

The Impact of Fair Trade on the Adaptive Capacity of Artisans and Smallholder Farmers

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Abstract

The aim of this paper is to assess to which extent producers' participation in Fair Trade can increase their adaptive capacity and make them more resilient to climate change. Based on the adaptation deficit framework of Fankhauser & McDermott (2014) and an expert interview with 83 agricultural and handicraft producer organizations from Latin America, Asia and Africa we first determine the perception and the impacts of climate change on fair trade producers' organizations. We then analyze how fair trade is helping producers to increase their adaptive capacity. Our results suggest that Fair Trade affect the adaptive capacity of smallholder farmers and artisan in developing countries in two ways. It works as a growth policy and affects the disposable income, which is then partly spent on adaptation measures. And by increased knowledge exchange, a higher degree of social capital and a better access to the international community it makes the supply of adaptation more efficient. The insights of this study are highly relevant in light of the already occurring impacts of climate change and the apparent lack of adaptation capacity in developing countries. Although voluntary sustainability standards can only work as a second-best policy they can be useful in situations, where markets and governments fail to provide appropriate incentives.

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Keywords: Climate Change, Adaptation, Fair Trade, Voluntary sustainability standards.

Highlights:

- Fair Trade works as a growth policy and affects the disposable income, which is then partly spent on adaptation measures.
- Fair Trade increases knowledge exchange and access to the international community, which makes the supply of adaptation more efficient.
- Fair Trade can be particularly useful to raise the level of adaptation in situations, in which first-best policy is difficult to implement efficiently.

1 Introduction

Developing countries are often considered to be the most vulnerable to current climate variability and the effects of climate change (e.g., Tol 2002*a*, Tol 2002*b*, Kahn 2005, World Bank 2013). Many of these countries are situated in semi-arid climatic zones, which are sensitive to climatic changes and where small changes in climate will have severe impacts (World Bank 2013). Their economies are often strongly based on smallholder agricultural and artisanal production. Most of the African economies, for example, are highly reliant on climate sensitive sectors, especially agriculture, which accounts for over 50% of Africa's GDP, around 60% of employment and 60% of its total exports incomes (Collier, Conway & Venables 2008, Dercon & Gollin 2014). Furthermore, most importantly, developing countries generally show a significant adaptation deficit, which is caused by a lack of institutional, financial or technological capacity (Yohe & Tol 2002, Tol & Yohe 2007, Brooks, Adger & Kelly 2005, Collier et al. 2008, Barr, Fankhauser & Hamilton 2010, Fankhauser & McDermott 2014).

In order to overcome this prevalent vulnerability, developing countries have to increase their adaptive capacity. Potential adaptation measures can range from climate induced migration, to shifting the economic activity to less affected sectors or changing the production technique. While the first two measures are often limited due to national and ethical barriers and a strong path dependence in the agriculture sector, the latter will be the most viable in the near future (Collier et al. 2008).

Although the adaptation decision itself is mainly based on the private sector, institutions and policy makers are required to provide the appropriate policy response to induce adaptation (Collier et al. 2008, Mendelsohn 2012). However, markets and governments often fail to provide incentives to increase the demand for adaptation measures and to implement efficient adaptation strategies. Recently, voluntary sus-

tainability standards and certifications¹ were suggested as an alternative channel to increase the amount of adaptation (Frank & Penrose Buckley 2012, Lemeilleur & Balineau 2016). Based on the framework of Fankhauser & McDermott (2014), voluntary sustainability standards can increase the adaptive capacity by initiating economic growth and thereby, increasing the disposable income, which can be spent on further adaptation. Moreover, they can affect the adaptive capacity by making the provision of adaptation measures more efficient, as in this way adaptation can be supplied with reduced marginal costs.

A recent example in this context is the initiative to decrease farmers' vulnerability to the effects of climate change started by the Ethical Tea Partnership² in 2014. The initiative was based on several mechanisms to affect the farmers' adaptation deficit. Training and support structures were implemented to increase farmers' knowledge on climate change impacts and potential adaptation technologies. A microfinance scheme was promoted to provide farmers the possibility to finance adaptation measures and more efficient adaptation technologies were distributed over the initiative's network.³

Another prominent example of a voluntary sustainability standard is the Fair Trade⁴ standard. Dating back to 1988, this standard aims to provide a basic livelihood for producers. To achieve this goal, it relies on different economic instruments, such as the minimum price, the social premium, and the establishment of long lasting trading relationships. The potential income effects of the Fair Trade standard together with the reinforcement of cooperatives' organizational structure and inter-

¹ Today numerous voluntary sustainability standards have emerged. Some prominent examples are the Forest Stewardship Council, Marine Stewardship Council, the Roundtable on Sustainable Palm Oil, the Rainforest Alliance, the Ethical Tea Partnership, the UTZ certified initiative and the Fair Trade standards. All of these standards have the common aim to provide an economically, socially and/or environmentally sustainable living for growers in producer countries.

