diversify the family's diet during seasonal hunger by providing vegetables from the home garden (Fernandez et al. 2013). Therefore, increasing women's workload in coffee plots is a potential unexpected causality pathway in terms of the diversity dimension of food security.

Conclusion

Our objective was to identify potential causality pathways between fair trade certification and the food security of certified farming households. Indeed, "certifications have not resolved the challenges of food security and poverty for small scale farmers" (Caswell et al. 2012). To achieve this, we first propose an analytical framework based on the literature relating to the food security concept and the cash cropping transition and its effects on FS. The analytical framework provides FS indicators that could positively influence food availability, access and use for farming households. On analysis, we show that food security issues are not directly included in the content of FT standards. While food security is one of the primary objectives of international development policies, none of the criteria or principles of FT aim to regulate activities with a view to food security. Using our analytical framework, we argue that guaranteed minimum prices, FT collective premiums, pre-financing, long-term contracts, technical training and the inclusion to collective action could improve food availability, access and use for farming households and reduce their vulnerability to food insecurity (section IV.2). Indeed, if we go back to negative pathways where cash crop production threatens food security (Anderman et al. 2014, DeWalt 1993), we see that certifying cash crops with FT labels does provide some responses. FT provides responses to vulnerability to price variability (minimum price, long-term contract) and changes in the flow of household income (pre-financing). However, our analysis of FT empirical evidence also made it possible to qualify some potential benefits due to unexpected and sometimes controversial outcomes that could substitute each other, offset, or indirectly worsen the food security situation. We argue that FT labels fail to address the specialization risk due to incentives provided per production unit that increases dependence on markets.

Moreover, there is still a gap in the literature regarding the intra-seasonal regularity of income, stage payments, access to credit and food security. How farming households accept and mobilize FT mechanisms should be explored further because some contradictions can arise. For instance, while payments in instalments offered by FT cooperatives may seem positive from the FS perspective, they are often considered as a disadvantage by farmers and constitute one of the reasons for not joining the FT cooperative (Valkila and Nygren 2010, Milford 2014). Further research is required to fully understand how FT certification can contribute to food security via these pathways. Furthermore, analysis should be led in a dynamic way because some authors argue that the number of year of affiliation to FT is one key factor that enhance positive impact of FT to certified households (Vagneron and Roquigny 2010). This means that there could be significant learning effects over time. Besides, regarding to livelihoods diversification, we argue, like Caswell et al. (2014), that there is a need "for deeper investigation of the conditions under which income, crop, and land-use diversification strategies are most favourable and of their trade-offs and combined effects as well as the degree to which these approaches contribute to farmers' overall well-being". In any case, this paper suggests that caution is needed with regard to the assumption that a rise in prices and income – with FT certification — inevitably has just a positive impact on food security in FT contexts. It is important to understand and account for tradeoffs when assessing the contribution of FT to an improvement in living conditions, especially with

regard to greater food security. While sustainability standards are considered by many decision makers to be the best tools available for promoting sustainable development, our analysis results called for more discussion to redefine these instruments, as well as their complementarity with current development policies and programs. Food security can truly be taken into account in global sustainable development.

References

Anderman, T. L., R. Remans, S. A. Wood, K. DeRosa & R. S. DeFries (2014) Synergies and tradeoffs between cash crop production and food security: a case study in rural Ghana. *Food Security,* 6**,** 541-554.

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**,** 497-511.

Bacon, C. M. (2010) Who decides what is fair in fair trade? The agri-environmental governance of standards, access, and price. *The journal of peasant studies,* 37**,** 111-147.

Bacon, C. M., V. Ernesto Mendez, M. E. F. Gomez, D. Stuart & S. R. D. Flores (2008) Are sustainable coffee certifications enough to secure farmer livelihoods? The millenium development goals and Nicaragua's Fair Trade cooperatives. *Globalizations,* 5**,** 259-274.

Bacon, C. M., W. A. Sundstrom, M. E. Flores Gómez, V. Ernesto Méndez, R. Santos, B. Goldoftas & I. Dougherty (2014) Explaining the 'hungry farmer paradox': Smallholders and fair trade cooperatives navigate seasonality and change in Nicaragua's corn and coffee markets. *Global Environmental Change,* 25**,** 133-149.

Barrett, C. B. (2010) Measuring food insecurity. *Science,* 327**,** 825-828.

Basu, K. (1989) A theory of association: Social status, prices and markets. *Oxford Economic Papers***,** 653-671.

Bebbington, A. (1999) Capitals and capabilities: a framework for analyzing peasant viability, rural livelihoods and poverty. *World development,* 27**,** 2021-2044.

Becchetti, L. & M. Costantino (2008) The Effects of Fair Trade on Affiliated Producers: An Impact Analysis on Kenyan Farmers. *World Development,* 36**,** 823-842.

