BROADENING THE UNDERSTANDING OF WHAT ENHANCES OR IMPEDES THE IMPACTS OF SUSTAINABILITY CERTIFICATION OF SMALLHOLDER FARMERS

By

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ABSTRACT

BROADENING THE UNDERSTANDING OF WHAT ENHANCES OR IMPEDES THE IMPACTS OF SUSTAINABILITY CERTIFICATION OF SMALLHOLDER FARMERS

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Sustainability certification programs which promote sustainable smallholder agriculture are increasingly popular, but there is limited understanding of what enhances or impedes their impacts and literature on this is inconclusive. Key aspects of sustainability certification programs have not been adequately studied including how they work in practice with smallholder farmers, how the requirements and expected benefits are perceived, and how participating and nonparticipating farmers compare. Also, how the different production systems, market types, and physical product attributes of various crops affect smallholder farmers' views on sustainability certification, and how SC works in practice had not been studied much. Again, the factors of success/failure of certified smallholder farmer groups have not received much attention.

Therefore, this dissertation undertakes three separate studies to address these gaps. One study uses panel data to examine changes in how smallholder cocoa farmers perceive SC, how SC works in practice, and characteristics and perceptions of participating and nonparticipating farmers. The second study employs survey data spanning four crops to examine how characteristics of crops affect smallholder farmers' views on SC and how SC works in practice. And the third study uses group-level survey data and in-depth interviews to examine characteristics of certified smallholder farmer groups that influence the likelihood of their continued operation.

The first study finds that smallholder farmers have positive perceptions about SC. Also, though there have been slight improvements, how SC works in practice is still not as desired. Again, participating and nonparticipating farmers are not much different. The second study finds that how SC works in practice varies across smallholder farmers certified for the four different crops. The third study finds that the factors that influence the likelihood of a certified smallholder farmer groups' continued operation are like those that appear to influence the success/failure of other groups in general. These findings broaden how we understand what enhances or impedes the impacts of SC. They support the conclusion that SC can be implemented so that they work well in practice, account for the context of different smallholder farmers, and strengthen viability of smallholder farmer groups.

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KEY TO ABBREVIATIONS

CAPI	Computer Assisted Personal Interviews
COCOBOD	Ghana Cocoa Board
CSPro	Census and Survey Processing System
DID	Difference in difference
FLO	Fair Trade Labeling Organization
LBC	Licensed Buying Company
SAN-RA	Sustainable Agricultural Network–Rainforest Alliance
SPOs	Smallholder Producer Organizations’
UTZ	UTZ Certifie

INTRODUCTION

Integrating smallholder farmers into the market involves encouraging their engagement with modern inputs and service markets selling more outputs (Zhou, Minde, & Mtigwe, 2013; Wiggins et al., 2014; Melesse, 2016). Meanwhile, growing public concerns about socioeconomic and environmental challenges associated with smallholder production systems limit farmers' market participation. Such challenges have serious consequences for the production and distribution of food. Sustainability certification (certification henceforth) of agricultural commodities are used to enhance smallholder agricultural commercialization. They promote sustainable smallholder agriculture and encourage consumers to pay more for certified produce so that farmers can be compensated adequately for their efforts (Basso, Schouten, Renner, & Pfann, 2012; Ebata & Hernandez, 2016). Standardization and certification of agricultural commodities were initially under the exclusive control of governments in most countries. However, today, sustainability certification (certification henceforth) regimes include many corporate market partnerships and tools (Auld, 2010; Herzfeld & Jongeneel, 2012).

Scholarly effort to generate knowledge for improving the impacts of certification programs is ongoing (Auld, 2010; Barry et al., 20102; Rueda & Lambin, 2013; Waldman & Kerr, 2014). Such efforts to examine certification programs typically have addressed three overlapping elements: smallholder market access and participation to increase incomes; improved community wellbeing; and environmental protection (Jena, Chichaibelu, Stellmacher, & Grote, 2012; Elder, Zerriffi, & Le Billon, 2013; Gockowski, Afari-Sefa, Sarpong, Osei-Asare, & Agyeman, 2013). So far, the evidence is inconclusive on whether such schemes result in positive changes in smallholder farmers' livelihoods and welfare, and their adoption of sustainable practices (Blackman & Jorge, 2011; DeFries, Fanzo, Mondal, Remans, & Wood,

2017; Elder, Zerriffi, & Le Billon, 2013; Kleemann & Abdulai, 2013; Smyth, 2014). There are several interrelated issues involved. One, certification programs are not showing expected impacts because they may not be working in practice in accordance with stipulated principles (Ansah, Kaplowitz, Lupi, & Kerr, 2020; Dragusanu, Giovannucci, & Nunn, 2014; Milder et al., 2015). Another is a concern about the possibility of excluding most marginalized farmers from such programs and their possible benefits (DeFries et al., 2017; Ibanez & Blackman, 2016; Milder et al., 2015; Smyth, 2014). Also, the scaling up of certification is confronted by inadequate buy-in from smallholder farmers (a low participation rate) (Meemken, Veettil, & Qaim, 2017; Waldman & Kerr, 2014), as well as the absence of viable smallholder farmer groups.

The existing scholarship on certification indicates a lack of understanding of what enhances or impedes the impacts of certification on livelihoods, society, the environment, and biodiversity. This is because key aspects of the implementation of certification programs have not been adequately studied. Only a few studies have used smallholder farmers' perspectives to demonstrate how certification works in practice (Lemeilleur, N'Dao, & Ruf, 2015; Ansah, Kaplowitz, Lupi, & Kerr, 2020). Similarly, the perceptions that smallholder farmers hold about certification and its stakeholders have not been examined a lot (Ansah et al., 2020; Ruben & Fort, 2012). Likewise, there is a limited understanding of conditions that may enhance and/or impede how certification works in practice with smallholder farmers (Pu & Zhang, 2016; Smyth, 2014). Again, though smallholder farmers are certified in groups, only a few studies have been conducted on collective action in the context of sustainable smallholder agriculture. Such investigations and insights are imperative not only because of the difficulty in showing positive results, but also to provide support for or to evidence lack of support for the credibility of sustainability certification regimes (Waldman & Kerr, 2014).

Therefore, this dissertation examines aspects of certification including how it works in practice with smallholder farmers, perceptions held about it and its stakeholders, factors that influence farmers' participation decision, and factors that influence successful collective action towards certification. One study uses a two-period panel data to analyse changes in certified farmers experiences with various components of certification, changes in certified and noncertified farmers' perceptions and socioeconomic characteristics, and why farmers join and remain in certification. A second study uses data spanning four crops to examine crop characteristics that may enhance and/or impede how certification work in practice, as well as affect smallholder farmers' perceptions about certification. A third study uses crop level data to explore various group characteristics and how they influence whether a certified farmer group continues to operate over time. The dissertation is guided by the following overarching research questions:

- Do changes occur over time in how certification works in practice, how it is perceived, and characteristics of participating and nonparticipating farmers?
- Does how certification work in practice and the perceptions of smallholder farmers vary across different crops?
- Do fully operational, partially operational and ceased operating certified smallholder farmer groups differ in major group characteristics?

What follow this introduction are three chapters that respectively present the work of the three studies as separate manuscripts. The dissertation ends with a general conclusion of the findings from all three studies.

CHAPTER 1
CHANGES IN HOW SUSTAINABILITY CERTIFICATION WORKS IN PRACTICE WITH SMALLHOLDER GHANAIAN COCOA PRODUCERS

Introduction

Sustainability certification (certification henceforth) for smallholder producers has been popular recently, and schemes are scaling up and becoming mainstream in the global food system (Chiputwa & Qaim, 2016; Giovannucci et al., 2008; Ruben & Fort, 2012). Certification schemes are proliferating notwithstanding the lack of compelling evidence of their local impacts, particularly on the livelihoods and welfare of smallholder producers and their communities, environment, and biodiversity (Blackman & Jorge, 2011; DeFries et al., 2017; Tran & Goto, 2019). This is because certification has become a tool for multinational companies and international development organizations. They believe in and tout the potentials of certification: improving the livelihoods and welfare of smallholder producers as well as environmental and biodiversity conditions (Meemken, 2020). So, the proliferation of certification schemes is not entirely borne out of consumer demand and smallholder producers' willingness to adopt sustainable practices (Dietz, Estrella Chong, Grabs, & Kilian, 2020; Meemken, 2020). Meanwhile, because certification mostly involves credence attributes, evidence of its local impacts is crucial for maintaining consumers' trust and willingness to pay as well as smallholder producers' willingness to adopt sustainable practices (Balineau, 2019; Lemeilleur et al., 2015).

Studies on certification schemes at the producer level have focused on impacts on incomes and investments (Akoyi & Maertens, 2017; B. L. Barham, Callenes, Gitter, Lewis, & Weber, 2011; Ruben & Fort, 2012), productivity (Akoyi & Maertens, 2017), adoption of sustainable practices (Elder et al., 2013; Ibanez & Blackman, 2016; Kleemann & Abdulai, 2013), and perceptions of sustainable agricultural practices (Ruben & Fort, 2012). Meanwhile, the literature is

inconclusive on the impacts of certification (Blackman & Jorge, 2011; DeFries et al., 2017; Elder et al., 2013; Kleemann & Abdulai, 2013; Sellare, Meemken, Kouamé, & Qaim, 2020; Smyth, 2014). Part of the problem is that certification schemes do not have rigorous evaluation plans at the time of implementation. Furthermore, most studies have used cross-sectional comparisons of participating and nonparticipating producers. The lack of rigorous evaluation plans and data is not surprising given the complexity, time, and expense involved. At the same time, most prior studies have focused on only one certification standard, and they use relatively few indicators (Elder et al., 2013; Holzapfel & Wollni, 2014; Ruben & Fort, 2012). In contrast, Holzapfel & Wollni (2014) and Akoyi and Maertens (2017) compared four different certifications (Fairtrade, Organic, Rainforest Alliance, and UTZ) using panel data on productivity and income.

Both the proliferation of certification schemes and the lack of evidence of positive impacts are true for the cocoa sector (Ansah, Kaplowitz, Lupi, & Kerr, 2020; Basso, Schouten, Renner, & Pfann, 2012; Lemeilleur et al., 2015; Mahrizal, Lanier Nalley, Dixon, & Popp, 2012). The socioeconomic and environmental consequences of smallholder agriculture (Berlan, 2013; Chiputwa & Qaim, 2016; Tran & Goto, 2019), which certification seeks to address are prevalent in the commodity sectors of sub-Saharan Africa. As such, several efforts made towards commercializing smallholder producers have featured prominently in the Region. Ghana's cocoa sector for example has been used to study several concepts and theories related to commercializing smallholder producers: the entrepreneurial potential and ability of smallholder producers (Ingham, 1973); theories and concepts of international trade (Ingham, 1979); and the conditions and interventions in agricultural markets (Jones & Gibbon, 2011). Though the impacts of certification may differ from those of other commercialization efforts (Chiputwa & Qaim, 2016), the cocoa sector still gives interesting context for studying some of

the gaps in the certification literature. Examples of such gaps are the conditions that enhance or impede the impacts of certification; specific areas where smallholder producers may benefit from certification; and factors that influence smallholder producers' participation in certification (Meemken, 2020).

To help address these gaps, this study first examines how certification works in practice over time. The need to examine the extent to which components of certification are implemented in practice has been emphasized (Dietz, Grabs, & Chong, 2021). Yet, not many studies have examined the (in)effectiveness of various components of certification (Ansah et al., 2020). This is an important gap because effective implementation of certification is a prerequisite for positive impacts (Dietz et al., 2021). Second, the study examines how participating and non-participating producers compare over time, and factors that influence the decision to participate and continue over time. Such analyses are imperative in the absence of analytical methods that control for selection biases. Yet, most of the studies on certification that compare participating and nonparticipating producers rely on contemporaneous comparative survey data.This study is based on data collected from smallholder cocoa producers in Ghana in 2015 and 2019. The dataset includes producers that are members of certified groups and those that are not. The analyses employed paired t-tests, difference-in-difference (DID), and a bivariate probit. The results inform enhanced programmatic targeting of certification programs with increased attention on effective implementation and producers' participation.

Impacts of certification, and smallholder producers' (dis)continued participation

The popularity of certification has been largely due to its combination of objectives of environmental sustainability, poverty alleviation, and health and food safety outcomes (Kleemann & Abdulai, 2013). In practice, these objectives motivate and influence impact

assessments and choices of outcome variables. Outcomes variables have ranged from those related to intermediate impacts on smallholder producers to those related to broader impacts on communities, the environment and biodiversity. Blackman and Rivera (2011) review studies on producer-level benefits of certification and report mixed evidence, few studies with positive results, and no compelling evidence of positive or negative impacts. More recently, DeFries et al. (2017) in their review found that out of 347 response variables from 24 cases, there are positive results for 34% of them, no significant difference for 58%, and negative results for 8%. In a most recent review, Meemken (2020) generally agrees with the findings of DeFries et al. (2017) albeit identifying a little more studies with positive results. However, Meemken (2020) cautioned against such positive results as external and internal validity challenges of studies persist.

The main issue confronting impact assessments is the inability to establish true counterfactuals (control for selection biases) and isolate the effects of certification. This is because certification projects lack rigorous evaluation plans at the time of implementation (Blackman & Jorge, 2011). In addition to the methodological difficulties, outcomes for some of the environmental and social issues of concern to sustainability certification are difficult to measure and evaluate soon enough (Lazaro, Makindara, & Kilima, 2008; Smyth, 2014). Related to these methodological limitations is the need to better understand the participation of smallholder producers in certification schemes. It is reasonable to expect that some but not all smallholder producers can participate in certification. Therefore, certification schemes will benefit from reflecting on their practices or policies with an eye towards increasing participation and lifting barriers to entry. It is important to establish if some producers do not participate in certification because they cannot afford to do so. Ideally, smallholder producers should be able to freely choose to participate or not in certification schemes. Previous studies that address exclusion

seek to establish whether or not characteristics of smallholder producers who participate in sustainability certification are different from those of nonparticipants (Meemken et al., 2017). This approach was extended to other groups such as those who (dis)continued participation and new adopters. Holzapfel & Wollni (2014) looks at why some smallholder producers renew their GlobalGAP certification and others do not.

To be clear, a smallholder producer's membership in a certified group is not the same as actual adoption of sustainable practices on their fields. Some impact assessments assume outcomes based on membership. It is recognized that participating producer group members do not adopt all required practices and that is often the problem of free riding in these groups (Waldman & Kerr, 2014). Not only is there opposing evidence in the literature on whether membership in a participating producer group increases adoption of sustainable practices (Elder, Zerriffi, & Le Billon, 2013; Ibanez & Blackman, 2016); the literature also points out barriers to adoption faced by certified producer group members (Kleemann & Abdulai, 2013). At the same time, the impact assessments of certification remain mostly inconclusive and contentious. This is particularly important considering that the problem of establishing true counterfactuals and clearly isolating the effects of certification is persisting.

Smallholder producers' participation and (dis)continued participation in sustainability certification schemes is often studied by drawing lessons from studies on adoption of sustainable and conservation practices. Considering that smallholder producers are certified in groups, it may also be useful to draw insights from the literature on determinants of membership in traditional producer groups. Producers in certified producer groups are expected to adopt sustainable practices, but this may not always be known to (all) producers during the formation of their groups and some producers may be newcomers to certification. Literature

on producer groups is particularly helpful for promoting an understanding and practice of inclusiveness, and recognizing and addressing the middle-class effect where the poorest are excluded and the wealthiest stay away (Verhofstadt & Maertens, 2015).

Different strands of literature identify similar, at times identical, categories of factors they use to help explain participation and (dis)continued participation. However, adoption, and joining/leaving may have different determining factors. Smithers & Furman (2003) identify five categories: 1) producer and household characteristics; 2) farm and farming system characteristics; 3) nature of sustainability certification scheme; 4) communication and extension strategy; and 5) the political economy of agriculture in a community. Producer and household characteristics may also include those related to social capital and the opportunity costs of labor and land (Neill & Lee, 2001; Verhofstadt & Maertens, 2015). Data on the characteristics of farm and farming system includes the costs of adopting sustainable practices (Neill & Lee, 2001). Certification scheme characteristics and program objectives and requirements should be well communicated as part of implementation strategies and extension activities. The political economy of agriculture for cocoa growing in Western Ghana typically focused on characteristics related to the position of agriculture in a community (e.g. existence of agricultural organizations, agribusinesses, and producer networks) (Smithers & Furman, 2003).

Methods

This study is based on a two-period panel data of Ghanaian smallholder cocoa producer households. Such panel dataset allow for the analysis of changes in how components of certification work in practice, as well as how participating and nonparticipating smallholder producers compare over time. In the absence of experimental data, the use of panel data

analysis presents opportunities to overcome some limitations of the assessment of certification using only contemporaneous comparative survey data (Dammert & Mohan, 2015; Dragusanu et al., 2014; Milder et al., 2015; Srisopaporn, Jourdain, Perret, & Shivakoti, 2015). Holzapfel & Wollni (2014) use panel data to analyse the impact of GlobalGAP certification on household incomes and estimate factors that help explain continued compliance. Additionally, Wuepper, Sauer, & Kleemann (2014) used panel data in an effort to analyze impacts of training on Ghanaian pineapple producers' adoption of agr-ecological practices. Therefore, this study builds on the use of panal data to examine cocoa certification schemes.

The baseline survey of six Ghanaian cocoa-growing communities in Southern Ghana was undertaken as part of an investigation of certification projects (Ansah et al. 2020). That study included two communities each operating with Fairtrade, UTZ-Certified, or Rainforest Alliance certification projects. That study enabled analysis and insights on the differences across and perhaps within three certification standards. At the same time, half of the communities in this cocoa growing region used producer cooperative associations as the main channel for implementing certification while the other half of the communities used Licensed Buying Companies (LBCs). Therefore, for that study, one group in each community used an LBC and the other group used a producer cooperative association.