² The Ethical Tea Partnership is a not for profit membership organization aiming to improve the sustainability of smallholder tea production.

³ <http://www.ethicalteapartnership.org/wp-content/uploads/Case-Study-Addressing-the-Effects-of-Climate-Change-Kenya.pdf>

⁴ We follow Dragusanu, Giovannucci & Nunn (2014) and use the word "Fair Trade" to refer to the general initiative and movement and not to a specific certification network.

national networks can induce an increase in the adaptive capacity of smallholder farmers and artisans (Valkila 2009, Bacon, Rice & Maryanski 2015, Lemeilleur & Balineau 2016).

The aim of this paper is to assess to which extent producers' participation in Fair Trade can increase their adaptive capacity by either increasing their demand for adaptation or by making the supply of adaptation more efficient. We address the following research questions. First, we ask if the Fair Trade instruments, including the minimum price and the social premium, are used to undertake any adaptation strategies to reduce the degree of vulnerability. This question is based on the literature on smallholder adaptation and perception of climate change risk (e.g., Alauddin & Sarker 2014, Bakkensen & Mendelsohn 2016) and will give some insights in the smallholders' demand for climate change adaptation. Second, based on recent studies showing that communication and the quality of the institutions have an impact on the costs of adaptation (e.g., Alpizar, Carlsson & Naranjo 2011) we ask how participation in Fair Trade can help producers' to increase their adaptive capacity more efficiently. This will enable us to determine the impact of Fair Trade participation on the supply efficiency of climate change adaptation.

To answer these research questions, we combine the literature on adaptation measures for climate change and the literature on the economic impact of Fair Trade. Therefore, we adapt the adaptation deficit framework of Fankhauser & McDermott (2014) to the case of smallholder farmers and artisans. This allows us to disentangle the impact of Fair Trade on producers' adaptation capacity in a demand effect and a supply efficiency effect. Based on this framework, we develop a qualitative survey and apply it on a sample of 83 agricultural and handicraft Fair Trade producer organizations from Latin America, Asia and Africa. This global survey allows us to identify the causal relationship between smallholder farmers' and artisans' participation in Fair Trade and their capacity to uptake adaptation measures.

Our results suggest that Fair Trade affects the adaptation capacity of smallholder farmers and artisan in developing countries in two ways. On the one side, it works as a growth policy and affects the disposable income, which can be spent on adaptation measures. On the other side, it makes the supply of adaptation more efficient through increased knowledge exchange, a higher degree of social capital and a better access to the international community. Fair Trade membership, the minimum price and the price premium in particular, can increase producers' income, which is then partly spent in better adaptation techniques. The amount spent on adaptation measures very much depends on the amount of the products sold over the Fair Trade channel. For smaller producers the additional production and certification costs can have a significant impact on the size of the disposable income and therefore, only little is spent on adaptation measures by them. Furthermore, our respondents emphasize the increased knowledge exchange on climate change and adaptation techniques and the significant facilitation of getting access to more efficient adaptation measures.

These insights have important policy impacts. Knowledge of the mechanisms of how voluntary sustainability standards in general and the Fair Trade standard in particular influence the level of adaptation in developing countries helps to take this into account when designing these standards. Although voluntary sustainability standards will always remain a second-best policy to increase the level of adaptation, they can be useful in situations in which first-best policy is difficult to implement efficiently.

The remainder of this paper is organized as follows: section 2 sets up a conceptual framework by combining the literature on adaptation deficit, smallholders' and artisans' adaptation capabilities and the economic impact of Fair Trade. Section 3 describes the survey and in section 4 we discuss the results. In section 5 we summarize the main findings of this paper and give some direction for future research.