Blackman, A. & J. Rivera (2010) The Evidence Base for Environmental and Socioeconomic Impacts of "Sustainable" Certification. *Resources for the Future: RF-DP-10-17*.

Caswell, M., V. E. Méndez, M. Baca, P. Läderach, T. Liebig, S. Castro-Tanzi & M. Fernández (2014) Revisiting the "Thin Months"–A Follow-up Study on the Livelihoods of Mesoamerican Coffee Farmers.

Caswell, M., V. E. Méndez & C. M. Bacon (2012) Food security and smallholder coffee production: current issues and future directions.

Chambers, R. (1989) Editorial introduction: vulnerability, coping and policy. *IDS bulletin,* 20**,** 1-7.

Chambers, R. & G. Conway. 1992. Sustainable rural livelihoods: practical concepts for the 21st century. In *discussion paper 296,* ed. IDS, 33. Brighton, UK: Institute of Development Studies (UK).

Chan, M.-K. & B. Pound. 2009. Final report: literature review of sustainability standards and their poverty impact. eds. D. f. I. Development & N. R. Institute, 48.

Charlier, S. 2007. Les femmes contribuent à la souveraineté alimentaire. In *La souveraineté alimentaire. Regards croisés.,* ed. S. C. e. G. Warnotte. UCL/Presses Universitaires de Louvain et Entraide et Fraternité.

Chiputwa, B. & M. Qaim. 2014. Sustainability standards, gender, and nutrition among smallholder farmers in Uganda. GlobalFood Discussion Papers.

Coates, J. (2013) Build it back better: Deconstructing food security for improved measurement and action. *Global Food Security,* 2**,** 188-194.

COSA. 2013. THE COSA MEASURING SUSTAINABILITY REPORT: COFFEE AND COCOA IN 12 COUNTRIES. ed. TheCommitteeonSustainabilityAssessment. Philadelphia.
DeWalt, K. M. (1993) Nutrition and the commercialization of agriculture: ten years later. *Social Science & Medicine,* 36**,** 1407-1416.
Dragusanu, R. E., D. Giovannucci & N. Nunn. 2014. The economics of fair trade. National Bureau of Economic Research.
Dury, S., A. Alpha & A. Bichard. 2014. Identifier et limiter les risques des interventions agricoles sur la nutrition. 20. MOISA.
FairTradeInternationalOP. 2011. Standard du Commerce Equitable Fairtrade pour les organisations de petits producteurs.
FAO (2014) Impact of international voluntary standards on smallholder market participation in developing countries A review of the literature.
Fernandez, M., V. E. Mendez & C. Bacon (2013) Food Sovereignty: A Critical Dialogue.
Gendron, C., V. Bisaillon & A. P. Torres. 2009. *Quel commerce équitable pour demain?: pour une nouvelle gouvernance des échanges*. ECLM.
Giné, X. & S. Klonner (2007) Technology adoption with uncertain profits: the case of fibre boats in South India. *Work. Pap., World Bank, Washington, DC*.
Giovannucci, D. & S. Ponte (2005) Standards as a new form of social contract? Sustainability initiatives in the coffee industry. *Food Policy,* 30**,** 284-301.
Hussey, I. & J. Curnow (2013) Fair Trade, neocolonial developmentalism, and racialized power relations. *Interface,* 5**,** 40-68.
Jaffee, D. (2008) Better, but not great': the social and environmental benefits and limitations of Fair Trade for indigenous coffee producers in Oaxaca, Mexico. *The impact of fair trade***,** 195-222.
Le Mare, A. (2008) The impact of fair trade on social and economic development: A review of the literature. *Geography Compass,* 2**,** 1922-1942.
Lemeilleur, S. (2013) Smallholder compliance with private standard certification: the case of GlobalGAP adoption by mango producers in Peru. *International Food and Agribusiness Management Review,* 16.
Lemeilleur, S. & A. Carimentrand. 2014. Standards de développement durable et productivisme: vice caché des dispositifs? In *XXXème journée ATM de Marrakech, colloque Ethique, Entrepreunariat et Développement*. université Cadi Ayyad, Marrakech.
Lovendal, C. R. & M. Knowles. 2006. Tomorrow's hunger: A framework for analysing vulnerability to food security. Research Paper, UNU-WIDER, United Nations University (UNU).
Maxwell, D. G. (1996) Measuring food insecurity: the frequency and severity of "coping strategies". *Food Policy,* 21**,** 291-303.
Méndez, V. E., C. M. Bacon, M. Olson, S. Petchers, D. Herrador, C. Carranza, L. Trujillo, C. Guadarrama-Zugasti, A. Cordón & A. Mendoza (2010) Effects of Fair Trade and organic certifications on small-scale coffee farmer households in Central America and Mexico. *Renewable Agriculture and Food Systems,* 25**,** 236-251.
Michler, J. D. & A. L. Josephson (2015) Specialization versus Diversification: Agricultural Diversity and Poverty Persistence in Ethiopia.
Milford, A. (2014) Co-operative or coyote? Producers' choice between intermediary purchasers and Fairtrade and organic co-operatives in Chiapas. *Agriculture and Human Values,* 31**,** 577-591.
Morris, K. S., V. E. Mendez & M. B. Olson (2013) 'Los meses flacos': seasonal food insecurity in a Salvadoran organic coffee cooperative. *The Journal of Peasant Studies,* 40**,** 423-446.
Naylor, L. (2013) "Some are more fair than others": fair trade certification, development, and North–South subjects. *Agriculture and Human Values,* 31**,** 273-284.
Nelson, V. & B. Pound. 2009. The Last Ten Years: A Comprehensive Review of the Literature on the Impact of Fairt. University of Greenwich.
Nelson, V. & A. Tallontire (2014) Battlefields of ideas: changing narratives and power dynamics in private standards in global agricultural value chains. *Agriculture and Human Values,* 31**,** 481-497.