Population, sample, and sampling procedures

During the baseline survey, a total of 1,255 households were enumerated - 303 participating[1] and 952 nonparticipating households. A sample of 352 households was drawn targeting roughly 30 participating and 30 nonparticipating households per community. The field work including

[1] A participating household is one where the person who controls decision-making on household farms is a member of a particular smallholder producer group that was certified by Fairtrade, UTZ or Rainforest Alliance at the time of the initial survey. A nonparticipating is otherwise.

repeat visits resulted in 312 households participating in that study (rr= 88.6%). (see more at: Ansah et al. 2020). Building upon the experience of the baseline survey, the follow-up (time 2) survey required another enumeration process.

Tracking of households for follow-up survey

A team of enumerators, including some individuals that worked on the baseline survey, revisited all six communities from the baseline study. The enumerators were tasked with reinterviewing the same households and respondents from the prior survey. The enumerators had access to names of household heads/respondents, details of the location of each household, and description of the cocoa farm(s) of the household. The enumerator teams followed a protocol for identifying survey respondents (see Table 1.1). Ideally, enumerators administered the follow-up survey to the same respondent and same household from the baseline survey. If the previous respondent/main producer was determined to be unavailable (relocated beyond district, deceased, hospitalized, etc.), the enumerators interviewed the household member currently identified as the main decision maker for the same cocoa farm(s).

Table 1.1: Summary of Tracking Instructions

Baseline Main Producer Available	Cultivates Baseline Farm(s)	Lives in Baseline Household	Lives in Baseline Community	Lives in Baseline District	What to Do
Yes	Yes	Yes	Yes	Yes	Administer
No	Yes	Yes	Yes	Yes	Administer to next available household member
Yes	No	Yes	Yes	Yes	Administer to baseline main producer and household, and new household cultivating farm(s)
No	No	Yes	Yes	Yes	Administer to baseline household using next available household member, and household currently cultivating farm(s)
Yes	Yes	No	Yes	Yes	Administer to baseline main producer in new household
Yes	No	No	Yes	Yes	Administer to new main producer and baseline household
Yes	Yes	Yes	No	Yes	Administer to baseline main producer and household in new community
Yes	Yes	No	No	Yes	Administer to baseline main producer and new household in new community
Yes	No	No	No	Yes	Administer to new main producer in baseline household

Of the 312 households that participated in the baseline survey, 271 households (86.86%) were successfully identified and participated in the follow-up survey. This includes 134 participating

and 137 nonparticipating households (see Table 1.2). A total of 216 (111 participating and 105 nonparticipating) of the 271 (79.7%) resurveyed households had the same individuals responding to the survey. The data analysis was restricted to the 216 households with the same respondent across the two surveys. Table 1.3 presents details of the distribution of these households and respondents across the survey communities. The follow-up survey included 74 previously participating households that were still participating, 60 previously participating households that left certification, 114 previously nonparticipating households were still nonparticipating, and 23 previously nonparticipating households that had joined certification. Table 1.3 presents community-by-community details of the four categories of adopters.

Table 1.2: Population and sample details per community, baseline, and follow-up survey

Community	Participating as at baseline survey			Nonparticipating as at baseline survey		
	Baseline survey population	**Baseline survey sample**	**Follow-up survey sample**	**Baseline survey population**	**Baseline survey sample**	**Follow-up survey sample**
0103	44	26	25 (21)	100	26	23 (19)
0107	22	21	18 (15)	59	29	24 (19)
0203	62	27	23 (22)	168	25	19 (17)
0207	37	26	23 (17)	117	27	26 (23)
0303	58	26	24 (21)	118	28	21 (16)
0307	80	24	21 (15)	390	27	24 (11)
Total	**303**	**150**	**134 (111)**	**952**	**162**	**137 (105)**

Note: number of households in follow-up sample with the same respondent in parentheses

Table 1.3: Adopter category by community

Community	Participating as at baseline survey		Nonparticipating as at baseline survey		Total
	Still participating	**Stopped participating**	**Never participated**	**Started participating**	
0103	11	14	18	5	**48**
	(9)	(12)	(14)	(5)	**(40)**
0107	1	17	24	0	**42**
	(1)	(14)	(19)	(0)	**(34)**
0203	15	8	15	4	**42**
	(14)	(8)	(13)	(4)	**(39)**
0207	20	3	23	3	**49**
	(16)	(1)	(21)	(2)	**(40)**
0303	18	6	16	5	**45**
	(15)	(6)	(11)	(5)	**(37)**
0307	9	12	18	6	**45**
	(6)	(9)	(10)	(1)	**(26)**
	74	**60**	**114**	**23**	**271**
Total	**(61)**	**(50)**	**(88)**	**(17)**	**(216)**

Note: number of households in follow-up sample with the same respondent in parentheses

Data collection

Data were collected using a structured household questionnaire, incorporating appropriate skip-patterns, programmed onto tablet computers using the Census and Survey Processing System (CSPro). This is the same software and system previously used in the baseline survey and the same software and system used by the Ghana Statistical Service. The follow-up questionnaire adapted the baseline survey and added items and skip patterns. The instrument aimed to capture respondent identification and tracking information; main decision maker, household, and farm characteristics; participation and involvement in certified groups; experiences with recruitment and training, compliance verification, price premium management; perceptions of intermediary companies' interests; and evaluation of certification requirements and objectives. A copy of the questionnaire is presented in Appendix A.

The survey enumerators were trained in high-quality data collection practices and participated in pre-testing exercises. Five days of enumerator training included developing a fieldwork manual to guide the data collection exercise. The manual provided uniform definitions of key terms; community entry protocols; household enumeration, stratified random sampling, tracking procedures; question types and answer formats; and data transfer and backup protocols. A copy of the training manual can be found in Appendix B. Pre-tests were conducted as part of training the enumerators. The pre-test activities included all aspects of the survey implementation and it was carried out in a community that is like the selected communities but outside the sample frame. In the follow up pre-test, 57 households were enumerated and 18 were interviewed.

Data analysis

The data analysis centers on three areas: (1) comparing responses across the two surveys for respondents who indicated that they were members of a certified producer group at the time of both surveys; (2) comparing temporal changes in participating and nonparticipating producers; and (3) determinants of continued membership. The analysis comparing participating producers over the two surveys used paired t-tests and focused on the following topics: decision-making in certified producer groups; internal and external inspections; sales of certified beans and receipt of price premium; awareness of certification objectives; and perceptions about certification requirements and benefits. Difference in difference (DID) analysis was used to compare participating and nonparticipating producers over time and it covered respondents' social capital, household farms, cocoa yield, household incomes, awareness of certification objectives, and perceptions about certification requirements and benefits. Bivariate probit regression were used to analyse factors that help explain membership in certification. It includes variables that fall under three categories: certified group decision-

making and activities; awareness and perceptions of certification attributes; and respondent and household characteristics. The use of the bivariate probit is necessitated by the correlation between the decisions to participate initially and continue to participate later. The two decisions are subsequent and the second it contingent on the first: a producer decides to continue or not only if they decided to participate initially. Therefore, it is expected that the two decisions will be influenced by the same unobservable variables (Holzapfel & Wollni, 2014).

The DID analysis employed the regression approach like the application by Nawaz et al*.,* 2021 and Upton & Snyder, 2017. Below is a reduced form equation of the regression model.

$$y_{csi} = \alpha + \delta_1 X_c + \delta_2 X_s + \beta X_c X_s + \varepsilon_{cs}$$

where y_{csi} represents the certification outcome variable for a producer with certification status c at survey period s. X_c is a dummy variable indicating the certification status of a respondent, with $X_c = 1$ for participating producers and $X_c = 0$ for nonparticipating producers. X_s is also a dummy variable indicating the survey period for each observation, with $X_s = 1$ for follow-up survey and $X_s = 0$ for baseline survey. $X_c X_s$ is an interaction term between certification status and survey period, with $X_c X_s = 1$ for observations of participating producers in the follow-up survey and $X_c X_s = 0$ otherwise. The coefficient of interest is on the interaction term $X_c X_s$, β. It represents the DID between participating and nonparticipating producers across the two surveys. i.e., let *C0i* represent the mean of variable *i* for participating producers at the baseline survey and *C1i* represent that at the follow-up survey. Also, let *NC0i* represent the mean of variable *i* for nonparticipating producers at the baseline survey and *NC1i* represent that at the follow-up survey. If $C1i - C0i = CDi$, and $NC1i - NC0i = NCDi$, then $CDi - NCDi = \beta$. Therefore, for a particular y_{csi}, a statistically significant β indicates a statistically significant DID between participating and nonparticipating producers.

The bivariate probit regression is grounded in the classical subjective utility maximization choice model as applied by Holzapfel & Wollni, (2014). In this model, the utility gained for membership in a certified producer group is not observed directly and is represented by a latent variable, Y_i^*. Therefore, to model the decision-making of whether to join or remain in a certified producer group, Y_i^* is expressed as a linear function of the variables that help to explain the decision taken, i.e.:

$$Y_{ics1}^* = \lambda_1 X_{ics1} + \varepsilon_{ics1}, Y_{ics1} = 1 \; if \; Y_{ics1}^* > 0, Y_{ics1} = 0 \; if \; Y_{ics1}^* < 0, \quad (1)$$

$$Y_{ics2}^* = \lambda_2 X_{ics2} + \varepsilon_{ics2}, Y_{ics2} = 1 \; if \; Y_{ics2}^* > 0, Y_{ics2} = 0 \; if \; Y_{ics2}^* < 0, \quad (2)$$

$$E[\varepsilon_{ics1}|X_{ics1}, X_{ics2}] = E[\varepsilon_{ics2}|X_{ics1}, X_{ics2}] = 0,$$

$$var[\varepsilon_{ics1}|X_{ics1}, X_{ics2}] = var[\varepsilon_{ics2}|X_{ics1}, X_{ics2}] = 1,$$

$$Cov[\varepsilon_{ics1}, \varepsilon_{ics2} \; | X_{ics1}, X_{ics2} \;] = \rho,$$

Y_{ics2}, X_{ics2} is observed only when Y_{ics1} =1

where Y_{ics1}, and Y_{ics2} are latent variables representing the utilities gained for membership in a certified producer group. They respectively represent the utility of certified producers at the baseline survey, and that of certified producers who continued to be participating at the follow-up survey. X_{ics1} and X_{ics2} are vectors of the explanatory variables, with λ_1 and λ_2 as their associated parameters to be estimated. ε_{ics1} and ε_{ics2} are the error terms assumed to be normally distributed, with the expected value of each conditional on the explanatory variables as zero, the variance as unit, and the covariance as ρ.

The probability that any $\boldsymbol{Y_{ics}}$ takes either 0 or 1 is expressed as follows:

$$Prob(\boldsymbol{Y_{ics}} = 1) = Prob(\boldsymbol{Y_{ics}^*} > 0) = Prob(\boldsymbol{\beta X_{ics}} + \boldsymbol{\varepsilon_{ics}} > 0) = Prob(\boldsymbol{\varepsilon_{ics}} > -\boldsymbol{\beta X_{ics}}) =$$

$$1 - Prob\left(\frac{\boldsymbol{\varepsilon_{ics}}}{\sigma} < -\boldsymbol{X_{ics}}\frac{\boldsymbol{\beta}}{\sigma}\right) = 1 - \Phi\left(-\boldsymbol{X_{ics}}\frac{\boldsymbol{\beta}}{\sigma}\right) = \Phi\left(\boldsymbol{X_{ics}}\frac{\boldsymbol{\beta}}{\sigma}\right)$$

where Φ is the cumulative distribution function for the standard normal distribution. This implies that:

$$Prob(\boldsymbol{Y_{ics}} = 0) = 1 - \Phi\left(\boldsymbol{X_{ics}}\frac{\boldsymbol{\beta}}{\sigma}\right)$$

The parameters $\boldsymbol{\beta}$ and $\boldsymbol{\sigma}$ always appear together and cannot be reported separately; however, only the ratios $\boldsymbol{\beta}/\boldsymbol{\sigma}$ appear in the regression results. These ratios are not the marginal effects. Post-estimation prediction in STATA helps obtains the marginal effects, which give the effect on the participation probability of a marginal change in an independent variable)

Variables and measurement

Table 1.4 presents a description of variables with their value ranges. Some variables were measured using individual questionnaire items while other variables are combinations of several items collected. For example, the variable *group decisions* is based on two items about the nine topics central to management of certified producer groups. Using a five-point Likert scale, one question asked producers the extent to which they (dis)agree with group decisions, and the other question asked the extent to which group members are involved in group decision-making. These two questions were asked for decisions about amount paid as price premium, distribution of price premium among various uses, time of paying price premium, selling of certified cocoa beans, meetings (frequency, days, times, venue, duration etc.), membership fees and other payments, internal inspection, external auditing, and certification requirements and recommendations. The variable *group decisions* is an average of 18 items each with responses ranging from one to five.

The *inspections* variable results from two items that ask about the last time a participating producer was inspected by internal and external auditors. The responses were rescaled from four categories (1-within one year; 2-within three years; 3-more than three years; and 4–never)

to a binary discrete choice (1-within one to three years and 0-more than three years or never). The inspections variable is a sum of the two items with a range from zero to two.

The *sales and price premium* variable is a combination of three survey items containing questions about: percentage of certified produce sold as certified in the last 12 months, whether or not the producer received a price premium in the last 12 months, and the amount of money received as price premium in the last 12 months. Percentage of certified produce sold as certified, and amount of money received as price premium were rescaled to range from zero to one by dividing each observation by the maximum value of the sample. Whether or not the producer received price premium was measured with 1 for "Yes" and 0 for "No;" therefore, the variable sales and price premium is a sum of all three items and ranges from zero to three.

The *knowledge of price premium* variable combines responses to four items concerning price premiums for certified cocoa. These questions had two response choices, yes (1) or no (0). One question asked producers whether they know the rationale for the price premium. Another asked whether producers know if their certified group uses their group's price premium for community development project(s), purchasing/subsidizing inputs, group management costs, defraying costs of group certification, paying a price premium to members, or other purposes. Respondents were asked whether they know of fellow group members receiving a price premium in the last 12 months in addition to asking the amount of money their colleagues received. The *knowledge of price premium* variable is a sum of nine items and ranges from zero to nine.

Respondents were asked about their awareness of community-wide programmatic elements of sustainability certification such as: conserving/protecting natural resources; improving

producers' output and incomes; eliminating child labor; improving working conditions of farm workers; and community development. These items had a response of 1 = Yes, and 0 = No. so the *awareness of certification objectives* variable ranges from zero to five, with zero indicating "No" for all items and five indicating "Yes" for all items.

On a scale of one to five, the cocoa producers were asked about the extent of their agreement to various statements related to intermediary companies' interest in certification including: wellbeing of smallholder producers, environmental and social responsibility, profit, competition, reputation, corporate social responsibility, and external auditing/auditors. The variable *perceptions about intermediary companies' interest* is an average of the responses for these seven items and ranges from one to five.

Respondents were also asked about their agreement with the requirements and recommendations of certification. This variable made use of 10 survey items: farm establishment and rehabilitation, farm management and maintenance, soil management and fertilization, integrated pest management and crop protection, harvest and post-harvest practices, safe and healthy farm practices, workers' rights, including child labor and informal workers, waste management, and environment and natural resource protection. The variable *perceptions about requirements and recommendations* is an average of all of the items and range from one to five.

Again, they were asked about their expected and realized benefits of certification. The *expected benefits* and *realized benefits* variables used the following 11 survey items, again averaging the value of each item with a range from one to five: improvement in farm management; improvement in awareness of environmental protection and farm environmental conditions;

improvement in output; access to price premium and increased income; improvement in awareness of labor rights and conditions of workers and children; access to credit/financial assistance; improvement in knowledge of safety and healthy farm practices; access to farm inputs; community infrastructure development; access to market/buyer requested certification; and access to extension services.

Table 1.4: Description of variables

Variable	Description	Values
Group decisions	Producers' level of agreement with group decisions on various topics (9), measured on a 1–5 Likert scale *(To what extent do/did you agree or disagree with decisions of the organization regarding…?)* Extent to which group members are engaged in decision-making, on various topics (9), measured on a 1–5 Likert scale *(To what extent do you agree or disagree that members of the organization are/were engaged in decision-making regarding…?)*	Average of all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)
Inspections	Last time inspected by internal and external auditors, rescaled from 1–4 to 1=within 3 years; and 0=more than 3 years, and never	Sum of all items; ranges from 0 (0 for each of 2 items) to 2 (1 for each of 2 items)
Sales and price premium	Amount of certified produce sold as certified in the last 12 months, rescaled from percentage to 0–1: observation divided by maximum value for the sample Producer received price premium in the last 12 months, 1=Yes; 0=No Amount of price premium received per unit in the last 12 months, rescaled from continuous to 0–1: observation divided by maximum value for the sample	Sum of all items; ranges from 0 (0 for each of 3 items) to 3 (1 for each of 3 items)
Knowledge of price premium	Producer knows extra income received is price premium, 1=Yes; 0=No Producer knows that group uses price premium on each of 6 items, 1=Yes; 0=No Producer knows that other group members received price premium in the last 12 months, 1=Yes; 0=No Producer knows how much other group members received as price premium, 1=Yes; 0=No	Sum of all items; ranges from 0 (0 for each item) to 9 (1 for each item)
Awareness of certification objectives	Producer is aware of each of five objectives of sustainability certification, 1=Yes; 0=No	Sum of all items; ranges from 0 (0 for each item) to 5 (1 for each item)
Perception about intermediary companies' interests	Extent to which producers (dis)agree that intermediary companies involved in certification are concerned about various sustainability and profitability interests, measured using 8 items on a 1–5 Likert scale, 6 items were reverse coded so that all items are in the same direction	Average of all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)

Table 1.4 (cont'd)

Perception about certification requirements and recommendations	Extent to which producers (dis)agree with various requirements and recommendations of certification, measured using 10 items on a 1–5 Likert scale	Average of all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)
Perceptions about expected benefits of certification	Extent to which producers (dis)agree that they initially expected certification to be beneficial in several ways, measured using 11 items on a 1–5 Likert scale	Average of all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)
Perceptions about realized benefits of certification	Extent to which producers (dis)agree that certification has been beneficial in several ways, measured using 11 items on a 1–5 Likert scale	Average of all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)
Annual household income	Household income in the last 12 months	0+
Percent of income from cocoa	Share of household income (12 months) from certified crop	1+
Social capital	Respondent holds a leadership position in community, 1=Yes; 0=No Respondent's household member holds a leadership position in community, 1=Yes; 0=No Respondent's close acquaintance holds leadership position in community, 1=Yes; 0=No	Sum of all items; ranges from 0 (0 for each item) to 3 (1 for each item)
Number of household farms	Number of separate pieces of land household currently cultivates	1+
Farms size	Total size of all pieces of land household cultivates	1+
Cocoa farm size	Size of total land cultivated with certified crop	1+
Cocoa yield	Number of kilograms of cocoa beans harvested in the 12 months preceding the survey	1+

Results

The results of paired t-tests comparing responses over time for respondents indicating current membership in a certified cocoa producer group are displayed in Table 1.5. After presentation

of those results, the results of a DID analysis of smallholder characteristics is presented as shown in Table 1.6. Following that, bivariate probit analysis tries to identify factors that might explain why some participating producers remained participating and why some nonparticipating producers never joined certification. The summary statistics of the regression variables are presented in Table 1.7 and the regression estimates are in Table 1.8.