2 Conceptual framework

2.1 Explaining the adaptation deficit of smallholders and artisans

According to Fankhauser & McDermott (2014), the existence of an adaptation deficit is determined by a demand effect for the good climate security and an efficiency effect, which captures the efficiency of supply of adaptation measures. The demand effect is explained with the fact that households choose their level of adaptation based on two factors. First, their demand for adaptation increases with both the intensity and probability of climate hazard and/or with the degree of exposure to it (Tucker, Eakin & Castellanos 2010, Schumacher & Strobl 2011, Hsiang & Narita 2012). Second, as long as adaptation is a normal good, households' demand for climate adaptation will increase with income. This relationship is based on the assumption that an increasing valuable stock of assets increases the benefits of adaptation (Schumacher & Strobl 2011, Hsiang & Narita 2012, Bakkensen & Mendelsohn 2016).

The efficiency effect captures the efficiency of the supply of adaptation measures. It is caused by welfare related factors such as good public services, stronger institutions and a higher degree of knowledge transfer, which, besides leading to higher welfare, makes the provision of adaptation measures more efficient. This effect allows a supply of adaptation measures with lowers marginal costs. Based on a framed field experiment in Costa Rica Alpizar et al. (2011) shows that physical and social distance between farmers and the quality of the institutions have an impact on the level of farmers' communication and coordination to reduce the costs of adaptation. The results of Raschky (2008) suggest that countries with better institutions experience less victims and lower economic losses from natural disasters. Further, using a composite index empirical approach Brooks et al. (2005) demonstrates that

a country's adaptive capacity is determined by governance, civil and political rights, and literacy.

Although smallholder farmers possess several resilience factors, such as family labour, existing patterns of income diversification, and historically based indigenous knowledge (Morton 2007), they tend to be vulnerable to the impacts of climate change. One of the reasons is that the amount of adaptation is likely to be insufficient. The demand for adaptation measures is often limited by a lack of land tenure and tenure security. In these circumstances, farmers are likely to cultivate land and graze livestock on commonly owned properties, which often imply low level of private investment into the land (Mendelsohn 2012). Moreover, firms have no incentive in making capital investments in places where property rights are not secure (Deininger & Jin 2006). Smallholders have a low income level and often no access to the capital market and are therefore not able to make capital investments in climate change adaptation. Further, they often face a lack of information on the impacts of climate change and on appropriate adaptation methods (Deressa, Hassan, Ringler, Alemu & Yesuf 2009, Alauddin & Sarker 2014). Smallholders' perception of climate change impacts is significantly influencing the demand for adaptation measures. Tucker et al. (2010), for example, show that perceptions are critical in shaping farmers' adaptive responses to the stresses outside their previous experiences. Based on a survey they found that farmers who perceive extreme weather and climatic anomalies, make more adaptive changes than those who saw the events as part of normal variation.

2.2 The Fair Trade standard and adaption measures

Fair Trade is one of the oldest and most researched voluntary sustainability certification program. The Fair Trade standard was developed to ensure that farmers and artisans in producing countries are able to receive a sufficient income for their

crops and handicraft products. Today the initiative consists of several other goals, including improved access to credit, better working conditions and the use of environmentally friendly production processes. To achieve these goals, the Fair Trade standard relies on a set of mechanisms and certification conditions ranging from minimum price and price premium, a better access to credit, an enhanced institutional structure, in which farmers organize themselves in associations or cooperatives, to specific labor and environmental standards (Dragusanu et al. 2014).

Based on the framework of Fankhauser & McDermott (2014) Fair Trade can increase producers' adaptive capacity over two channels. First, Fair Trade can work as a growth policy, which affects income and preferences and thereby influences the demand for adaptation. The impact on income is generated mainly as a result of higher prices and increased productivity. Indeed, there is evidence that Fair Trade certified producers receive higher prices (Bacon 2005, Bacon, Ernesto Mendez, Gómez, Stuart & Flores 2008, Arnould, Plastina & Ball 2009, Jaffee 2008, Weber 2011, Mendez, Bacon, Olson, Petchers, Herrador, Carranza, Trujillo, Guadarrama-Zugasti, Cordon & Mendoza 2010, Dragusanu et al. 2014) and produce more than conventional producers, thanks to the effect of economies of scale (Mendez et al. 2010, Barham & Weber 2012, Becchetti & Castriota 2009). Fair Trade can influence farmers' income by promoting export diversification through the facilitation of market access and provision of financial, social and physical capital (Becchetti & Castriota 2009, Smith 2013). Also, with the increase in production scale producers gain experience and might become more confident in negotiating better prices and wages, have more influence within the supply chain and operate in international markets (Nelson & Pound 2009, Frank & Penrose Buckley 2012). Furthermore, research shows that Fair Trade producers have more access to credit and savings than their non-certified counterparts allowing them to make long-term investments (Mendez et al. 2010, Ruben, Fort & Zúñiga-Arias 2009).