Niehof, A. (2004) The significance of diversification for rural livelihood systems. *Food Policy,* 29**,** 321-338.
Panet, S. & Duray-Soundron. 2007. Introduction générale. In *Repenser l'action collective: une approche par les capabilités,* ed. E. Economique, 15-30. Paris: L'Harmattan.
PFCE. 2015. Guide international des labels de commerce équitable.
Raynolds, L. T. (2009) Mainstreaming Fair Trade Coffee: From Partnership to Traceability. *World Development,* 37**,** 1083-1093.
Renard, M.-C. & A. Loconto (2012) Competing Logics in the Further Standardization of Fair Trade: ISEAL and the Símbolo de Pequeños Productores. *Int. Jrnl. of Soc. of Agr. & Food,* 20**,** 51-68.
Ruben, R. 2008. The development impact of Fair Trade: from discourse to data. In *The impact of Fair Trade,* ed. R. Ruben, 19-47. Wageningen: Wageningen Academic pulishers.
Ruben, R. & R. Fort (2012) The Impact of Fair Trade Certification for Coffee Farmers in Peru. *World Development,* 40**,** 570-582.
Saenz-segura, F. & G. Zuniga-Arias. 2008. Assessment of the effect of Fair Trade on smallholder producers in Costa Rica: a comparative study in the coffee sector. In *The impact of fair trade,* ed. R. Ruben, 117-135. Wageningen: Wageningen academics publisher.
Shattuck, A. (2011) La certification de la durabilité est-elle efficace? Analyse de la «Table ronde sur les biocarburants durables1». *Alternatives Sud,* 18**,** 161.
Sirdey, N. (2014) La durabilité sociale dans les standards volontaires de durabilité : Une analyse de trois cas. *JEDI,* 3.
SPP, D. o. P. a. V. (2010) Declaration of Principles and Values.
Stewart, F. (2005) Groups and capabilities. *Journal of human development,* 6**,** 185-204.
Tallontire, A., V. Nelson, J. Dixon & T. G. Benton. 2012. A Review of the Literature and Knowledge of Standards and Certification. 131. University of Greenwich and University of Leeds.
Terstappen, V., L. Hanson & D. McLaughlin (2012) Gender, health, labor, and inequities: a review of the fair and alternative trade literature. *Agriculture and Human Values,* 30**,** 21-39.
Vagneron, I. & S. Roquigny (2010) Cartographie & analyse des études d'impact du commerce équitable. *Montpellier: CIRAD, UMR MOISA*.
Valkila, J. & A. Nygren (2010) Impacts of Fair Trade certification on coffee farmers, cooperatives, and laborers in Nicaragua. *Agriculture and Human Values***,** 321-333.
Von Braun, J. (1995) Agricultural commercialization: impacts on income and nutrition and implications for policy. *Food policy,* 20**,** 187-202.
Watts, M. J. & H. G. Bohle (1993) Hunger, famine and the space of vulnerability. *GeoJournal,* 30**,** 117-125.
Webb, P., J. Coates, E. A. Frongillo, B. L. Rogers, A. Swindale & P. Bilinsky (2006) Measuring household food insecurity: why it's so important and yet so difficult to do. *The Journal of nutrition,* 136**,** 1404S-1408S.
Webb, P. & B. L. Rogers. 2003. *Addressing the" In" in food insecurity*. Food and Nutrition Technical Assistance Project Academy for Educational Development.
Yaro, J. A. (2004) Theorizing food insecurity: building a livelihood vulnerability framework for researching food insecurity. *Norsk Geografisk Tidsskrift-Norwegian Journal of Geography,* 58**,** 23-37.