The results of the paired t-tests (Table 1.5) show significant differences in participants' perceptions and experiences with certification processes. The responses concerning group decisions were not significantly different across the two surveys. Five variables indicate improvements in participating producers experiences with, and perceptions about certification. In contrast, producers' awareness of certification objectives shows a significantly lower level in the second survey. The other results show participating producers reporting significantly higher levels of internal and external inspections (0.41 out of 2) than at the baseline survey (0.21 out of 2). Similarly, participating producers reported higher levels of sales of certified beans and receipt of price premium at the follow-up survey (0.15 out of 3) as compared to our baseline (0.03 out of 3). The results show increased positive perceptions about certification requirements and recommendations at the follow-up survey (4.88 out of 5) than at the baseline survey (4.81 out of 5). Again, participating producers reported being more expectant of certification to be beneficial during the follow-up survey (4.23 out of 5) as compared to the baseline survey (3.80 out of 5). Finally, in the follow-up survey the producers reported more positive perceptions about ways they believe certification has been beneficial (4.04 out of 5) than they reported at the baseline survey (3.78 out of 5).

Table 1.5: Paired sample t-tests, comparing responses for respondents participating as at both surveys

Variable	Participating as at both surveys		
	Baseline (n=61) Mean	**Follow-up (n=61) Mean**	**t**
Group decisions *(1 - 5)*	4.33	4.17	-1.27
	(0.08)	(0.11)	
Inspections *(0 - 2)*	0.21	0.41	1.84*
	(0.06)	(0.09)	
Sales and price premium *(0 - 2)*	0.03	0.15	4.04***
	(0.01)	(0.03)	
Awareness of certification objectives *(1 - 5)*	2.61	1.77	-
	(0.16)	(0.14)	3.67***
Perceptions of certification requirements and recommendations *(1 - 5)*	4.81	4.88	1.70*
	(0.03)	(0.03)	
Perceptions of expected benefits of certification *(1 - 5)*	3.80	4.23	2.40**
	(0.16)	(0.11)	
Perceptions of realized benefits of certification *(1 - 5)*	3.78	4.04	2.66***
	(0.07)	(0.07)	

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 1.6 shows the results of a DID analysis. The results indicate only two significant DID. It appears this is so because participating and nonparticipating producers record similar changes across the two surveys. First, participating producers reported significantly less awareness of certification objectives at the recent follow-up survey (1.98 out of 5) than at the baseline survey (2.52 out of 5). Interestingly, nonparticipating producers reported significantly more awareness of certification objectives at the follow-up survey (1.41 out of 5) than at the baseline survey (1.34 out of 5). Therefore, the DID of -0.61 between participating and nonparticipating producers on their awareness of certification objectives is statistically significant. Second, while participating producers report no significant difference, nonparticipating producers reported more positive perceptions about certification requirements at the follow-up survey than they did at the baseline survey. Therefore, the DID of -0.25 between participating and nonparticipating producers for perceptions about certification requirements is statistically significant.

Participating producers, on average, score 0.15 higher on social capital in the follow-up survey than in the baseline survey. In the 12 months leading up to the follow-up survey, relative to the baseline survey, households of participating producers cultivated 0.31 more parcels of farmland, earned GhC3,207 (37.17%) more, and their share of income from cocoa went up by 5.80 percentage points. Also, participating producers scored 0.45 higher on their perceptions of expected benefits of certification at the follow-up survey than at the baseline survey. For nonparticipating producers, the results indicate that, in the 12 months leading up to the follow-up survey, relative to the baseline survey, their households cultivated 0.34 more parcels of farmland, 1.48 acres more farmland, and 1.35 acres more cocoa farmland. Again, in the 12 months leading up to the follow-up survey, relative to the baseline survey, their households earned GhC3,381 more, and the share of household income from cocoa went up by 9.89 percentage points. Nonparticipating producers also scored 0.61 more on their perceptions of expected benefits of certification at the follow-up survey than at the baseline survey.

Table 1.6: Difference-indifference analysis, comparing producers that were initially participating and those that were nonparticipating

Variable	Participating as at baseline survey (n=111)			Nonparticipating as at baseline survey (n=105)			Full sample (n=216)
	Baseline	Follow-up	Diff. 1	Baseline	Follow-up	Diff. 2	Diff. in Diff.
Social capital *(1 - 3)*	0.99	1.05	0.15*	0.76	0.89	0.15	-0.07
	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)	(0.10)	(0.19)
Number of household farms	2.41	2.75	0.31**	2.32	2.69	0.34**	-0.03
	(0.12)	(0.17)	(0.15)	(0.14)	(0.17)	(0.14)	(0.30)
Farm size *(acres)*	10.65	12.59	0.91	8.83	10.60	1.48**	0.17
	(1.00)	(1.94)	(1.30)	(0.84)	(0.95)	(0.65)	(2.53)
Cocoa farm size *(acres)*	9.73	11.17	0.34	7.47	9.23	1.35**	-0.32
	(0.98)	(1.93)	(1.25)	(0.63)	(0.8)	(0.64)	(2.39)
Cocoa yield *(kg)*	1,278	1,185	-98	1,182	1,271	109	-182
	(128)	(92)	(108)	(145)	(157)	(93)	(266)
Annual household income *(GHC)*	8,627	12,030	3,207***	9,737	12,659	3,381***	481
	(823)	(1,159)	(929)	(1,244)	(1,234)	(937)	(2,255)
Percent of income from cocoa	69.79	75.01	5.80**	64.53	73.61	9.89**	-3.86
	(2.34)	(2.34)	(2.47)	(2.55)	(3.13)	(3.41)	(5.22)
Awareness of certification objectives *(1 - 5)*	2.52	1.98	-0.54***	1.34	1.41	0.27*	-0.61**
	(0.12)	(0.10)	(0.17)	(0.15)	(0.12)	(0.15)	(0.25)
Perceptions of certification requirements and recommendations *(1 - 5)*	4.80	4.75	-0.03	4.46	4.67	0.25**	-0.25**
	(0.03)	(0.05)	(0.05)	(0.07)	(0.05)	(0.08)	(0.10)
Perceptions of expected benefits of certification *(1 - 5)*	3.84	4.19	0.45***	3.52	3.98	0.61***	-0.12
	(0.11)	(0.08)	(0.13)	(0.15)	(0.11)	(0.14)	(0.23)
Perceptions of realized benefits of certification *(1 - 5)*	3.75	3.87	0.10	3.37	3.51	0.09	-0.01
	(0.04)	(0.07)	(0.08)	(0.05)	(0.08)	(0.08)	(0.13)

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

To explore the characteristics associated with participating and nonparticipating producers, bivariate probit regression was used with results shown in Table 1.8 (summary statistics are presented in Table 1.7). The results show no significant marginal effect of any variable on any

of the two decisions (participating in certification at the time of the baseline survey, and still participating at the time of the follow-up survey). However, each decision is generally influenced negatively or positively by several variables.

The decision to join certification as at the baseline survey was influenced by awareness of objectives of certification, perceptions about certification requirements, and number of adult household members. The higher the number of the objectives of certification that a producer is aware of, the higher the probability of the producer participating in certification as at the baseline survey. similarly, the more positive a producer's perceptions about certification requirements the higher the probability of the producer participating in certification. Also, the higher the number of adults in a producer's household, the higher the probabilities of the producer participating in certification as at the baseline survey.

The decision to still be participating in certification as at the follow-up survey was influenced by several variables. Producers had higher probabilities of still participating in certification if: their certified group's decision-making and decisions are more inclusive and accepted; they have more knowledge of price premium usage by their certified group; they are aware of more of the objectives of certification; they believe to a higher extent that expected benefits of certification have actually been realized; they have more social capital; and their household cultivates more acres of cocoa farmland. On the other hand, a producer has a lower probability of remaining a participant if: they were inspected more by internal and external auditors; they perceive intermediary companies' interests and certification requirements more positively; and their household have more acres for total size of all household farms.

Table 1.7: Summary statistics for bivariate probit regression variables

Variable	Mean (Linearized Std. Err.)			
	Baseline (2015) survey		Follow-up (2019) survey	
	Participant (n=111)	Nonparticipant (n=105)	Remained (n=61)	Left (n=105)
Group decisions *(1 - 5)*			4.22	1.93
			(0.10)	(0.10)
Inspections *(0 - 2)*			0.39	0.39
			(0.09)	(0.11)
Sales of certified beans and price premium *(0 - 2)*			0.18	0.01
			(0.04)	(0.00)
Knowledge of price premium usage *(0 - 9*			3.40	0.48
			(0.23)	(0.17)
Perceptions of intermediary companies' interests *(1 - 5)*			2.62	2.68
			(0.05)	(0.09)
Awareness of certification objectives *(1 - 5)*	2.52	1.35	1.88	2.10
	(0.12)	(0.15)	(0.13)	(0.17)
Perceptions of certification requirements *(1 - 5)*	4.80	4.46	4.88	4.59
	(0.03)	(0.07)	(0.03)	(0.10)
Perceptions of expected benefits of certification *(1 - 5)*	3.85	3.55	4.25	4.25
	(0.11)	(0.15)	(0.12)	(0.10)
Perceptions of realized benefits of certification *(1 - 5)*	3.76	3.38	4.04	3.67
	(0.04)	(0.05)	(0.00)	(0.12)
Male	0.82	0.86	0.84	0.81
	(0.04)	(0.03)	(0.05)	(0.06)
Born outside current community	0.42	0.45	0.35	0.50
	(0.05)	(0.06)	(0.06)	(0.07)
Social capital	0.99	0.76	1.29	0.74
	(0.09)	(0.09)	(0.10)	(0.11)
Years of formal education	8.38	8.61	9.13	7.51
	(0.39)	(0.39)	(0.49)	(0.62)
Age	48.87	44.26	53.18	51.92
	(1.25)	(1.19)	(1.48)	(2.21)
Household size	4.83	4.23	4.30	5.36
	(0.21)	(0.24)	(0.27)	(0.33)
Number of adults in household	2.76	2.25	2.64	2.78
	(0.14)	(0.11)	(0.18)	(0.19)
Number of children in household	1.71	1.53	1.36	2.18
	(0.16)	(0.16)	(0.19)	(0.24)
Number of household farms	2.40	2.32	2.80	2.69
	(0.12)	(0.14)	(0.25)	(0.23)
Total size of all household farms	10.71	8.92	13.70	11.18
	(1.01)	(0.83)	(3.20)	(1.65)
Cocoa Farm Size	9.80	7.66	12.71	9.21
	(1.00)	(0.66)	(3.20)	(1.61)

Table 1.8: Bivariate probit regression estimates

Variable	Initially participating (n=216)		Still participating (n=111)	
	Coefficient	**Marginal effect**	**Coefficient**	**Marginal effect**
Group decisions			0.79**	0.01
			(0.40)	(5.57)
Inspections			-0.98**	-0.02
			(0.38)	(6.90)
Sales of certified beans and price premium			6.95	0.12
			(4.54)	(48.91)
Knowledge of price premium usage			0.91***	0.02
			(0.31)	(6.43)
Perceptions of intermediary companies' interests			-0.82***	-0.01
			(0.25)	(5.77)
Awareness of certification objectives	0.36***	0.02	2.00**	0.03
	(0.08)	(0.47)	(0.81)	(14.05)
Perceptions of certification requirements	0.73**	0.05	-1.97*	-0.03
	(0.36)	(0.96)	(1.05)	(13.89)
Perceptions of expected benefits of certification	-0.10	-0.01	-0.27	-0.00
	(0.08)	(0.13)	(0.38)	(1.93)
Perceptions of realized benefits of certification	0.25	0.02	2.23**	0.04
	(0.23)	(0.33)	(0.94)	(15.71)
Respondent is male	-0.15	-0.01	0.15	0.00
	(0.28)	(0.20)	(0.50)	(1.07)
Respondent was born outside current community	-0.02	-0.00	-0.35	-0.01
	(0.19)	(0.03)	(0.39)	(2.49)
Social capital	0.13	0.01	0.69**	0.01
	(0.11)	(0.18)	(0.29)	(4.84)
Years of formal education	-0.02	-0.00	-0.04	-0.00
	(0.03)	(0.03)	(0.07)	(0.31)
Age of respondent	0.01	0.00	-0.05*	-0.00
	(0.01)	(0.02)	(0.03)	(0.37)
Household size	-0.10	-0.01	-0.83*	-0.01
	(0.17)	(0.14)	(0.50)	(5.86)
Number of adults	0.35**	0.02	0.66	0.01
	(0.17)	(0.46)	(0.47)	(4.68)
Number of children	0.15	0.01	0.37	0.01
	(0.19)	(0.20)	(0.53)	(2.61)
Number of household farms	0.11	0.01	-0.13	-0.00
	(0.09)	(0.15)	(0.21)	(0.93)
Total size of all household farms	0.00	-0.00	-0.32**	-0.01
	(0.03)	(0.00)	(0.14)	(2.25)
Cocoa Farm Size	-0.01	-0.00	0.21**	0.00
	(0.03)	(0.01)	(0.10)	(1.44)
Constant	-6.33***		-1.17***	
	(1.54)		(0.15)	
rho	-1			
	(1.69e-12)			

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Discussions

To verify certified cocoa producer groups and their members' compliance with certification standards, inspections are conducted, first internally by the producer groups and then by external auditors (Ansah et al., 2020). Due to the credence nature of the attributes associated with certified cocoa beans, evidence of the effectiveness of these inspections is crucial in building and maintaining trust in such certification programs (Lemeilleur et al., 2015; Van Poppelen, 2014). Though the results show that producers participating in certification at the time of both surveys reported significantly more inspections at the follow-up than at the baseline survey, the level of inspections reported at the follow-up is still below expectation. Generally, internal, and external inspections are expected to be conducted annually and at three-year intervals, respectively. However, the results indicate that for both inspections, majority of participating producers were last inspected more than three years prior to the surveys. This means the inadequacy of compliance verification in the form of inspections as reported by Ansah, Kaplowitz, Lupi, & Kerr, 2020 persists amidst slight improvements. This situation jeopardizes the credibility of certification programs and may reduce consumers' willingness to pay extra for certified chocolate products.

The problem of certified produce sold as conventional and how it undermines the impacts of certification is emphasized in literature (Basso et al., 2012; Mahrizal et al., 2012). The results of this study suggest that this is still a challenge for participating smallholder cocoa producers. Like the result on inspections, it appears that there has been improvement in participating producers' sale of certified cocoa beans and receipt of price premiums. However, even at the follow-up survey, the proportion of certified cocoa beans that producers can indeed sell as certified, and the amount of price premium they receive for those sales are still very small. Ansah, Kaplowitz, Lupi, & Kerr, 2020 discussed two issues in this regard. One, participating

producers are forced to sell some of their certified cocoa beans as conventional because of relationships they have with licensed buying companies, and constraints that exist in those relationships. For example, some companies that participating producers worked with prior to the implementation of certification are not designated to buy certified beans. Yet, they cannot quit working with them for good reasons: they have close family and other relationships with purchasing clerks, and purchasing clerks give them informal credit doing pre-harvest seasons. In other situations, companies designated to buy certified beans may not be available or may not have money when a participating producer needs to sell their certified beans. The other issue is that the price premium may not get to the producers as expected because its management gets mixed up with that of the costs of certification in complex ways. Because smallholder cocoa producers are not able to finance their certification, other partners get involved and the cost is deducted by those partners before the price premium gets to the producers.

Starting off on an already positive note at the time of the first survey, participating producers expressed even more positive perceptions about certification requirements and expected and realized benefits in the follow-up survey. They believe that the required and recommended practices under certification are worthwhile, and that certification has been beneficial in several ways. These are indications of potentially more buy-in from smallholder cocoa producers, which could enhance the success of certification programs. In a sharp contrast, there has been a significant reduction in the number certification objectives that participating producers know about. This raises important questions about the communication strategies being employed in the implementation of certification programs. Are participating producers no longer being sensitized about the broad objectives of the programs because they are already in? It is important to interrogate this because a significant share of the broad objectives of certification

may not result in outcomes that can be easily observed. Therefore, it is imperative that participating producers are continuously sensitized about the objectives of certification to retain and enhance their buy-in.