Second, Fair Trade has the capacity to make the supply of adaptation more efficient, which reduces the marginal costs of adaptation. For instance, as part of the Fair Trade initiative, farmers are encouraged to organize themselves in cooperatives or associations, which allows intensified knowledge exchange, increases social capital and gives access to a large international community. Moreover, Fair trade producers are better trained on sustainable agricultural techniques, which helps them improving the quality and delivery of their products (Utting 2009, Valkila 2009, Bacon et al. 2015). Also, Fair Trade can facilitate the support from international donors, which might be more likely to trust the financial sustainability of a certified cooperative (Frank & Penrose Buckley 2012). This can be related to the fact that cooperatives offer low interest credit funds to their members or pre-financing offered by the buyer to cover harvest expenses (Nelson & Pound 2009). Fair Trade enables cooperatives and farmers to get more direct support from international agencies and, thereby, might provide better access to advanced and more efficient adaptation technology.

Figure 1 graphically depicts the impact of Fair Trade on the level of adaptation in a country. Fair Trade certification will have two effects for producers. The demand curve for adaptation will shift upward from D to D_{FT} due to an increase in income. While at the same time, based on a higher degree of knowledge exchange the supply of adaptation will get more efficient with lower marginal costs, which will shift the supply curve downward from S to S_{FT} . These two effects will result in a new equilibrium Q_{FT} , where the amount of adaptation is higher than in the old equilibrium Q . The difference between Q and Q_{FT} is the potential of Fair Trade to reduce the adaptation deficit and thereby the vulnerability to climate change effects in developing countries.

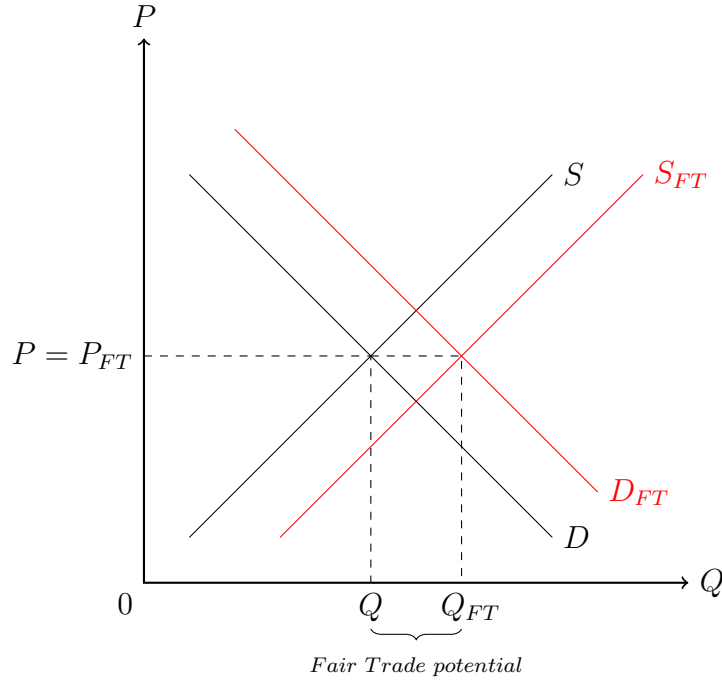


Figure 1: Fair Trade potential to increase the amount of adaptation (adopted from Fankhauser & McDermott (2014)).

3 Methodology

To get a better understanding of the causal relationship between producers' participation in Fair Trade and their adaptive capacity we conducted a survey, which was designed to characterize climate related impacts, climate adaptation strategies, as well as Fair Trade related socioeconomic, organizational and environmental impacts. The survey was developed through a consultation process, which included interviews, emails, and informal chat. The final survey consists of a mix of 16 open-ended, multiple choice and closed-ended questions. The surveys were distributed through three Fair Trade networks⁵ reaching in total 790 Fair Trade member organizations. Overall, 83 valid responses from Fair Trade producer organizations have been analyzed in this research. 43 respondents were located in Asia, 28 in Latin America, and 12 in Africa. Figure 2 plots the geographic distribution of the respon-

⁵ World Fair Trade Organization (WFTO), Artisans du Monde (AdM), and Coordinator of Fairtrade Latin America and Caribbean (CLAC)

dents on a world map. The sample is composed of 44 handicrafts and 39 agricultural producer organizations. Respondents involved in handicraft production are mainly located in Asia, whereas interviewees involved in agricultural production are mostly from Latin America.

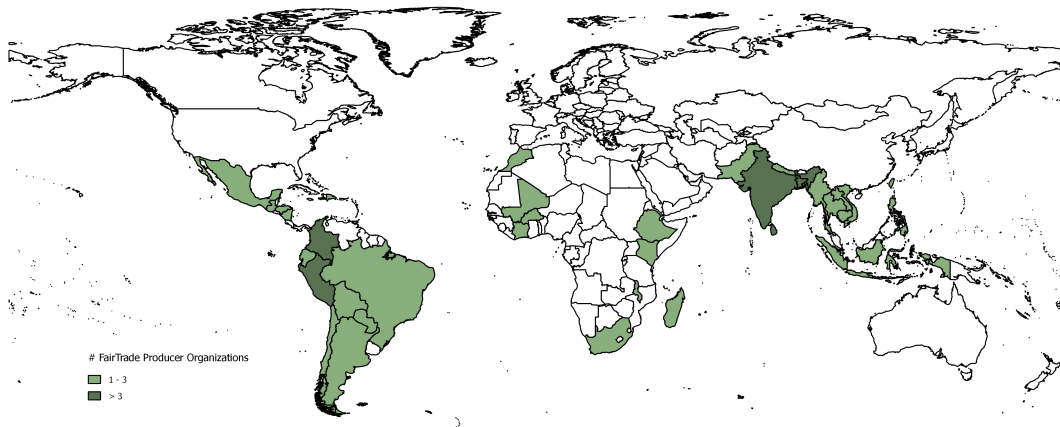


Figure 2: Geographic distribution of responding producer organizations

Focusing on Fair Trade producer organizations allows us to explore the perceptions and adaptation activities of actors, who represent a big group of affected individuals and who have knowledge of both local circumstances and international issues in the context of climate change, climate vulnerability, adaptation measures and Fair Trade impacts. Data were collected from September to November 2015.

The survey aims to measure to which extent the participation in a Fair Trade program can increase the adaptive capacity of smallholder farmers and artisans. It includes sections on demography, agricultural production, current and perceived impacts and adaptive responses to climate change, as well as questions related to Fair Trade impact in general and its specific impact on adaptive capacity. Based on the framework of Fankhauser & McDermott (2014) the questions can be grouped in dealing with demand side factors and supply side factors of adaptation measures and, finally, the role of Fair Trade on these factors.

3.1 The baseline demand for and efficiency of supply of adaptation measures

To get an understanding of the baseline demand for adaptation measures, the producers' perception of the risk and impacts of climate change were asked using a mix of multiple choice and open ended questions. Thereby, they have to describe if they have perceived any climate change and if and how they have experienced its impacts. Further, we assess their adaptation activities by asking them to explain any changes they had made in their livelihood activities, including crop switching, soil and water conservation, other agricultural practices or practices based on indigenous knowledge. The baseline efficiency of supply is determined by asking them to state potential barriers they face in the uptake of adaptation strategies. These barriers range from an inefficient supply of information and knowledge of climate change impacts and adaptation measures to potential constraints in access to credit.

3.2 The impact of Fair Trade on demand and supply of adaptation

To identify a causal relationship between the participation in a Fair Trade program and a change in the demand for adaptation to climate change as well as a change in the efficiency of supply of adaptation measures, respondents were asked to describe the current benefit of Fair Trade participation. Next to open ended questions they could choose from a range of benefits based on an increase of collective action, income and investment, access to services and market access and engagement. Further, based on open ended questions the respondents were asked to describe how these benefits help them to adapt to climate change.

4 Discussion and results

Table 1 gives an overview of the demographic characteristics of our respondents. On average 25 percent of our respondents in Africa and Latin America are female. Whereas in Asia the number of female respondents is higher with 44 percent and nearly equally distributed between female and male. Overall, most respondents in our sample are well educated, middle aged managers. The size of the producer organizations they are representing varies considerably. The largest organizations in our sample, with on average around 1,000 members, are in Africa. In Latin America producer organizations have on average 337 members and in Asia on average 291 members. The biggest producer organization in our sample consists of 9,106 members and is situated in Africa. The size of the producer organizations is also represented in their average annual turnover. Producer organizations in Africa have on average an annual turnover of 8.3 million US dollars, in Latin America 3.5 million US dollars and in Asia 2.2 million US dollars.