The results of the DID analysis show that, though still below the levels of participating producers, nonparticipating producers improved in their awareness of certification objectives and perceptions about certification requirements while participating producers decreased. Additionally, both participating and nonparticipating producers cultivated more parcels of farmland, earned a higher percentage of household income from cocoa, and had more positive perceptions about expected benefits of certification. These notwithstanding, participating producers are still ahead of nonparticipating in these regards because there was a huge gap, which fell considerably, between them at the baseline survey. The study is unable to give definite interpretations to these results because the baseline survey was not conducted before the implementation of certification in the study communities. Meanwhile, the results suggest three possibilities. One is that smallholder cocoa producers that were better in terms of the variables in the analysis may have self-selected into certification. This would support the concern that some producers are systematically being left out of certification (DeFries et al., 2017; Ibanez & Blackman, 2016; Milder et al., 2015; Smyth, 2014). Another is that at the baseline survey, participating producers may have already gained from their participation in certification with regards to the variables in the analysis. Third, possibly due to spill over effects, nonparticipating producers improved more in these regards than participating producers.

The lack of significant marginal effects from the bivariate probit regression implies that no strong statements can be made regarding factors that help explain the decisions to participate

or continue to participate in a certified producer group. Meanwhile, it is important to note some patterns in the variables that to some extent influence the two decisions. The decision to be participating in certification as at the baseline survey was only influenced by three variables with one household characteristic included. The second decision on the other hand is influenced by variables related to experiences that participating producers have with certification as well as a lot more producer and household characteristics. Though not a strong finding, this may suggest that when certification is implemented in a community, it initially does not exclude any particular producers and/or households. Second, unlike the decision to join initially, the decisions to remain or join later are influenced by respondent and household characteristics. Also, the influences of certification experiences seem to suggest that to sustain producers' participation, certification needs to practically work in ways that resonate with their expectations.

Conclusions and implications for policy and research

This study set out to help fill gaps in the literature on certification, particularly with regards to what enhances or impedes its impacts, areas where it may be benefiting smallholder producers most, and factors that influence smallholder producers' participation in certification schemes. The study relied on survey data collected in 2015 and 2019 on smallholder cocoa producers in Ghana to answer research questions using various analytical approaches.

With regards to what enhances or impedes the impacts of certification, the study examined how various components work in practice with smallholder farmers. The reasonable assumption here is that if certification does not work in practice in accordance with its principles, then not much can be expected in terms of impacts. Here, the study concludes that measures need to be put in place to ensure that participating producers and their certified groups are adequately

verified for compliance. In the absence of evidence of positive impacts of certification, showing through compliance verification that participating producers implement the standards is crucial in maintaining trust among consumers and other stakeholders. Innovating tools and strategies for verifying compliance may help improve the effectiveness thereof. Relatedly, it is also important to make the management of price premiums more transparent and ensure that participating producers and their certified groups get their fair share.

In terms of the areas where certification may be benefiting smallholder producers the most, the findings of the study suggest various possibilities in the situations of participating and nonparticipating producers before and after the implementation of certification. Meanwhile, as with many previous studies, limitations in the data used do not allow for definite and generalizable conclusions. This is similar with the factors that influence the decisions to participate and continue to participate after some time.

While the conditions that hinder the generation of appropriate data for rigorously analysing the impacts of certification persists, future research may focus on questions that can help explain the presence or absence of impacts. For instance, smallholder producers are certified in groups for various reasons. Meanwhile, there is limited literature on certified producer groups and issues related how groups may affect the implementation and impacts of certification. Again, certification has been implemented for various types of smallholder producers in terms of crops that they cultivate. Yet, little is known about how certification is doing for some types of crop producers versus others. Questions related to such areas may not require the methods and data needed to control for selection biases in assessing the impacts of certification.

CHAPTER 2
FACTORS INFLUENCING THE SUCCESS/FAILURE OF CERTIFIED SMALLHOLDER COCOA FARMER GROUPS

Introduction

Sustainability certification (certification) and smallholder producer organizations (SPOs) are both promoted for their potential to enhance the commercialization of smallholder agriculture (Ajates, 2020; Henson & Reardon, 2005). Certification enhances commercialization by addressing concerns of unsustainable farming practices among smallholder producers (Basso et al., 2012; Ebata & Hernandez, 2016; Lazaro et al., 2008). SPOs aim to provide support in light of inadequate institutions and market imperfections, which often characterize smallholder agriculture (Mangnus & Schoonhoven-Speijer, 2020; Mwambi, Bijman, & Mshenga, 2020). Certification and SPOs are linked because it impractical to certify individual smallholder producers effectively and efficiently.

Typically, individual smallholder producers lack the production volumes, as well as the knowledge and skills necessary for efficient implementation of certification (Ibnu, Offermans, & Glasbergen, 2018; Snider, Gutiérrez, Sibelet, & Faure, 2017). At the same time, SPOs are able to make use of economies of scale and can reduce the transaction costs of certification (Ansah et al., 2020; Ibnu et al., 2018). Besides addressing the economic inefficiencies of certifying individual smallholder farmers, certification promote social and environmental benefits that require collective action to achieve (Riley, Sangster, Smith, Chiverrell, & Boyle, 2018). SPOs promise to be useful in this regard especially as recent producer cooperative models increasingly include elements addressing social and environmental benefits apart from economic and competitive advantages and therefore align well with the goals of certification (Riley et al., 2018; Snider et al., 2017).

In group certification, responsibilities and benefits are shared between the individual member producers and the SPO. At the center of certification are sustainable farming practices and it is the responsibility of individual member farmers to implement them in their farm enterprises. But the SPO is responsible for many more aspects of certification including: training members on certification requirements and recommendations; verifying them for compliance via internal and external audits; marketing certified produce of members; managing price premiums; and keeping records of members and certification activities (Ansah et al., 2020; Ibnu et al., 2018; Snider et al., 2017). It follows that the success and viability of certification partly depends on the internal organization and external networks of SPOs (Beuchelt & Zeller, 2013). In turn, the attributes and processes of certification may also alter the traditional functioning of SPOs. Certification may strengthen or weaken the organizational structures of SPOs as well as their financial assets, human resources, and social capital (Ibnu et al., 2018; Snider et al., 2017). Though not yet analyzed in depth (Beuchelt & Zeller, 2013), a deeper understanding of the interdependence between certification and SPOs is needed to address issues that are fundamental to the success and viability of certified groups.

One concern raised about both certification and SPOs is whether they are beneficial to all producers and are inclusive of poorer and more vulnerable producers (DeFries et al., 2017; Ibanez & Blackman, 2016; Milder et al., 2015; Mwambi et al., 2020; Smyth, 2014). This issue is critical because certification thrives largely on consumers' willingness to pay and SPOs thrive on external support, and both these are influenced by issues of interest to the public. Another issue related to certification is the limited understanding of the ability and willingness of smallholder producers to cooperate, as in SPOs, towards achieving sustainable agriculture (Riley et al., 2018). This is important because as indicated earlier, the economic benefits of participation in certification are only one of many things to be considered in deciding to adopt

sustainable agricultural practices. A third issue relates to SPOs' capacity to navigate specific contexts like certification and be able to embed themselves with new rules and practices rather than sticking to traditional ways and motives of organizing (Mangnus & Schoonhoven-Speijer, 2020). In-depth analyzes and deeper understanding of interdependences between certification and SPOs is important for their long-term success and viability. In fact, the inconclusive nature of literature on certification benefits is partly attributed to the dearth of research on the roles SPOs play in the process of certification (Beuchelt & Zeller, 2013; Snider et al., 2017). Also, SPOs need to be strategic about their decisions to pursue certification in order to optimize benefits (Snider et al., 2017).

While this study is a contribution to literature on both certification and SPOs, it focuses on SPOs and factors that enhance or impede their viability. SPOs have been resilient as they evolve amid challenges to grow from their traditional purpose of removing production and marketing bottlenecks, to that of supporting entrepreneural and value addition ventures (Ajates, 2020). SPOs often develop in phases, and eventually remain viable (or disolve) based on how each phase is managed (Donovan, Blare, & Poole, 2017). Typically, SPOs are controlled by their membership but are also heavily influenced by external agents and constraints. There is abundant literature on specific internal and external factors that determine their success or failure (J. Barham & Chitemi, 2009; Donovan et al., 2017). However, those factors have been studied in reference to the general concept of SPOs and their traditional purposes. Not much has been reported on the dynamics of those factors in the recent contexts within which SPOs operate such as certification (Beuchelt & Zeller, 2013; Ibnu et al., 2018; Snider et al., 2017) and ecological and biodiversity conservation (Riley et al., 2018).

The goal of this study is to reduce the gap in existing knowledge on the interdependences of certification and SPOs. The study explores the characteristics of certified cocoa SPOs to learn

whether SPOs that are fully operational are different from those that are partially operational and those that have ceased operating. The objective was to generate knowledge for promoting the effective implementation of certification programs and strategies for strengthening SPOs. This study is based on a survey of key leaders and members of 127 certified cocoa SPOs in Ghana. The results highlight that factors of success or failure of SPOs for group certification correspond to those in the broader literature on SPOs, which suggests that successful group certification requires that SPOs are viable and functioning well so that they can be effective channels for implementing certification.

Success and Failure of Smallholder Farmer Groups

Factors that influence the success or failure of groups as identified by previous work on collective action in agriculture and natural resources (J. Barham & Chitemi, 2009) may be internal or external to the group (Donovan et al., 2017). Internal factors are those that the group has control over and can be broadly categorized into those related to motivation for group formation, the nature of economic activity, group composition, and group management (J. Barham & Chitemi, 2009; Donovan et al., 2017). [External factors include aaaaaaaaaa, bbbbbbbb, and cccccccc (CITE).?]

Group Formation. Smallholder farmer groups (SPOs) are formed for various purposes which have been sorted into two types: (1) grassroots groups started by local people with locally identified interests; and (2) externally motivated groups initiated by external entities (private, governmental, non-governmental) (Bijman & Hanisch, 2012; Salifu, Funk, Keefe, & Kolavalli, 2012). However, in practice, smallholder farmer groups exist on a continuum, with varied levels of local interests and involvement interacting with external entities. The conditions of smallholder farmers suggests that some form of partnership with external entities may be

needed to start such groups (Lyon, 2003). However, when the outside support and entities withdraw, some smallholder farmer groups struggle to survive (Holzapfel & Wollni, 2014; Mujawamariya, D'Haese, & Speelman, 2013; Paumgarten, Kassa, Zida, & Moeliono, 2012; Verhofstadt & Maertens, 2014).

The success of a smallholder farmer group hinges on providing a range of services related to multiple segments of the value chain (production, processing and marketing) (Paumgarten et al., 2012). Smallholder farmer groups that provide multiple services, some of which are driven by revenue generating activities, are more likely to be economically viable and successful, relative to groups that focus solely on capturing (free or subsidized) resources (Bijman & Hanisch, 2012; Salifu et al., 2012). Salifu et al. 2012 argue that the segment(s) of the value chain where a smallholder farmer group offers service(s) largely predicts its effectiveness. The reason for this is that, depending on the nature of the economic activity of a group, will require varied resources from different sources, and the groups incur different costs and realize various forms of benefits that are distributed (differently) among members (Salifu et al., 2012). Therefore, the motivation for and process of group formation will be explored across fully operational, partially operational, and ceased operating farmers groups in the study area.

Group Composition. Group membership and size may affect the intensity of members' participation, and groups of different sizes may have advantages and disadvantages depending upon the specific context (Cazzuffi & Moradi, 2012). Participation is likely to be more intensive in smaller groups where stronger social cohesiveness may reduce problems such as free riding and side selling. However, smaller groups mostly lack the economies of scale and bargaining power needed to generate sufficient benefits of collective action to encourage participation. The opposite has been found to be true; larger groups accrue more benefits but

also face increased costs since they require stronger rules and sanction mechanisms to deal with issues such as free riding and side selling (Cazzuffi & Moradi, 2012; Fischer & Qaim, 2014). Therefore, clearly identifying the context will help determine appropriate group membership size. However, independent of group size, adequately addressing problems like free riding and side selling supports continued group success.

At the same time, group social capital (characteristics of group members) may foster or impede cooperation and communication among the members (J. Barham & Chitemi, 2009; Donovan et al., 2017; Mujawamariya et al., 2013; Wambugu, Okello, & Nyikal, 2009). Heterogeneity in members' characteristics (age/experience, wealth status, gender etc) has been found to promote interdependence among group members and ensure efficient distribution of costs and benefits. On the other hand, groups with homogenous member identities and interests have been found to foster trust, solidarity and loyalty and prevent issues such as free riding and side selling (J. Barham & Chitemi, 2009; Markelova & Mwangi, 2010; Verhofstadt & Maertens, 2014; Wambugu et al., 2009). In some cases, it has been found that very close social relationships among group members hinder rules enforcement for fear of alienation (Hellin, Lundy, & Meijer, 2009). Therefore, better understanding of group composition of successful (unsuccessful) farmer groups that are participating in SC may promote successful SC implementation.

Group Management. Appropriate leadership as well as establishing and enforcing prudent rules are two important factors for group success (Datta, 2007; Donovan et al., 2017; Fanasch & Frick, 2018). Appropriate leadership for smallholder farmer groups is where leaders are selected through an agreed upon process that includes a mechanism for holding them accountable (Salifu et al., 2012(Datta, 2007)). Similarly, successful groups need structures for

making and enforcing rules that involve group members and are adapted to local situations(Datta, 2007). A group's rules of governance (as opposed to rules from outside the group) have been found to be more likely to be understood and followed (Markelova & Mwangi, 2010; Wambugu et al., 2009). It seems that groups in which leadership and rules are largely imposed or influenced by external entities may lack member buy-in and be associated with unsuccessful smallholder farmer groups. [citation??]

Methods

This study uses quantitative and qualitative data collected from smallholder cocoa farmer groups in Ghana, and examines cocoa farmer groups that are grouped together based of their operational states: (1) fully operational, (2) partially operational, and (3) ceased operating. Group level information was collected from farmer group leaders and members using mixed methods. Survey data were collected from key leaders and current members of the selected farmers groups. Surveying group members in addition to key leaders allowed for the triangulation of the information provided where necessary (Donovan et al., 2017). Qualitative data were collected using in-depth interviews with key leaders, other leaders, current members, and former members.

Study Site

The smallholder cocoa farmers groups in the study were identified as part of an enumeration and sample frame process used in Ansah et al. (2020). That process identified 148 smallholder cocoa farmer groups in six cocoa districts in Ghana and subsequently selected six (6) of those communities for that study. The farmers groups were operating in the region under agreement with sustainability certification program standards set by either Fairtrade, UTZ-Certified or Rainforest Alliance. Each of those 148 farmer groups was also working with an independent

farmer cooperative association or a licensed buying company (Ansah et al., 2020). This study targeted all 148 of the previously identified farmer groups in Ansah et al, (2020). (see map in Appendix E for their locations).

Survey Data

A survey was developed for the key leaders and selected members of the 148 cocoa farmers groups previous identified. In the end, 127 (86%) key leaders of farmers groups and 126 members from the groups of the key leaders (99%) participated in the survey. Information about the 148 groups and their key leaders was obtained from the district offices of the respective cooperative association or licensed buying company. Where more than one person fit the selection criteria for a group's key leader, whomever was readily available was surveyed. In a few cases, person(s) identified as key leader(s) was/were not available to be interviewed and the current principal executive (most recent for ceased operating groups) was interviewed. After the survey was administered with the key leader, a list of group members was obtained, and, later, one member was randomly selected to be surveyed. Where a farmer group had ceased to operate, extra effort and strategies appropriate for each situation were used to identify the key leader and a member of the group from the time the group was still operational.

A semi-structured questionnaire (see Appendix F) was used to collect information under six themes: entities and objectives important in group formation; support group received during first and last year of operation; group leadership and intra-group conflicts; membership participation in decision-making and activities; and services provided to members and nonmembers. The questionnaire also collected background characteristics of groups as well as respondent's demographic information. The questionnaire was administered through Computer Assisted Personal Interviewing (CAPI). Paying attention to the skip-patterns and other features,

the questionnaire was programed onto tablet computers using the Census and Survey Processing System (CSPro). The survey was implemented by a three-member field research team trained in high-quality data collection practices using CAPI and CSPro. Training of the two other team members was conducted for four days and covered topics relating to all aspects of the fieldwork. It also included a pretest with two smallholder farmer groups, one that was fully operational and one that had ceased operating.

The variables used in the subsequent analyses were measured as binary responses, Likert-like scales, and, in a few cases, continuous variables. The binary responses were "yes" or "no", where "yes" equals 1 and "no" equals 0. The Likert-like scales were either 4-point or 5-point scales. The 4-point scales were used to measure level of importance (1–Not important at all, 2–Somewhat important, 3–Important, or 4–Very important) and frequency of occurrences (1–Very often, 2–Often, 3–Rarely, or 4 – Never). The 5-point scales were used to measure the extent of (dis)agreement (1– Strongly disagree, 2– Somewhat disagree, 3–Neither agree nor disagree, 4– Somewhat agree, or 5- Strongly agree) and likelihood (1-Very unlikely, 2-Unlikely, 3-Neither unlikely nor likely, 4-Likely, 5-Very likely).

The main objective of the quantitative data analysis was to compare groups that are fully operational, partially operational, ceased operating. Therefore, the analysis employed ANOVA to test the significance of the differences in means of fully operational, partially operational and ceased operating groups. A secondary objective of the data analysis was to compare responses for key leaders and group members across the above dimensions. Therefore, the ANOVA analysis is repeated on data from group members.

In-depth interviews

The previous study by Ansah et al. (2020) focused on six (6) smallholder cocoa farmer groups. To collect more in-depth data on group formation, process, and function, qualitative interviews targeted the 'original' six (6) groups and an additional six (6) groups located in similar communities in the study area. The goal for the in-depth interviews was to interview key leaders of all 12 groups, and a mix of other leaders, current members, and former members to obtain a total of 30 interviews. In the end, a total of 26 in-depth interviews were conducted with key leaders (12), other leaders (5), current members (6), and former members (3). A snowball sample approach was used to identify former group members.

The in-depth interviews were guided by prompts structured to shed light on survey responses and to collect more details on group formation; support from external organizations; and group management (leadership, participation, and services). With respondents' consent, the in-depth interview sections were audio recorded. Narrative analysis was used to extract from the qualitative data, details of responses to survey questions. Key points from stories that respondents gave to explain their responses were summarized, coded, and organized according to the emergent themes and research questions (Leech & Onwuegbuzie, 2008).

Results

Presentation of the results focuses on data obtained from key leaders. The results from members are presented and discussed only in those few instances where they have statistically significant results in a different direction from key leaders and where there are statistically significant results for members but not for key leaders. Results of the data analyses for key leaders are presented in Tables 1 to 6 while the results for members appear in Appendix G, Tables G1 to G5. In each table the second to fourth columns respectively present the means and standard

deviations for groups that are fully operational, partially operational, and ceased operating. The last column shows the *F* statistic and the associated significance from the ANOVA. As mentioned earlier, the objective of the ANOVA was to compare data from key leaders (and members) who say their groups are fully operational, partially operational, and ceased operating.

Respondent and group characteristics

As Table 2.1 shows, almost all respondents were male with an average age of about 52 years and with about three years of formal education. Respondents of fully and partially operational groups have been/were members of their groups for about seven years while respondents of ceased groups reported being members of their groups for just about three years. It also seems that majority of groups that have ceased operating were organized by clients of LBCs, while the majority of fully and partially operational groups were organized as cooperative associations. The results show that a majority of fully operational groups were Fairtrade certified, majority of partially operational groups were Rainforest Alliance certified; and that 50% and 40% of ceased operating groups are respectively UTZ and Rainforest Alliance certified. Fully and partially operational groups report having been certified for about five and six years respectively, and groups that ceased operating were certified for about three years. Only about 12% of groups that ceased operating existed before SC while about 30% and 40% of fully and partially operational groups respectively did exist prior to SC. Between the first year of operation and the last year prior to the survey, fully operational groups increased their membership by about 65% while partially operational ones lost about 23% of their members. Ceased operating groups lost about 34% of their members between their first year of operation and the last year before they ceased to operate.

Currently, no SC organization is operating in communities of ceased operating groups but communities of fully and partially operational groups have at least one. Communities that have farmers groups that have SC group that ceased operating groups also have fewer smallholder farmer groups currently operating.

Table 2.1: Respondent, group, and community characteristics

Characteristic	Mean (SD) Fully operational (n=76)	Partially operational (n=26)	Ceased operating (n=25)	ANOVA (F)
Respondent				
Male	0.99 (0.11)	1.00 (0.00)	0.96 (0.20)	0.69
Age	52.16 (11.61)	52.50 (11.02)	52.52 (13.57)	0.01
Years of formal education	3.45 (0.82)	3.08 (0.89)	2.96 (0.73)	4.27**
Years of being a group member	6.96 (1.81)	7.31 (2.04)	3.20 (1.53)	45.74***
Group				
Group was organized via an LBC *(0/1)*	0.34 (0.48)	0.23 (0.43)	0.68 (0.48)	6.70***
Group was FLO certified as at initial survey (0/1)	0.72 (0.45)	0.08 (0.27)	0.04 (0.20)	46.52***
Group was UTZ certified as at initial survey *(0/1)*	0.08 (0.27)	0.27 (0.45)	0.52 (0.51)	13.94***
Group was RA certified as at initial survey *(0/1)*	0.20 (0.40)	0.65 (0.49)	0.44 (0.51)	11.22***
Number of years group was/has been certified	5.48 (2.20)	5.69 (1.78)	2.96 (1.31)	17.19***
Group still certified *(0/1)*	0.57 (0.50)	0.88 (0.33)	0.24 (0.44)	12.69***
Likelihood group is still certified 3 years from now *(1 – 5)*[a]	3.97 (0.98)	3.81 (1.02)	3.04 (0.93)	8.59***
Group existed before sustainability certification *(0/1)*	0.26 (0.44)	0.38 (0.50)	0.12 (0.33)	2.36*
Number of years group has been in existence	8.25 (1.68)	8.70 (2.21)	5.00 (2.65)	4.41**
Number of group members during the first year of operation	39.30 (23.40)	57.46 (40.63)	40.68 (24.81)	4.22**
Number of group members last year/last year of operation	66.03 (40.09)	44.27 (18.41)	26.26 (17.07)	14.90***
Community				
Number of sustainability certification standards currently operating	0.83 (0.55)	1.12 (0.52)	0.24 (0.44)	18.95***
Number of sustainability certification standards that operated 3 years ago	1.01 (0.26)	1.19 (0.40)	0.80 (0.50)	8.12***
Number of LBCs currently operating	3.99 (1.89)	4.46 (2.25)	2.98 (1.68)	3.98**
Number of LBCs that operated 3 years ago	3.80 (1.75)	4.08 (1.98)	3.14 (1.49)	1.97

Table 2.1 (cont'd)

Number of farmer groups currently operating	1.43 (0.66)	1.75 (0.78)	0.62 (1.28)	12.69***
Number of farmer groups that are certified	0.88 (0.59)	1.14 (0.68)	0.18 (0.48)	18.66***

Note: [a]1-Very unlikely, 2-Unlikely, 3-Neither unlikely nor likely, 4-Likely, 5-Very likely

Group formation

Table 2.2 reports the results of inquiries into group formation elements including who was involved and the program objectives that mattered. Importance was measured using a 4-point Likert-like scale. Respondents were asked how important each objective was for community leaders and members separately. There are statistically significant differences between groups that are fully operational, partially operational and ceased operating in terms of the importance of community members and NGOs. According to key leaders, relative to fully and partially operational groups, community members and NGOs were less important in the formation of groups that have ceased operating. The data from members (see Table G1) show that community members were less important in the formation of partially functional groups relative to fully operational and ceased operating groups. Importantly, in all instances, community members were quite important in group formation in absolute terms.

While the data from key leaders show no significant differences among SC program objectives in their group formation, the responses from members do signal their belief that "facilitating labor exchange" and "improving relationships with LBCs" were important to group leaders and that members were significantly motivated by "price premiums" associated with certification (see Table G1).

Table 2.2: Importance of various entities and objectives in group formation

Variable	Mean (SD)			ANOVA (F)
	Fully operational (n=76)	Partially operational (n=26)	Ceased operating (n=25)	
… were important[a] in helping to establish group				
Community leader(s)	3.09 (1.29)	3.28 (1.17)	3.26 (1.18)	0.30
Community member(s)	3.76 (0.59)	3.76 (0.66)	3.17 (1.15)	5.98***
Sustainability certification organization(s)	2.66 (1.50)	2.08 (1.47)	2.83 (1.50)	1.82
Government agency(s)	1.95 (1.36)	1.60 (1.22)	1.73 (1.24)	0.74
NGO(s)	2.09 (1.43)	2.68 (1.52)	1.39 (1.03)	5.21***
Licensed buying company(s) (LBCs)	2.28 (1.49)	1.72 (1.31)	2.30 (1.52)	1.51
Private business(s), other than LBCs	1.04 (0.35)	1.00 (0.00)	1.00 (0.00)	0.32
… was important[a] for community **leaders** during the formation of group				
Improving farming practices	3.85 (0.58)	3.86 (0.48)	3.84 (0.69)	0.00
Buying inputs and services, and selling produce as a group	3.38 (1.11)	3.14 (1.15)	3.47 (1.07)	0.51
Access to price premium	1.90 (1.33)	1.90 (1.37)	1.47 (1.12)	0.81
Facilitating labor exchange	2.58 (1.32)	2.05 (1.24)	2.16 (1.21)	1.74
Improving relationship with LBCs by working as a group	2.50 (1.23)	2.76 (1.30)	2.89 (1.33)	0.85
Receiving additional support from organizations	3.85 (0.61)	3.90 (0.30)	3.79 (0.71)	0.20

Table 2.2 (cont'd)

… was important[a] for community **members** during the formation of group				
Improving farming practices	3.96 (0.34)	4.00 -	3.84 (0.69)	0.96
Buy inputs and services, and sell produce as a group	3.57 (0.94)	3.08 (1.21)	3.32 (1.20)	2.08
Access to price premium	1.99 (1.32)	2.13 (1.48)	1.47 (1.12)	1.45
Facilitating labor exchange	2.51 (1.33)	2.13 (1.33)	2.39 (1.29)	0.79
Improving relationship with LBCs by working as a group	2.51 (1.19)	2.54 (1.35)	2.72 (1.45)	0.20
Receiving additional support from organizations	3.71 (0.86)	3.83 (0.64)	3.58 (0.96)	0.49

a. 1–Not important at all, 2–Somewhat important, 3–Important, or 4–Very important

Support from organizations

As Table 2.3 makes clear, LBCs were reported by respondants to be significantly more involved with the farmers groups that ceased operating. That is, more of the groups that no longer operate in the study area report having LBCs providing them the most support during their first year of operation. And those programs that ceased also reported receiving less support from government agency(s), sustainability certification organizations, and NGOs than programs that are operating. The results in Table 2.3 show that during the last year of operation (before a group ceased operating), a smaller number of organizations supported groups that are partially operational.

Group management

Leadership

Table 2.4 shows that fully operational groups have significantly more executives relative to the partially operational and ceased operating groups. The principal executive as well as other executives of most fully operational groups are reported to be selected through voting by all members rather than through appointment by supporting organizations. The results also reveal that the process for selecting executives of farmers groups was used more frequency in the case of fully operational groups, and more group members have served as principal executive in fully operational groups. The results also indicate that executives of fully operational groups discuss financial reports with their members and assign members tasks more often than groups that no longer operate. This seems true even amid leadership challenges since the results indicate that the various groups report a mix of leadership challenges, with fully and partially operational groups reporting more leadership challenges than the groups that stopped operating.

Table 2.3: Support that group received during first and last year of operation

Variable	Mean (SD) Fully operational (n=76)	Partially operational (n=26)	Ceased operating (n=25)	ANOVA (F)
Support received during first year of operation				
Number of organizations that supported group	1.30 (0.64)	1.08 (0.58)	1.08 (0.28)	2.08
Group received support from…*(0/1)*				
Government agency(s)	0.28 (0.45)	0.15 (0.37)	0.24 (0.44)	0.78
Sustainability certification organization(s)	0.29 (0.46)	0.38 (0.50)	0.28 (0.46)	0.46
NGO(s)	0.20 (0.40)	0.12 (0.33)	0.04 (0.20)	2.00
Licensed buying company(s) (LBCs)	0.38 (0.49)	0.33 (0.48)	0.63 (0.49)	2.69*
Private business(s), other than LBCs	0.11 (0.31)	0.04 (0.20)	0.00 (0.00)	1.85
Cooperative union	0.01 (0.11)	0.04 (0.20)	0.00 (0.00)	0.64
Group received **MOST** support from…*(0/1)*				
Sustainability certification organization(s)	0.13 (0.34)	0.04 (0.20)	0.04 (0.20)	1.52
Government agency(s)	0.22 (0.42)	0.23 (0.43)	0.24 (0.44)	0.01
NGO(s)	0.18 (0.39)	0.08 (0.27)	0.04 (0.20)	2.17
Licensed buying company(s) (LBCs)	0.20 (0.40)	0.19 (0.40)	0.56 (0.51)	7.42***
Private business(s), other than LBCs	0.07 (0.25)	0.00 (0.00)	0.00 (0.00)	1.75
Cooperative union	0.00 (0.00)	0.04 (0.20)	0.00 (0.00)	1.97
Proportion of supporting organizations that offered…				
Training and capacity building	0.92 (0.25)	0.98 (0.11)	0.88 (0.34)	0.89
Financial assistance	0.67 (0.43)	0.71 (0.41)	0.63 (0.49)	0.23
Free inputs	0.15 (0.33)	0.07 (0.24)	0.02 (0.10)	2.05
Free extension services	0.61 (0.44)	0.62 (0.47)	0.50 (0.51)	0.59
Other support	0.00 (0.00)	0.05 (0.22)	0.04 (0.20)	1.57

Table 2.3 (cont'd)
Support received during last year of operation

Number of organizations that supported group	1.29 (0.92)	0.42 (0.58)	0.54 (0.59)	14.70***
Group received support from…*(0/1)*				
Government agency(s)	0.21 (0.41)	0.12 (0.33)	0.04 (0.20)	3.82**
Sustainability certification organization(s)	0.25 (0.44)	0.08 (0.27)	0.04 (0.20)	5.03***
NGO(s)	0.34 (0.48)	0.12 (0.33)	0.00 (0.00)	7.10***
Licensed buying company(s) (LBCs)	0.12 (0.33)	0.23 (0.43)	0.40 (0.50)	5.91***
Private business(s), other than LBCs	0.00 (0.00)	0.04 (0.20)	0.00 (0.00)	1.97
Cooperative union	0.05 (0.22)	0.04 (0.20)	0.04 (0.20)	0.06
Proportion of supporting organizations that offered…				
Training and capacity building	0.92 (0.26)	0.89 (0.33)	0.92 (0.29)	0.05
Financial assistance	0.73 (0.37)	0.61 (0.49)	0.67 (0.49)	0.45
Free inputs	0.07 (0.25)	0.22 (0.44)	0.13 (0.31)	1.29
Free extension services	0.52 (0.45)	0.50 (0.50)	0.50 (0.52)	0.01
Other support	0.04 (0.18)	0.06 (0.17)	0.00 (0.00)	0.34
External support ceased more than three years ago/before group ceased operating *(0/1)*	0.16 (0.37)	0.58 (0.50)	0.40 (0.50)	10.41***

Table 2.4: Selection of executives, and leadership challenges

Variable	Mean (SD)			ANOVA (F)
	Fully operational (n=76)	Partially operational (n=26)	Ceased operating (n=25)	
Number of executive positions	5.99 (1.56)	3.19 (2.10)	2.44 (2.24)	46.90***
Principal executive position				
Principal executive is chosen through…*(0/1)*				
Appointment by supporting organization(s)	0.03 (0.16)	0.19 (0.40)	0.20 (0.41)	5.47***
Appointment by community leader(s)	0.01 (0.11)	0.00 (0.00)	0.04 (0.20)	0.69
Vote of all group members	0.89 (0.31)	0.42 (0.50)	0.28 (0.46)	30.83***
Vote by executive board	0.00 (0.00)	0.04 (0.20)	0.00 (0.00)	1.97
Self-appointment	0.01 (0.11)	0.04 (0.20)	0.04 (0.20)	0.44
Other means	0.05 (0.22)	0.15 (0.37)	0.12 (0.33)	1.47
Number of times selection process has been conducted	2.26 (0.95)	1.59 (0.96)	1.06 (0.24)	14.84***
Number of different individuals that have occupied position	1.57 (0.62)	1.41 (0.80)	1.00 (0.00)	6.15***
Other executive positions				
Other executives are chosen through…*(0/1)*				
Appointment by supporting organization(s)	0.01 (0.11)	0.04 (0.20)	0.04 (0.20)	0.44
Appointment by community leader(s)	0.01 (0.11)	0.00 (0.00)	0.00 (0.00)	0.33
Vote of all group members	0.91 (0.29)	0.38 (0.50)	0.28 (0.46)	36.09***
Vote by executive board	0.00 (0.00)	0.04 (0.20)	0.00 (0.00)	1.97
Self-appointment	0.00 (0.00)	0.00 (0.00)	0.04 (0.20)	2.07
Other means	0.05 (0.22)	0.19 (0.40)	0.28 (0.46)	5.38***
Number of times selection process has been conducted	2.26 (0.95)	1.67 (0.91)	1.06 (0.24)	14.40***
Group ever taken steps to train and build capacity of **executives** *(0/1)*	0.09 (0.29)	0.04 (0.20)	0.00 (0.00)	1.52
Group ever taking steps to develop **new** leaders *(0/1)*	0.04 (0.20)	0.00 (0.00)	0.00 (0.00)	1.02
Supporting organizations ever taken steps to train and build capacity of **executives** *(0/1)*	0.88 (0.33)	0.83 (0.39)	0.41 (0.51)	21.44***

Table 2.4 (cont'd)

Supporting organizations ever taking steps to develop **new** leaders *(0/1)*	0.13 (0.34)	0.04 (0.20)	0.00 (0.00)	2.58*
Executives discuss financial reports with members … *(1 – 4)*[a]	2.03 (0.49)	1.50 (0.65)	1.20 (0.50)	26.97***
Executives assign tasks to members and/or groups of members *(1 – 4)*[a]	2.64 (0.90)	1.58 (0.86)	1.60 (0.87)	21.61***
Most pressing leadership challenges during the last 3 years (0/1)				
Executives embezzle group resources *(respondent not prompted)*	0.08 (0.28)	0.08 (0.28)	0.13 (0.34)	0.14
Executives do not have adequate leadership training and capacity	0.23 (0.42)	0.31 (0.48)	0.25 (0.45)	0.16
The group is unable to develop new leaders	0.29 (0.46)	0.69 (0.48)	0.31 (0.48)	3.89**
Executives discriminate among members, e.g. in sharing resources	0.04 (0.20)	0.00 (0.00)	0.19 (0.40)	2.73*
Lack of commitment among executives	0.56 (0.50)	0.54 (0.52)	0.13 (0.34)	5.23***
Executives do not engage members in group management and decision-making	0.08 (0.28)	0.31 (0.48)	0.06 (0.25)	2.88*

Note: [a] 1– Never, 2– Rarely, 3– Often, or 4 – Very often.