Table 1: Summary of demographic information of respondents

	Africa		Asia		Latin America	
	<i>N=12</i>		<i>N=43</i>		<i>N=26</i>	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Gender	0.25	0.45	0.44	0.50	0.25	0.33
Age	44	8.02	45	11.87	42	10.49
Education	15	3	15	3	15	3
Members	1,042	2,568	291	881	337	631
Turnover	3,674	11,483	8,385	15,329	2,232	9,993

Notes: Valid responses in Gender = 83, Age = 78, Education = 75, Members = 80, Turnover = 58. Gender is a dummy variable, which is 1 if female and 0 otherwise. Education measured in years. Turnover in 1,000 USD.

4.1 The baseline demand for and efficiency of supply of adaptation measures

Producer organizations on all three continents reported perceived changes in climate and rainfall patterns. Nearly all of the respondents (94%) indicate an increase in temperature. 71 percent experience rainfalls outside of the rainy season. Depending on the region 46 percent state a decreasing and 34 percent an increasing amount of yearly rainfalls. Increasing rainfall is the most common response for members located in Asia, decreasing rainfall is mainly stated in Africa. Whereas, rainfall outside of the rainy season is a main concern in Latin America.

Direct consequences of these conditions are an increase in droughts (81%), floods (60%), and in minor part in frosts. The latter is experienced mostly in some parts of Latin America, which could explain why extreme temperatures and natural calamities such as hailstorms or unusual extremely cold winters seems to be more common for respondents living in this region.

74 percent of the producer organizations involved in agriculture report that they experienced reduced harvests. Some producers mention that ripening has become unstable. Sometimes it is too fast causing harvests to get rapidly mouldy and other times the harvesting period is delayed. We find a positive correlation between crop diseases and decreasing yields. Crop diseases also positively correlate with droughts. Indeed, prolonged droughts weaken the crops, and excessively humid environment as well as strong winds and natural calamities, such as cyclones, favour the proliferation of pests and pathogens. Furthermore, few interviewees indicate the depletion of ground water resources and the more frequent spread of human diseases due to the breed of microbes in highly populated areas in the Asian region.

The most mentioned crop disease is La Roya fungus, also known as Coffee Leaf Rust, and Ojo de Gallo, also known as American Leaf Spot, which affects coffee plantations in Latin America. Rust on coffee is a destructive disease that can lead to

a 100% loss. The fungus attacks the leaves and causes them to fall. The disease is fast spreading and can be transported by wind, water, insects, humans and farming tools. It causes heavier damage in the dry season (Avelino, Cristancho, Georgiou, Imbach, Aguilar, Bornemann, Läderach, Anzueto, Hruska & Morales 2015). Respondents involved in other crop cultivation also claim pest problems on their crops such as fruit fly or mealy bugs.

For artisans the most challenging impact is the lower availability of raw materials. Problems in sourcing raw materials have also repercussions on the timely delivery of final products. Floods prevent workers from reaching the workplace and high temperature makes them easily tired and less productive. Production processes that need sun during the drying phase (such as textile, wood, paper) are delayed, threatening the ability to meet delivery deadlines. Lastly, when respondents are asked whether they have noticed any other socio-economic impacts, food insecurity is the most frequent answer. Many respondents mention that, due to reduced productivity and revenues on one hand, and a significant price increase in local food markets on the other hand, producers do not earn enough to cover their basic needs such as food, health, clothing, and education. Migration to the cities is also common and results in the impoverishment of villages and rural areas in favour of cities, causing workforce to become scarce and expensive.

In response to these challenges, farmers and artisans adopt different adaptation measures. Soil conservation practices are stated to be the most common method for farmers to deal with droughts, erosion, and land degradation. Soil is considered the most important resource for farmers' livelihood and sustainable agriculture. Therefore, the proper management of this resource is crucial for farmers to ensure long-term agricultural productivity of their land (Amusa, Enete & Okon 2015). Agroforestry is also widely practised and several cooperatives are involved in reforestation projects. Artisans report that in order to face the local shortage of raw materials they are increasing their stocks for challenging periods, improving mon-

itoring and planning, looking for alternatives, expanding the product range and diversifying their income. Finally, respondents indicate that the main barriers to undertake adaptation measures are the lack of financial resources, information and access to credit as well as the absence of support from governments and institutions.