Group Decisions

Group decisions were examined from two perspectives: the extent to which members agree with group decisions, and the extent to which members are involved in decision-making. The results in Table 2.5 show that, relative to other groups, members of groups that have ceased operating report less agreement with group decisions, though in absolute terms they generally agree with group decisions. In other words, the results show that, across our entire sample, group members generally agree with decisions, but the extent of agreement is significantly lower for members of groups that have ceased operating. The results show that members are generally not much involved in decisions regarding price premiums and external auditing.

The results show that a smaller proportion of members of groups that have ceased operating attended regular meetings while a larger proportion of members of fully operational groups attend trainings on sustainability certification. That is, regardless of how often various meetings/activities are conducted, groups that remain fully operational have more of their members attend meetings/activities.

Trust and Conflicts

Trust in group executives, intra-group conflicts, and processes for resolving conflicts were examined to better understand the farmers groups' environment for cooperation and communication. Using a 5-point scales, trust in executives was measured in terms of knowledge, credibility, accountability, honesty, understanding, care and support. The results in Table 2.6 show that executives of fully operational groups are trusted more by their members. The prevalence of intra-group conflicts was measured using a 4-point scale. The results show that emotional conflicts, conflict of ideas, and differences in opinion occur more often in groups that have ceased operating, though the prevalence of such conflicts among the

other groups are also quite high. While key leaders reported no significant difference across groups for the prevalence of disagreement regarding how the group is run, the data from members does. Members of fully operational groups report a higher prevalence of disagreements on how group is run. Also, relative to partially operational and ceased operating groups, more fully operational groups (though less than 50%) report having processes and procedures for resolving intra-group conflicts. Again, fully operational groups score higher in terms of their conflict resolution processes and procedures being open and transparent, applied to everyone equally, always followed, and effective in resolving conflicts.

Table 2.5: Group decision-making and membership participation

Variable	Mean (SD) Fully operational (n=76)	Partially operational (n=26)	Ceased operating (n=25)	ANOVA (F)
(Dis)agrees with group decisions regarding… (1 – 5)[a]				
Amount paid as price premium	4.54 (1.32)	4.54 (0.81)	2.44 (1.40)	8.72***
Distribution of price premium among various uses	4.24 (0.28)	3.88 (0.81)	4.08 (1.42)	25.38***
Time of paying price premium	4.33 (0.94)	2.96 (1.06)	2.36 (1.00)	7.17***
Selling of certified cocoa beans	4.57 (1.78)	4.08 (0.71)	3.56 (1.47)	2.87*
Meetings (frequency, days, times, venue, duration etc.)	3.41 (0.89)	2.19 (1.24)	2.20 (1.50)	17.48***
Membership fees and other payments	4.95 (1.27)	4.77 (1.65)	3.52 (1.05)	10.93***
Internal inspection	4.62 (1.61)	3.38 (1.41)	3.44 (1.00)	13.02***
External auditing	4.37 (1.30)	4.38 (1.56)	3.72 (0.92)	3.41**
Requirements for cocoa certification	3.96 (0.89)	4.58 (1.64)	3.96 (1.21)	4.78**
(Dis)agrees that group members are engaged in decision-making regarding… (1 – 5)[a]				
Amount paid as price premium	4.58 (1.77)	2.08 (1.44)	3.88 (1.30)	6.72***
Distribution of price premium among various uses	3.91 (1.78)	1.31 (1.63)	1.92 (0.92)	10.84***
Time of paying price premium	2.03 (1.61)	1.50 (1.68)	2.88 (1.61)	2.48*
Selling of certified cocoa beans	3.07 (0.94)	4.73 (0.93)	3.24 (1.36)	2.04
Meetings (frequency, days, times, venue, duration etc.)	2.67 (1.80)	2.19 (1.55)	2.40 (1.00)	5.96***
Membership fees and other payments	3.46 (1.75)	3.23 (1.50)	1.72 (1.39)	2.17
Internal inspection	2.41 (1.91)	2.00 (1.60)	2.88 (1.08)	1.32
External auditing	3.03 (1.72)	2.46 (0.53)	3.56 (1.59)	2.93*
Requirements for cocoa certification	2.68 (1.65)	2.00 (1.03)	2.20 (1.14)	0.59

Table 2.5 (cont'd)

During the last 3 years group had… (1 - 4)[b]				
Regular/general meetings for members	2.91 (0.41)	1.15 (0.85)	1.08 (0.28)	24.28***
Trainings on sustainable practices and/or sustainability certification requirements	1.00 (0.68)	2.54 (0.81)	1.88 (0.86)	13.88***
Percentage of group members who attend(ed) a typical…				
Regular/general meetings for members	59.03 (0.00)	60.00 (14.14)	45.67 (15.15)	15.02***
Trainings on sustainable practices and/or sustainability certification requirements	69.25 (14.56)	55.89 (12.83)	57.50 (18.01)	18.76***
First 12 months of operation				
Members who almost always attend meetings/activities	68.73 (16.27)	78.20 (11.98)	72.30 (18.91)	3.32**
Members who attend some meetings/activities	24.25 (13.76)	16.12 (10.26)	16.39 (11.56)	5.88***
Members who almost never attend meetings/activities	6.81 (7.87)	4.85 (9.89)	11.52 (14.14)	3.09**
Last 12 months of operation				
Members who almost always attend meetings/activities	67.15 (16.22)	40.80 (22.11)	43.64 (20.25)	27.18***
Members who attend some meetings/activities	24.41 (12.55)	31.73 (23.66)	30.41 (18.57)	2.44*
Members who almost never attend meetings/activities	8.57 (9.92)	16.54 (19.64)	25.95 (24.45)	11.14***

Note: [a]1– Strongly disagree, 2– Somewhat disagree, 3–Neither agree nor disagree, 4– Somewhat agree, or 5- Strongly agree. [b]1 - Never, 2– Rarely, 3– Often, or 4 – Very often

Table 2.6: Trust in executives, intra-group conflicts and conflict resolution

Variable	Mean (SD) Fully operational (n=76)	Partially operational (n=26)	Ceased operating (n=25)	ANOVA (F)
Trust in executives during the last year (1 - 5)[a]				
Executives are knowledgeable about everything the group is engaged (KNOWLEDGE)	4.49 (0.90)	4.08 (1.23)	3.64 (1.19)	6.70***
Members are confident that advice given my executive is the same as the executive would do (CREDIBILITY)	4.67 (0.66)	4.31 (0.84)	3.96 (0.98)	8.66***
Executives are accountable to members (ACCOUNTABILITY)	4.70 (0.67)	3.96 (1.28)	3.72 (1.14)	13.46***
Members are confident that executives are truthful and frank in dealing with members, even when there are problems (HONESTY)	4.50 (0.95)	4.08 (1.09)	3.84 (1.11)	4.71**
Executives understand the problems of members (UNDERSTANDING)	4.55 (0.77)	4.23 (0.86)	3.80 (1.19)	7.02***
Executives are concerned about members' welfare during important decision-making (CARE)	4.55 (0.89)	4.23 (0.95)	3.84 (1.11)	5.59***
Executives create and sustain supportive environment (SUPPORT)	4.57 (0.79)	4.27 (0.87)	3.88 (0.93)	6.59***
How often did the following happen last year (1 - 4)[b]				
Friction among group members	3.40 (0.85)	3.35 (0.98)	3.80 (0.70)	1.96
Personality conflicts	3.41 (0.80)	3.65 (0.78)	3.75 (0.55)	2.07
Tension among members	3.55 (0.76)	3.63 (0.82)	3.85 (0.37)	1.35
Emotional conflicts among members	3.53 (0.74)	3.67 (0.76)	3.90 (0.31)	2.38*
Disagreements regarding how the group is run	3.39 (0.80)	3.08 (1.10)	3.55 (0.69)	1.83
Conflicts about ideas	3.34 (0.79)	2.96 (1.00)	3.55 (0.74)	3.11**
Differences of opinion	1.75 (0.79)	1.79 (0.88)	2.36 (1.05)	4.50**
Group has processes and procedures for resolving conflicts and disagreements *(0/1)*	0.45 (0.50)	0.32 (0.48)	0.11 (0.32)	6.13***

Table 2.6 (cont'd)

Processes and procedures for resolving conflicts and disagreements in group are *… (1 – 5)*[a]				
Open and transparent	3.83	3.54	3.16	5.39***
	(1.00)	(0.86)	(0.55)	
Applied to everyone equally	3.86	3.58	3.16	5.83***
	(0.98)	(0.90)	(0.55)	
Always followed in resolving conflicts and disagreements	3.86	3.50	3.16	6.37***
	(0.98)	(0.81)	(0.55)	
Effective in resolving conflicts and disagreements	3.86	3.54	3.16	6.07***
	(0.98)	(0.86)	(0.55)	

Note: [a] 1– Strongly disagree, 2– Somewhat disagree, 3–Neither agree nor disagree, 4– Somewhat agree, or 5- Strongly agree [d]1– Never, 2– Rarely, 3– Often, or 4 – Very often.

In-depth interviews

The results of in-depth interviews support two themes that have important implications on the continued operation (or not) of certified farmer groups: the LBC effect and the power dynamics of members' personal relationships.

LBC Effect

As mentioned earlier, LBCs appear to be the single most important external organization involved in the operations of many certified smallholder cocoa farmer groups. The in-depth interviews revealed that not all the expectations of farmers regarding working with LBCs were realized. It was also learned that certified smallholder farmers groups that were collections of traditional customers of LBCs did not have the typical organizational structure of a farmers group or cooperative. How LBCs function in cocoa growing communities vis-à-vis certified smallholder farmer groups depends largely on their community representatives, purchasing clerks.

> *"…they said if we work with them, after they have paid us for the beans we sold to them, at the end of the season when we have finished harvesting our cocoa, they would help us with some little money [the premium] so that we can use that to hire labor or buy cutlass to maintain our farms". "…I asked them [the LBC] to give me a scale for the work, for the two years that I worked with them they never brought the scale. I was using another company's scale, as I said earlier, I was buying for another company before they came and if I did not agree the community would not have sold cocoa to them".* (A key leader who doubled as a purchasing clerk for an LBC)

> *"…we did not form a group such that I can say we had a secretary or chairman or something like that, we did not do that, we did it on individual bases".* (A former group member)

> *"…group members reported that when they sell the cocoa, they see that the car that comes to load is not that of [the LBC], so some started contemplating that if we are not going to get any benefits from selling to [the LBC], then there is not point selling there…some of us tried to talk to the members, but farmers are such that when you do something and that sticks with us and make us take a decision, it becomes difficult to convince us to do otherwise. So when to try talking to anyone they refer you to that issue, and that is how the confidence in the group was lost".* (A current group member)

Power Dynamics

The in-depth interviews also revealed an oft repeated theme of frustration with family, political, and religious relationships interfering with aspects of group management. For example, respondents talked about the difficulty of enforcing accountability in their group because most people in it are family relatives or close friends. Respondents also reported that group leadership sometimes got mixed-up with community leadership and that community leaders sometimes misapply their power over the affairs of the group. In one case, it was learned that a community's chief was also the key leader of the certified smallholder farmer group. Because nothing seemed to happen without the chief, that group collapsed after his demise and group members discovered that he may have embezzled the groups' funds. As reported by another leader for that group:

> *"…we had a bank account in which we kept the group's money. The woman that took the money to the bank later told us the Chief asked her to withdraw the money, when she brought the money, the Chief did not tell her and the secretary to call for a group meeting to discuss the money…later when we delved deeper, we realized it appears the Chief, the woman and the secretary had connived to mismanage the money, so it created a grudge between them and the membership."*

Other respondents shared that how the benefits of group membership often are influenced by the personal relationships of members and leaders. While some community projects are stipulated by certification standards for those outside the group, the group benefits are supposed to be for group members. Respondents complained about groups not properly distributing group benefits. For instance, one leader interviewed shared that:

> *"the problem I see is that because we are church people here, when the premium comes even though we have stipulated what it should be used for, sometimes the leaders want us to use the premium for something that is not in our action plan [CHURCH ACTIVITIES]. We need to check that otherwise it will create problems".*

Discussions

Group formation

Whether or not smallholder farmer groups do well depends partly on the extent to which they are grassroots or externally motivated (Bijman & Hanisch, 2012; Salifu et al., 2012). For this reason, the study explored the importance of various entities and objectives during the formation of the sampled groups. The results for that are presented in Table 2.2. Importance was measured using a 4-point Likert Scale and so figures presented here are out of 4. For objectives, they were asked about in relation to community leaders then community members. Thus, it was asked how important each objective was for community leaders and members separately. There are statistically significant differences between groups that are fully operational, partially operational and ceased operating in terms of the importance of community members and NGOs. According to key leaders, relative to fully and partially operational groups, community members and NGOs were less important in the formation of groups that have ceased operating. On the other hand, the data from members (see Table A1) show that community members were less important in the formation of partially operational groups relative to fully operational and ceased operating groups. It is important to mention that in both cases community members were quite important (3.17 and 3.60 out of 4) in absolute terms. Also, while the data from key leaders show no significant differences, that of members do so for the importance of sustainability certification organizations as well as accessing price premium, facilitating labor exchange, and improving relationship with LBCs. Members say that sustainability certification organizations were more important in forming groups that have ceased operating. The objective of accessing price premium was less important during the formation of groups that have ceased operating. Facilitating labor exchange and improving relationship with LBCs were less important during the formation of partially operational groups.

These findings indicate that attributes that classify smallholder farmer groups as grassroots or externally motivated, in one way or the other, could enhance or impede the success of a group. The findings therefore support the understanding that smallholder farmer groups require a mix of both grassroots and external motivation to do well (Paumgarten et al., 2012; Verhofstadt & Maertens, 2014). For example, the findings highlight two possible scenarios at the formation of a typical farmer group that reports being fully or partially operational. One is where community members initiate forming the group and attracting an NGO to partner with them. The other is where an NGO comes into a community to initiate forming a group and then community members committing to partnering with the NGO to form and operate a farmers group. Either way, the important factor seems to be the strong partnership created by combining the NGO and community members' effort. Similarly, with regard to the objectives of forming the group, the findings suggest that a grassroot objective such as facilitating labor exchange could motivate alongside an external objective such as accessing price premiums to enhance/impede a group's success.

Organization support

The study explored the types of organizations that provided support to a farmer group during the first and last years of operation, the kinds of support they provided, and when the group ceased receiving support. The literature suggest that although smallholder farmers require some external support to form and operate farmer groups, it is difficult to sustain such groups where external support exceeds or is below certain limits (Holzapfel & Wollni, 2014; Mujawamariya et al., 2013). The results in Table 2.3 show that during their first and last years of operation, LBCs provided support to significantly more of the farmer groups that ceased operating. This is in line with the results that more of the groups that ceased operating report that LBCs

provided them with the most support during their first year of operation. During the respondents' last year of operation, a smaller proportions of farmer groups that ceased operating reported receiving support from government agency(s), sustainability certification organizations, and NGOs. These results are in line with a previous observation that many of the farmer groups that ceased operating were organized as a customer base of LBCs rather than as a cooperative or other association of smallholder farmers. These findings shed light on the roles LBCs play in current certification schemes and suggest avenues that might lead to better support of the formation of effective farmer groups. In Ghanaian cocoa growing communities, LBCs are already more present than the other organizations because of their state-sanctioned role purchasing cocoa beans from farmers. Therefore, before introducing sustainability certification to the mix, complex sets of relationships already exist between LBCs and smallholder farmers, their groups, and communities. The influence of LBCs on the success or failure of smallholder farmer groups engaged in sustainability certification of cocoa does seem supported by the research findings.

The results presented in Table 2.3 show that a smaller proportion of fully operational groups report that external organizations have stopped providing support more than three years ago (before group ceased operating). In addition, the data from members indicate that during the first year of operation, the proportion of supporting organizations that provided financial support to groups was less for groups that have ceased operating. The nature of support that smallholder farmer groups receive and the extent to which such support is sustained enhances (or impedes) the chances of a group's continued operation (Datta, 2007; Donovan et al., 2017). For example, the findings presented here suggest that financial support or the lack of it as well as the timing of such support explain our observation of some groups that have ceased operating. A related result presented in Table 2.3 shows that significantly more fully

operational groups as compared to partial or not operational groups report that supporting organizations have ever taken steps to train and build capacity of group executives and develop new leaders for the group. Not surprisingly, it appears that groups succeed when external organizations provide appropriate support and sustained support.

Group management

Group management is another factor identified as important for group success or failure (Lyon, 2003; Markelova & Mwangi, 2010; Mkpado & Arene, 2007; Salifu et al., 2012; Wambugu et al., 2009). We examine group management through items concerning group leadership and decision-making, Salifu et al. (2012) show smallholder farmer groups in Ghana doing better under appropriate leadership. They define appropriate leadership as having democratic selection processes and mechanisms for ensuring accountability. We examine group leadership and decision-making as it relates to groups' as well as the number of group executives, modes for selecting executives, and accountability to members.

The results in Table 2.4 show that fully operational groups have significantly more executives relative to partially operational and ceased operating groups. The principal as well as other executives of fully operational groups are mostly selected through voting by all members rather than through appointment by supporting organizations. Also, the process for selecting principal as well as other executives has been conducted more times in the case of fully operational groups, and more individuals have occupied the principal executive position in fully operational groups. In terms of accountability, the results indicate that executives of fully operational groups discuss financial reports with members and assign them tasks more often than reported by other groups. These findings support the narrative that groups whose group leaders are not imposed whose people are given opportunities, and promote accountability and

trust are groups that have success. It is important to mention that this may be true even amid leadership challenges. For example, the study's results indicate that the various groups report a mix of leadership challenges, with fully and partially operational groups reporting more leadership challenges than successful groups.

In addition to appropriate leadership, ensuring membership buy-in requires that group members are involved in decision-making processes so that it does not seem as though decisions are imposed on them. Democratic decision-making is therefore a recipe for group success (Datta, 2007; Wambugu et al., 2009). The results show that members are generally not much involved in decisions regarding price premiums and external auditing which is to be expected since those decisions mostly come from respective partner organizations. Decisions on price premiums come from partner LBCs while sustainability certification organizations mostly decide on external auditing (Ansah et al., 2020).

Where there is appropriate leadership and inclusive decision-making, group members demonstrate their buy-in and interest in the affairs of the group by participating in meetings and other activities (Mkpado & Arene, 2007). It follows that where membership is committed and fully engaged, the group is more likely to do well (Fischer & Qaim, 2014). We explored these ideas using how often groups organize regular meetings and trainings on sustainability certification as well as the proportions of members that attend. The study also explored membership participation during the first and last years of group's operation. The results of the input from group executives describe fully operational groups holding regular meetings more often than others but holding trainings on sustainability certification less often than the partially operation and ceased operations groups. The data from members describes the opposite

scenario: fully operational groups hold regular meetings less often and have trainings on sustainability certification more often.

Although the proportion of members that attend meetings/activities drop for all groups between the first and third/last year of operation, the drop is less drastic for fully operational groups. While the proportion of members that report almost always attend meetings was less for fully operational groups during the first yea and significantly more during the last year. Perhaps there are more reasons to attend group meetings in successful farmer groups, more consistency in demonstration of buy-in and interest in group affairs?

Conclusions and implications for policy and research

The results show farmer groups that remained operational over the study period had fundamental elements in their group formation; relationships with external organizations; internal management structures; and interpersonal relationships. These findings are in line with what the literature says about factors that influence the success or failure of groups in general as well as SPOs. Under an agricultural system that relies on SPOs, it is important that SPOs have those features and characteristics that make them viable in the longer term. The sustainability of smallholder farmers working in cocoa in Ghana depends upon the sustainability of the certification organizations field support, training, and guidance for farmer groups working so that smallholders receive compensation for sustainable farming practices.

CHAPTER 3
EFFECTS OF CROP CHARACTERISTICS ON HOW SUSTAINABILITY CERTIFICATION WORKS IN PRACTICE WITH SMALLHOLDER FARMERS

Introduction

Sustainability certification has the potential to improve livelihoods and welfare in communities of smallholder farmers and enhance environmental conditions and biodiversity. This potential can be realized if certification schemes work in practice as stipulated in principle (Dragusanu et al., 2014; Milder et al., 2015). There is evidence certification schemes may not be working well in practice with smallholder farmers. Ansah, Kaplowitz, Lupi, & Kerr, 2020 show that cocoa farmers in Ghana under Fairtrade, Rainforest Alliance and UTZ standards are not adequately inspected for compliance as required. Realizing the potential of certification also requires adequate buy-in (a higher participation rate) from smallholder farmers (Meemken et al., 2017; Waldman & Kerr, 2014). Buy-in from smallholder farmers is influenced by the perceptions they hold about certification and its stakeholders. However, there are concerns that smallholder farmers may view certification as a means to promote foreign ideals (DeFries et al., 2017; Glasbergen, 2018; Hatanaka, 2010; Henson & Humphrey, 2010; Valkila & Nygren, 2010). Regarding stakeholders, it is known that intermediary companies facilitate the processes of getting smallholder farmers certified (Gockowski, Afari-Sefa, Sarpong, Osei-Asare, & Agyeman, 2013). They do so with various attitudes that are influenced by different drivers and barriers, enhancing or hindering smallholder farmers' buy-in for certification (Meemken et al., 2017; Waldman & Kerr, 2014).

Some studies on certification have investigated and documented how certification works in practice with smallholder farmers, as well as their perceptions about certification and its stakeholders (Lemeilleur, N'Dao, & Ruf, 2015; Ansah, Kaplowitz, Lupi, & Kerr, 2020). But there is a gap on what factors enhance and/or limit how certification works in practice and the

perceptions of smallholder farmers. One such understudied factor is the dynamics created by the characteristics of different crops in the context of certification. Crops differ in their production systems, value chain structures, and physical product attributes in ways that may affect the implementation of certification (Waldman & Kerr, 2014; Lee, Gereffi, & Beauvais, 2012; Ruben & van Schendel, 2008). For example, Lee, Gereffi, and Beauvais, (2012) noted that agrifood safety and quality standards affect smallholder farmers differently under various value chain structures. Such insights are yet to be applied to the case of certification. In the case of Fairtrade for instance, there are general standards for smallholder certification (Fairtrade International, 2019) as well as standards for cocoa (Faitrade International, 2017), fresh fruits (Faitrade International, 2018) and nuts (Faitrade International, 2009). However, these standards focus on requirements and recommendations that are peculiar to specific crops, rather than on strategies of implementation in different contexts.

To help address this gap, this chapter compares how certification works in practice with smallholder farmers, and their perceptions about certification across different crops. The chapter builds on Ansah, Kaplowitz, Lupi, & Kerr, (2020) to examine the level of training certified smallholder farmers receive; the extent to which they understand certification requirements and recommendations and have accordingly made changes in their farming practices; their involvement in certified farmer group decision-making; the extent to which they are inspected by auditors; their sales of certified produce and receipt of price premium; and their knowledge of the use of price premium by their certified groups. It also explores how smallholder farmers perceive intermediary companies' interests in certification; their perceptions of certification requirements and recommendations, as well as expected and realized benefits of certification. The chapter explores the research question of how certification works in practice with smallholder farmers, and whether their perceptions of

certification differ across various crops. It is hypothesized that differences will be observed across the crops because of variations in their production systems, market types, and physical product attributes. It was also hypothesized that the characteristics of crops will affect various components of certification differently.

For production systems, some crops are produced entirely by smallholder farmers while others have some combination of smallholder farmers and plantations. Where production is done entirely or predominantly by smallholder farmers, it is hypothesized that certification will work better in practice with smallholder farmers, and they will hold more positive perceptions about certification. It is argued that because smallholder farmers are integral to the sustainability of such certification programs, their concerns and needs will be more adequately addressed to enhance how certification works in practice with them.

Regarding value chain structures, smallholder farmers are faced with different markets with varied roles and competition for intermediary companies. Here, it is hypothesized that where there are higher levels of price competition for intermediary companies, how certification works in practice will be worse, and smallholder farmers will hold less positive perceptions about certification. This is because for smallholder farmers and their communities certification is about more than personal economic gains, but intermediary companies are more interested in profits alone. Therefore, the way they are involved with certification gives smallholder farmers worse experiences and less positive perceptions.

In terms of physical product attributes, the final products of different crops go through various levels of processing. It is hypothesized here that certification will work better in practice with smallholder farmers whose final products go through little processing, and they will hold more positive perceptions about certification. This is because such crops are already subjected to

very strict food safety standards, whose requirements and recommendations are similar to those of certification. Therefore, it is easier for all stakeholders to implement certification in such situations, which likely result in it working better practice and smallholder farmers holding more positive perceptions about it.

The study compares Fairtrade Labeling Organization (Fairtrade henceforth) across four crops: certified cocoa, pineapple, orange, and cashew smallholder farmers. The comparison is based on a survey of 357 smallholder farmers that are members of Fairtrade certified groups in 13 communities across Ghana. The results of the multiple regression analysis suggest that to enhance the impact of certification programs, their implementation should be tailored to various smallholder farmer contexts. Also, various components of certification should be approached differently during implementation.

Understanding how sustainability certification works in practice with, and is perceived by smallholder farmers

Impacts of certification have been conceptualized mostly as the extent to which observed changes in various outcome indicators are attributed to the certification activities (Auld, Gulbrandsen and McDermott, 2008). Smallholder farmers and their communities are often the focus of the expected impacts. Hence, it is recognized that for certification to, among other things, result in such changes, smallholder farmers need to experience certification similar to what is stipulated in various standards (Dragusanu et al., 2014; Milder et al., 2015). Meanwhile, there are concerns that how certification works in practice with smallholder farmers does not align with the principles (Hatanaka & Busch, 2008; Winters et al., 2015). For example, Lemeilleur, N'Dao, and Ruf (2015) report that the translation of Rainforest Alliance cocoa principles into technical specifications is clear and straight forward. Hatanaka (2010) also

demonstrates that organic shrimp farmers in Indonesia do not understand the standards and project objectives, and that some non-compliance goes undetected. Again, Ruysschaert and Salles (2014) indicate that standards of the Roundtable on Sustainable Palm Oil are not properly implemented, resulting in poor outcomes.

Certification is generally recognized as a multi-stakeholder initiative promoted by partnerships involving relevant national governments, international development organizations, NGO, private sector, and representatives of producers and consumers (B. L. Barham, Callenes, Gitter, Lewis, & Weber, 2011; Kleemann & Abdulai, 2013; Rueda & Lambin, 2013). This notwithstanding, the involvement of some stakeholders has brought sustainability certification standards under criticism for being impositions of unscrutinized developed country ideals on poor and vulnerable countries and their producers (DeFries et al., 2017; Glasbergen, 2018). This notion of impositions has been cited as a contributing factor to why smallholder farmers do not fully buy into sustainability certification, and this limits implementation and adoption (Glasbergen, 2018; Meemken, Veettil, & Qaim, 2017).

Amongst the difficulties smallholder farmers face with certification is their inability to fully comprehend the concepts and requirements (Lazaro et al., 2008). Relatedly and maybe as a cause of their lack of understanding, Hatanaka (2010) observes that the concept and bases of sustainability certification are foreign to smallholder farmers. Another reason why smallholder farmers do not fully comprehend sustainability certification is that the procedures and processes are cumbersome and complicated (Smith, 2010). Inappropriate communication of what sustainability certification is has also been identified (Smith, 2010) but not well understood. Specific attention has been given to difficulties in translating standards and principles into practical realities that are easily comprehended by smallholder farmers

(Lemeilleur et al., 2015). Meanwhile, more recent literature suggests that though smallholder farmers' understanding of the general concept of sustainability certification is still limited, they can form opinions about specific sustainable practices. For example, Meemken, Veettil, & Qaim (2017) finds that smallholder farmers can adequately form good judgments about sustainable practices if they understand what they are at least to a significant extent. Glasbergen (2018) also finds smallholder farmers having different preferences for practices that are economically beneficial, and those that are related to environmental and social concerns.

The issue of smallholder farmers' limited understanding of certification and the attendant hindrance to their participation and commitment has more to do with other components of certification programs. For example, smallholder farmers demonstrate limited knowledge of certification programs they are certified with (Ansah, Kaplowitz, Lupi, & Kerr, 2020; Glasbergen, 2018) as well as the philosophy of the programs (Glasbergen, 2018). Thus, even if smallholder holder farmers understand the practices promoted under sustainability certification, limitations in their knowledge about the general concepts may hinder their acceptance of and commitment to the objectives of certification.

Fairtrade certification for smallholder producers

Among other standards, Fairtrade has requirements for smallholder producer organizations' (SPOs) participation in the Fairtrade system. These requirements are categorized into two: core requirements, and development requirements. SPOs and their members are expected to comply with all core requirements before they are initially certified by Fairtrade. But they are expected to work on development requirements through continuous improvements as they are periodically scored against a predetermined scoring system. As such, SPOs and their members are audited against core requirements at years 0, 3, and 6, while they are audited against

development requirements at years 3 and 6. Meaning, members are expected to be trained on all requirements on a regular basis within these periods to enable old ones to keep up and new ones to catch up. Across the core and development categories, there are three types of requirements: general requirements, trade requirements, and production requirements (ethical and sustainable practices). Some requirements are the responsibilities of the SPO as a group and others are to be complied with by individual member farmers (Fairtrade International, 2019).

To enable SPOs to successfully implement the Fairtrade standard, they are expected to draw a development plan. Among other things, such a plan is expected to document the activities and decisions of the group as well as the use of the price premium and other funds. In addition, SPOs are expected to conduct annual internal inspections to prepare the group and its members for external inspections. After internal inspections, SPOs are expected to take measures including sanctions to ensure that they and their members are compliant with all the core requirements and maintain acceptable levels of the development requirements at the time of external inspections (Fairtrade International, 2019).

Why sustainability certification may work in practice differently across crops

Broadly, crops differ in three aspects that may have implications on the implementation process of certification: their production system (Ruben & van Schendel, 2008); value chain structures (Lee, Gereffi, & Beauvais, 2012); and physical product attributes (Waldman & Kerr, 2014). The various situations of these three aspects interact to create unique opportunities and/or challenges for smallholder farmers in certification. Therefore, how certification works in practice may vary with smallholder farmers of different crops. The following paragraphs

explain how cocoa, pineapple, orange and cashew, which are certified by Fairtrade in Ghana differ in their production systems, value chain structures, and physical product attributes.

For production systems, the crops in this study fall in two categories depending on the proportions of smallholder farms, and medium or large plantations (plantations henceforth). Here, smallholder system is, mainly, that where the farm enterprise is small and household based/owned while the plantations system is where the enterprise is large and company based/owned (Van Eijck et al., 2013). The first category, including cocoa, is the production system where there are only smallholder farms, with no plantations. It is important to not confuse sharecropping arrangements in cocoa with hired labor in plantations. The second category is the production system where there are some smallholder farms as well as plantations. There are two types of systems in this category. One, including pineapple and cashew, is where there are more smallholder farms and few plantations. The other, including orange, is where there are more plantations and few smallholder farms (Dendena & Corsi, 2014; Kleemann & Abdulai, 2013; Ruben & van Schendel, 2008).

Regarding characteristics of value chain structures of the different crops, the study focuses on the market types available to smallholder farmers and the roles of intermediary companies therein. Particular attention is given to the market types available to smallholder farmers, and the roles of intermediary companies in these markets. Smallholder cocoa farmers in Ghana face a partially liberalized market where they only sell their cocoa beans to the Ghana Cocoa Board (COCOBOD), through Licensed Buying Companies (LBCs). The LBCs engage in non-price competition as the COCOBOD together with other stakeholders annually determines and announces the producer price (Anang, 2011). Beyond the Ghanaian market, smallholder cocoa farmers face a buyer-driven chain, where there are a few large processors and manufacturers

and numerous smallholders. In this chain, intermediary companies play key roles in collecting and aggregating cocoa beans for the large processors and manufacturers (Lee et al., 2012). Smallholder farmers of pineapple, orange and cashew face liberalized traditional markets where they independently sell their produce to various buyers both in the domestic and export markets. Here, transactions are mostly spontaneous and buyers engage in price competition (Dendena & Corsi, 2014; Kleemann & Abdulai, 2013; Lee et al., 2012; Smith, 2010).

Although smallholder farmers of cocoa, pineapple, orange and cashew all sell their produce in the raw states, the different crops vary in perishability, storage, shipping, and handling (Lee et al., 2012; Ruben & van Schendel, 2008). For example, cocoa beans and cashew nuts go through a significant amount of processing and so physical and food safety quality attributes do not matter as much as in the situations of pineapple and orange. Inferring from Waldman and Kerr (2014), adopting practices required for sustainability certification will have varied costs implications for smallholder farmers of the different crops. Smallholder farmers' participation decision and behavior will therefore be different under the various cost situations, hence variations in their experiences with certification. For example, unlike cocoa farmers, pineapple and orange farmers may originally be using some practices required for certification because those practices affect physical and food safety quality attributes, which are important for pineapple and orange but not cocoa. This might make it less expensive for pineapple and orange farmers to participate in certification than for cocoa farmers.

Methods

A survey was conducted with smallholder farmers of cocoa, pineapple, orange, and cashew located in Ghanaian communities where Fairtrade certification has been implemented (see Figure A.1 for a map showing survey locations). The study focused on smallholder farmers

who cultivate their own crops as a major source of their livelihoods. While there are Fairtrade certification programs for plantations that use hired labor, these plantations and households of such hired laborers were excluded from this study. The survey sampling of smallholder farmer households was stratified by crop, community, and certification status. Within each crop, communities were drawn using simple random sampling. Within each community, the sampling had two strata (certified and noncertified households). Within each certification strata, households were drawn using simple random sampling.

Tables 3.1 and 3.2 respectively present a summary of the target and realized samples, and community-by-community details of the population and sample. Table 3.1 shows the number of targeted communities and households per crop, as well as number of communities visited, and the number of households enumerated (i.e., the population of household) and surveyed (i.e., our realized sample) per crop. Table 3.2 breaks down the number of households enumerated and surveyed for each community. Out of a total population of 521 households enumerated across 13 communities, the study targeted 425 households. A total sample of 357 households was realized for a response rate of approximately 84%. The sample consists of 104 cocoa, 97 pineapple, 82 orange, and 74 cashew smallholder farmer households.

Table 3.1: Summary of target and realized sample

	Target Sample		**Realized Sample**		
	Communities	**Households**	**Communities**	**Households Enumerated**	**Households Surveyed**
Cocoa	4	120	4	210	104
Pineapple	3	102	3	108	97
Orange	3	102	4	78	82
Cashew	3	102	2	125	74
Total	**13**	**734**	**13**	**1360**	**616**

Table 3.2: Community details on population and sample

Community	Households enumerated – population	Households targeted	Households surveyed – sample (response rate)
Cocoa	***210***	***120***	***104 (87%)***
0201	62	30	30
0202	44	30	20
0203	37	30	27
0204	67	30	27
Pineapple	***128***	***110***	***97 (88%)***
0205	58	50	47
0206	27	20	16
0207	43	40	34
Orange	***95***	***95***	***82 (86%)***
0208	20	20	19
0209	15	15	10
0210	30	30	24
0211	30	30	29
Cashew	***125***	***100***	***74 (74%)***
0212	67	50	39
0213	58	50	35
Total	**521**	**425**	**357 (84%)**

Communities were approached using a multi-stage sampling procedure previously used successfully in studies of Ghanaian cocoa farming households (Ansah, Kaplowitz, Lupi, & Kerr, 2020; Ma & Abdulai 2016). The steps are summarized here. The list of smallholder farmer organizations and the communities for drawing the sample was obtained from Fairtrade Within each sampled community all households were enumerated to determine certification status of the lead farmer in each household. The sample of certified households in each community were then randomly drawn.