4.2 The impact of Fair Trade participation on the demand for adaptation measures

Positive impacts emerge from a number of different income and perception related aspects, which influence the demand for adaptation. Many of our respondents, for example, indicate that Fair Trade gives them access to climate change related issues and, thereby, increases their knowledge of potential impacts of climate change. This happens due to a more active exchange of information between the farmers, the cooperative and the international community.

54 percent of respondents associate the participation in Fair Trade with increased and stable income and a greater possibility to invest in community, adaptation/mitigation or innovation and technology. Moreover, 59 percent of members involved in agriculture affirm that the premium is helping them to invest in climate adaptation such as financing the reforestation in high impact areas, investing in post-harvest infrastructures which are more resilient to natural disasters and climate change, investing in other new agricultural technologies such as more advanced irrigation systems, or planting diseases resistant and drought tolerant varieties.

However, some producers also recognised that the sum received depends on the amount sold in Fair Trade channels, which sometimes does not even compensate the cost of certification. They reported that the management and proper use of revenue is sometimes an issue within the cooperative and the production and certification costs can be limiting for small organizations. When revenues are low the few resources available are usually allocated to meet basic needs which include paying

wages, improving the living conditions of producers or technical assistance such as market information, capacity building or training in financial management.⁶

Finally, 66 percent of respondents indicated that participation in Fair Trade gives them the opportunity to develop market capabilities including knowledge and better negotiation skills. This, together with the visibility and the increased level of consumer trust in their products, contribute to give small producers access to larger markets which allows them to spread their risk of potential supply shortages and market drop outs. Although respondents did not report a direct link with this benefits and climate adaptation we agree with Frank & Penrose Buckley (2012), who point out that an increased access to services including credits, saving institutions and information contribute to a system adaptive capacity and can lead to a higher demand for adaptation through an income effect.

4.3 The impact of Fair Trade participation on the efficiency of supply of adaptation measures

As emerged from the literature, communities, which have an adequate knowledge of climate risks and potential adaptation measures, are more able to cope with climate change challenges (Jones, Ludi & Levine 2010, Frank & Penrose Buckley 2012). Generation, collection, analysis and dissemination of information, are all important factors of adaptive capacity, as they contribute to understand the risks and implement sustainable interventions (Jones et al. 2010, Frank & Penrose Buckley 2012). According to Ruben et al. (2009), many Fair Trade farmers perceive their producer organization as a vital link in the Fair Trade network and consider the support that they receive very important to improve quality and delivery. In line with these results, our findings indicate that one of the benefits of being part of the Fair Trade

⁶ The lack of financial resources was particularly highlighted by artisans, who are members of WFTO, which compared to Fairtrade International does not set a fair minimum price for producers and a social premium. They specified that unlike Fairtrade International, which has recently adopted a proper strategy on climate change, this is missing in the WFTO network.

system is the increased exchange of information and experiences. Respondents highlight that Fair Trade makes them more aware about potential climate change adaptation measures through the exchange of information and training about responsible resource management or conversion to more sustainable agricultural practises organised for members.

Furthermore, respondents stress that Fair Trade plays an important role in preserving indigenous knowledge and traditions, which are exchanged among members: both in the agricultural and in the handicraft sector. In the context of climate change and agriculture, indigenous knowledge is particularly important, as it contributes to the exchange of wisdom and good practices, which are proving to be efficient in coping with the impacts of climate change.⁷

Dynamic organizations, democratic institutions and entitlements are all relevant factors that can contribute to a system's capacity to anticipate change and integrate initiatives into future planning and governance (Jones et al. 2010). As Raynolds, Murray & Leigh Taylor (2004) highlight, while the financial benefit of Fair Trade seems to be the most important in the short-term, it is actually the empowerment and capacity building nature of Fair Trade, which could prove to be the most beneficial in the long-term. In line with this, most respondents indicate that Fair Trade helps to empower marginalised producers (e.g. women), foster better governance within the organization, and increase producers' participation in the decision-making process. In our study this is particularly mentioned from artisans, whose organizations involve a greater number of women in the production process and seem to be more democratic compared to farmer organizations. The demonstration of an efficient level of organization is additionally important, because governments and development agencies can be more willing to invest and support such cooperatives (Frank & Penrose Buckley 2012). This could explain why organizations, which have

⁷ On the role of indigenous knowledge on adaptation to climate change see for example Salick & Ross (2009) and Green & Raygorodetsky (2010).

specified to benefit from a climate mitigation/adaptation programme financed by external agencies, have also indicated that participation in Fair Trade has led to better governance and an increased democratisation of the decision-making process. Table 2 summarises the Fair Trade impact on the demand for and the efficiency of supply of adaptation measures.

5 Conclusion

The impact of climate change on developing countries is expected to be severe. The reason for this is that these countries have a high exposure to climate risk, a high agricultural dependence and a particularly limited capacity to adapt due to a lack of an effective institutional, financial and technological framework. While the decision to adapt is mainly a private decision, government and institutions can provide incentives to increase the level of adaptation. Recently, the potential role of voluntary sustainability standards in reducing the adaptation deficit has come into consideration. This paper addresses the impact of Fair Trade, as a prominent example of a voluntary sustainability standard, on the level of adaption in developing countries.

Our results reveal that Fair Trade affects the adaptive capacity of smallholder farmers and artisan in developing countries in two ways. It works as a growth policy and affects the disposable income, which can be spent on adaptation measures. And by increased knowledge exchange, a higher degree of social capital and a better access to the international community it makes the supply of adaptation more efficient. These findings are also supported by our survey, which is based on a sample of 83 producer organizations across the world. Fair Trade membership, in particular the minimum price and the price premium, can increase the producers' income, which is then spend partly in better adaptation techniques. Further, our respondents emphasize the better access to credit as a significant facilitation of getting access to

Table 2: Summary of Fair Trade impact on supply and demand for adaptation

Demand side effects	
<i>Fair Trade impact</i>	<p>increased and stable income</p> <p>better access to credit and saving institutions</p> <p>increased market access</p> <p>increase in production scale</p>
<i>Adaptation measures</i>	<p>financing of reforestation projects in high impact areas and other climate adaptation projects</p> <p>investment in new processing machines and agricultural technologies</p> <p>risk diversification due to access to larger markets</p> <p>climate change awareness</p>
Supply side effects	
<i>Fair Trade impact</i>	<p>increased access to information and technology</p> <p>greater networking</p> <p>training</p> <p>better governance of the organization</p> <p>increased participation in decision making</p> <p>increased empowerment of marginalised groups (e.g. women)</p> <p>increased influence on local policy and institutions</p>
<i>Adaptation measures</i>	<p>training on adaptation and mitigation measures</p> <p>increased access to internationally funded climate adaptation programs</p> <p>change of crops to diseases and drought resistant species</p>

Notes: *Fair Trade impact* indicates the potential impacts of Fair Trade on demand and supply of adaptation measures based on the conceptual framework as derived in section 2.2. *Adaptation measures* are based on the findings of our survey (see section 4).

more efficient adaptation measures. However, it has to be noted that production and certification cost can be limiting for small organizations. This means that in case when the amount, which is sold over the Fair Trade channel, is low, the relatively

small price premium is then spent on basic needs and not on additional adaptation measures. On the efficiency of supply side Fair Trade increases knowledge exchange of climate change impacts and more efficient adaptation techniques. Moreover, due to an increased degree of efficiency and better governance with their organizations, Fair Trade producers organizations get better access to international agencies and international donors.

The insights of this study are highly relevant in light of the already occurring impacts of climate change and the apparent lack of adaptation capacity in developing countries. Although voluntary sustainability standards can only work as a second-best policy and direct policy interventions are preferred to increase the level of adaptation, they can serve as an alternative in situations, where markets and governments fail to provide appropriate incentives. This is especially relevant in the case of developing countries. These results do not change the primary aim of voluntary sustainability standards - the provision of an economically, socially and environmentally sustainable living for growers in producing countries. But when designing voluntary sustainability standards this additional impact on the decrease of the adaptation deficit should be taken into account. This is already starting to happen, for example, with the launch of the Fair Trade Climate Standard⁸ in 2016. The purpose of this initiative is to enable smallholders and rural communities to gain access to the carbon market by producing Fairtrade Carbon Credits, providing information and facilitating training, and generating climate finance opportunities to fund both mitigation and adaptation activities.

Finally, it has to be noted that this study should be seen as a first step in understanding the causal relationship between Fair Trade participation and the level of adaptation against climate change impacts and there is plenty of scope for further research. An important next step would be to empirically test these findings based on a large sample including Fair Trade certified and non-certified producers.

⁸ <http://www.fairtrade.net/standards/our-standards/climate-standard.html>

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