Data collection

A farmer questionnaire (see Appendix B) was administered through Computer Assisted Personal Interviewing (CAPI). The questionnaire together with appropriate skip-patterns were programed onto tablet computers using the Census and Survey Processing System (CSPro). The questionnaire captured data on respondent and household demographics; household

farming; participation and involvement in Fairtrade certified smallholder farmer groups; experiences with recruitment and training, compliance verification, and price premium management; perceptions of intermediary companies' interests, certification requirements and recommendation, and benefits. The wording and content of the survey built upon the survey development, testing and data collection experiences of Ansah et al. (2020). The questionnaire and CAPI application were field pretested to help de-bug the programming, check for the appropriateness and flow of questions, and estimate the length of the survey. A five-day training equipped enumerators with skills for high-quality data collection that was guided by a fieldwork manual with definition of key terms and concepts; description of question types and answer formats; and community entry, household enumeration, sampling and tracking protocols. A field pretest, carried out in a community like the selected communities but not in the sample frame, included all aspects of the actual survey implementation.

Variables and measurement

Table 3.3 presents variables, their descriptions, and values. Each variable is an index of several survey items measuring different aspects of the variable. Questions for level of training received, understanding of certification requirements and recommendations, and changes made in farming practices because of certification were asked in relation to nine topics that are central to certification. The topics were farm establishment and rehabilitation, farm management and maintenance, soil management and fertilization, integrated pest management and crop protection, harvest and post-harvest practices, safe and healthy farm practices, workers' rights, including child labor and informal workers, waste management, and environment and natural resource protection.

For *level of training*, farmers were asked the number of times they have been trained on each topic, and the last time they were trained. The number of times trained was rescaled to range between zero and one by dividing each observation by the maximum value for the sample. Last time trained was rescaled from four categories (within one year, within three years, more than three years, and never) to a value of 1 (within three years) and 0 (more than three years or never). Therefore, level of training received is a sum of all 18 items and ranges from 0 to 18. For *understanding of requirements and recommendations*, and *changes in farming practices*, a single question representing each was asked on a five-point Likert scale for all nine topics. For *understanding of requirements and recommendations*, a Likert scale indicates the extent to which a farmer (dis)agrees that they understand certification requirements and recommendations regarding each topic. *Changes in farming practices* indicates the extent to which a farmer (dis)agrees they have made changes in their farming practices because of their participation in certification. Therefore, the *understanding of requirements and recommendations*, and *changes in farming practices* represent averages of the nine items and ranges from one to five.

Group decisions combines two questions each asked in relation to nine topics that are central to the management of Fairtrade certified farmer groups. Using a five-point Likert scale, one question asked farmers the extent to which they (dis)agree with group decisions, and the other asked the extent to which group members are involved in group decision-making. Each question was asked for group decisions regarding amount paid as price premium, distribution of price premium among various uses, time of paying price premium, selling of certified cocoa beans, meetings (frequency, days, times, venue, duration etc.), membership fees and other payments, internal inspection, external auditing, and certification requirements and

recommendations. Therefore, the variable *group decisions* represents an average of all 18 items and ranges from one to five.

The *inspections* variable combines two questions each asked in relation to internal and external auditors: number of times inspected, and last time inspected. The number of times inspected was rescaled to range between zero and one by dividing each observation by the maximum value for the sample. Last time inspected was rescaled from four categories (within one year, within three years, more than three years, and never) to a value of 1 (within three years) and 0 (more than three years or never). Therefore, the *inspections* variable ranges from zero to two.

Sales and price premium is a combination of three questions: percentage of certified produce sold as certified in the last 12 months, whether farmer received price premium in the last 12 months, and the amount of money received as price premium in the last 12 months. Percentage of certified produce sold as certified, and amount of money received as price premium were rescaled to range from zero to one by dividing each observation by the maximum value of the sample. Whether or not farmer received price premium was measured with 1 for "Yes" and 0 for "No". Therefore, the variable *sales and price premium* is a sum of all three items and ranges from zero to three.

Knowledge of price premium is a combination of four questions, all using 1 for "Yes" and 0 for "No". One question asked farmers whether they know the rationale of the price premium. Another asked whether farmers know if their certified group uses the group's price premium on six items: community development project(s), purchase/subsidize inputs and services, group management, defray group certification costs, pay price premium to members, and other purposes. The two other questions asked whether farmers know if certified group member

colleagues received price premium in the last 12 months, and the amount of money their colleagues received. Therefore, *knowledge of price premium* is a sum of nine items and ranges from zero to nine.

Using a five-point Likert scale, farmers were asked to indicate the extent to which they (dis)agree with various statements regarding intermediary companies' interests in certification, requirements, and recommendations of certification, and expected and realized benefits of certification. *Perception of intermediary companies' interests* had eight items: wellbeing of smallholder farmers, environmental and social responsibility, profit, competition, reputation, corporate social responsibility, and external auditing and auditors. *Perception of requirements and recommendations* of certification had 10 items, which were the same as those listed above under training received. *Expected benefits* and *realized benefits* had the same 11 items: improvement in farm management; improvement in awareness of environmental protection and farm environmental conditions; improvement in output; access to price premium and increased income; improvement in awareness of labor rights and conditions of workers and children; access to credit/financial assistance; improvement in knowledge of safety and healthy farm practices; access to farm inputs; community infrastructure development; access to market/buyer requested certification; and access to extension services. All three variables therefore represent averages of all the items for each and range from one to five.

Table 3.3: Description of regression variables

Variable	Description	Values
Level of training	Number of times trained on various topics (9), rescaled from continuous to 0–1: observation divided by maximum value for the sample Last time trained on various topics (9): rescaled from 1–4 to 1=within 3 years; and 0=more than 3 years, and never	Sum of all items; ranges from resulting in 0 (0 for each of 18 items) – 18 (1 for each of 18 items)
Understanding of requirements and recommendations	Farmers' level of understanding of sustainability certification requirements and recommendations regarding various topics, measured on 1-5 Likert scale *(To what extent do you agree or disagree with the following statements**?** I understand sustainability certification requirements regarding…)*	Average for all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)
Changes in farming practices	Extent to which farmers have made changes in their farming practices regarding various sustainable practices (9) because of sustainability certification, measured on a 1–5 Likert scale *(To what extent do you agree or disagree with the following statements**?** Because of sustainability certification, I have made changes in my farming practices regarding…)*	Average of all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)
Group decisions	Farmers' level of agreement with group decisions on various topics (9), measured on a 1–5 Likert scale *(To what extent do/did you agree or disagree with decisions of the organization regarding**…**?)* Extent to which group members are engaged in decision-making, on various topics (9), measured on a 1–5 Likert scale *(To what extent do you agree or disagree that members of the organization are/were engaged in decision-making regarding…?)*	Average of all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)
Inspections	Number of times inspected by internal and external auditors, rescaled from continuous to 0–1: observation divided by maximum value for the sample Last time inspected by internal and external auditors, rescaled from 1–4 to 1=within 3 years; and 0=more than 3 years, and never	Sum of all items; ranges from 0 (0 for each of 4 items) to 4 (1 for each of 4 items)

Table 3.3 (cont'd)

Sales and price premium	Amount of certified produce sold as certified in the last 12 months, rescaled from percentage to 0–1: observation divided by maximum value for the sample Farmer received price premium in the last 12 months, 1=Yes; 0=No Amount of price premium received per unit in the last 12 months, rescaled from continuous to 0–1: observation divided by maximum value for the sample	Sum of all items; ranges from 0 (0 for each of 3 items) to 3 (1 for each of 3 items)
Knowledge of price premium	Farmer knows extra income received is price premium, 1=Yes; 0=No Farmer knows that group uses price premium on each of 6 items, 1=Yes; 0=No Farmer knows that other group members received price premium in the last 12 months, 1=Yes; 0=No Farmer knows how much other group members received as price premium, 1=Yes; 0=No	Sum of all items; ranges from 0 (0 for each item) to 9 (1 for each item)
Perception of intermediary companies' interests	Extent to which farmers (dis)agree that intermediary companies involved in certification are concerned about various sustainability and profitability interests, measured using 8 items on a 1–5 Likert scale, 6 items were reverse coded so that all items are in the same direction	Average of all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)
Perception of requirements and recommendations	Extent to which farmers (dis)agree with various requirements and recommendations of certification, measured using 10 items on a 1–5 Likert scale	Average of all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)
Expected benefits	Extent to which farmers (dis)agree that they initially expected certification to be beneficial in several ways, measured using 11 items on a 1–5 Likert scale	Average of all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)
Realized benefits	Extent to which farmers (dis)agree that certification has been beneficial in several ways, measured using 11 items on a 1–5 Likert scale	Average of all items; ranges from 1 (agree strongly for all) to 5 (disagree strongly for all)

Table 3.3 (cont'd)

Control Variables		
Exogenous		
Male	Respondent is male	1/0
Migrant	Respondent was born in current community	1/0
Leader, Self	Respondent holds a leadership position in community	1/0
Leader, HH Member	A household member of respondent holds a leadership position	1/0
Leader, Acquaintance	A close acquaintance of respondent holds a leadership position	1/0
Age	Age in completed years	18+
Education	Number of years of formal education completed	0+
Potentially Endogenous		
Membership years	Number of years since joining certified farmer group	0+
HH Income	Household income in the last 12 months	0+
Income share	Share of household income (12 months) from certified crop	1+
Expenditure	Household expenditure on food, water, energy for cooking and lighting, and rent in the last 30 days	1+
Farms	Number of separate pieces of land household currently cultivates	1+
Farms size	Total size of all pieces of land household cultivates	1+
Crop farms size	Size of total land cultivated with certified crop	1+

Data analyses

One-way ANOVA and Kruskal-Wallis tests were used to test for differences across the four crops for the index variables in Table 3.3. The univariate tests of differences in each index could mask the fact that some of the differences are due to the fact that the characteristics of farmers that grow a particular crop could be different across crops, and it may be that the differences in the univariate tests are fully driven by the possible differences in the farmers and the farms. To account for this, multiple regression analyses with control variables were used to compare each of the three other crops to cocoa for each of the indices in Table 3.3. Thus, there are $j = 1\ldots23$ regressions that are specified as follows:

$$Y_j = \beta_{j,Pineapple} T_{Pineapple} + \beta_{j,Orange} T_{Orange} + \beta_{j,Cashew} T_{Cashew} + \gamma_j \boldsymbol{X_i} + \varepsilon_{ij}$$

where Y_j is the dependent variable representing each index j, ε_{ij} *are error terms, and* each of the T_c are treatment dummy variables to measure the difference of each crop c from the score for cocoa. In each regression, $\boldsymbol{X_i}$ is the vector of control variables that includes a constant and characteristics of farmer i their farm. The controls are divided into a set of variables we expect are exogenous to the decision-making of a farmer, such as age, and a set that are potentially endogenous to the farmer decision-making, such as income or farm size.

Results

Descriptive statistics

Results of the household survey are first presented with the the descriptive statistics and univariate tests for differences shown in Table 3.4. The first column of the table shows the index variables, while the next four columns show the means and standard deviations (in parentheses) for cocoa, pineapple, orange, and cashew respectively. The last column shows the test statistics and significance levels of the various tests of differences. In general, the results show that within each of the four crops, how certification works differs from one component to the other. Also, it is shown that only two of the 11 index variables do not have significant differences across the four crops. Again, cocoa farmers generally report more positive experiences, orange farmers have more negative experiences, while pineapple and cashew farmers are in-between. The detailed results are presented along with intra and inter-crop comparisons.

Comparing certification components within each crop

Cocoa farmers report high degree (4.71 of 5) of understanding of certification requirements and recommendations, and report they have made a lot (4.73 of 5) of changes in farming practices because of participation in certification. They also report they agree (4.23 of 5) with

their certified groups' decisions and group members are involved in decision-making. Again, they have positive perceptions of certification requirements and recommendations (4.79 of 5), expected benefits (4.29 of 5) and realized benefits of certification (4.20 of 5). However, they score about 50% on level of training received, as well as sales of certified beans and receipt of price premium. They report low levels of compliance verification (1.09 of 4) and knowledge of the use of price premium (3.63 of 9). They also have somewhat negative (2.45 of 5) perceptions of the interests that intermediary companies have in certification.

Pineapple farmers score 10.7 of 18 on level of training received; reported a high degree (4.80 of 5) of understanding of certification requirements and recommendations; and have made many (4.65 of 5) of changes in their farming practices because of their participation in certification. They also agree (4.26 of 5) with group decisions and that group decision-making involves all members. Again, they have positive perceptions of certification requirements and recommendations (4.79 of 5), expected benefits of certification (4.30 of 5) and realized benefits of certification (4.17 of 5). On the other hand, they score 2.03 of 4 on compliance verification, and very low (0.57 of 3) on sales of certified produce and price premium receipt. They also report very low (1.37 of 9) knowledge of price premium usage and have somewhat negative (2.47 of 5) perceptions of the interests that intermediary companies have in certification.

Orange farmers say they fairly (3.75 of 5) understand certification requirements and recommendations and have made a fair (3.75 of 5) number of changes in their farming practices because of their participation in certification. They also have somewhat positive (4.06 of 5) perception of expected benefits of certification but are neutral towards group decisions (3.48 of 5) and their perceptions of certification requirements and recommendations (3.57 of 5). However, they have somewhat negative perceptions of the interests of intermediary companies

in certification (2.63 of 5) and realized benefits of certification (2.56 of 5). Again, they score very low on level of training received (3.77 of 18), compliance verification (0.55 of 4), sales and price premium (0.41 of 3), and knowledge of price premium usage (0.28 of 9).

Cashew farmers have a high degree (4.72 of 5) of understanding of certification requirements and recommendations and have made many (4.32 of 5) of changes in their farming practices because of their participation in certification. Also, they have positive perceptions about certification requirements and recommendations (4.73 of 5) and expected benefits (4.30 of 5). They, however, score a little below 50% (8.15 of 18) on level of training received and are neutral towards group decisions (3.18 of 5) and their perceptions of realized benefits of certification (3.49 of 5). Again, they score very low on compliance verification (0.86 of 4), sales and price premium (0.16 of 3), and knowledge of price premium usage (0.22 of 9) as well as have negative (2.35 of 5) perceptions of intermediary companies' interests in certification.

Comparing differences across crops

Farmers of all four crops have positive perceptions of the expected benefits of certification. In contrast, they all score very low on knowledge of price premium usage, and of the four cocoa farmers score more than pineapple and orange, and cashew average close to zero on the 9 item scale.

For level of training received, orange farmers score very low while others at least score close to 50%. Also, orange farmers fairly understand certification requirements and recommendations while others have high degree of understanding of them. They again have made a fair number of changes in their farming practices while others have made many changes. Orange farmers are the only ones with neutral perception of certification requirements

and recommendations, the other are higher, and orange farmers have somewhat negative perception of realized benefits of certification while the other are somewhat positive (cashew) or positive (cocoa and pineapple). Cocoa farmers score just over 50% on sales and price premium while all others score below very low or close to zero (Cashew). Pineapple farmers are the only ones that scored more than 50% on level of training received and also scored ~50% on compliance verification. Cashew farmers stand out on issues regarding price premiums as they score close to zero on sales and price premium and knowledge of price premium usage.

Table 3.4: Descriptive statistics of index and regression control variables

Variables	Mean (SD) Cocoa n=104	Pineapple n=97	Orange n=82	Cashew n=74	F or $\chi 2$
Index Variables					
Level of training (0-18)	9.18 (2.73)	10.70 (2.37)	3.77 (4.22)	8.15 (3.26)	77.32***
Understanding of requirements and recommendations (1-5)	4.71 (0.46)	4.80 (0.38)	3.75 (0.96)	4.72 (0.45)	89.83***
Changes in farming practices (1-5)	4.73 (0.46)	4.65 (0.52)	3.75 (0.94)	4.32 (1.03)	71.92***
Group decisions (1-5)	4.23 (0.73)	4.26 (0.70)	3.48 (0.70)	3.18 (1.13)	90.23***
Inspections (0-4)	1.09 (0.94)	2.03 (0.62)	0.55 (0.89)	0.86 (0.89)	52.37***
Sales and price premium (0-3)	1.58 (0.89)	0.57 (0.59)	0.41 (0.52)	0.16 (0.31)	89.86***
Knowledge of price premium (0-9)	3.63 (2.07)	1.37 (1.45)	0.28 (0.65)	0.22 (0.60)	119.43***
Perception of intermediary companies' interests (1-5)	2.45 (0.40)	2.47 (0.51)	2.63 (0.59)	2.35 (0.60)	5.79
Perception of requirements and recommendations (1-5)	4.79 (0.34)	4.79 (0.39)	3.57 (0.96)	4.73 (0.43)	108.41***
Expected benefits (1-5)	4.29 (0.74)	4.30 (0.70)	4.06 (0.82)	4.30 (0.78)	5.36
Realized benefits (1-5)	4.20 (0.65)	4.17 (0.67)	2.56 (0.78)	3.49 (0.70)	161.28***
Control Variables					
Male	0.69 (0.46)	0.90 (0.31)	0.67 (0.47)	0.64 (0.48)	11.38***
Migrant	0.50 (0.50)	0.27 (0.45)	0.28 (0.45)	0.20 (0.40)	14.27***
Leader-Self	0.29 (0.46)	0.37 (0.49)	0.52 (0.50)	0.34 (0.48)	8.12**
Leader–HH Member	0.13 (0.33)	0.09 (0.29)	0.30 (0.46)	0.07 (0.25)	8.51**
Leader–Acquaintance	0.63 (0.49)	0.67 (0.47)	0.70 (0.46)	0.62 (0.49)	0.98
Age	51.44 (14.48)	49.14 (10.63)	56.87 (10.49)	55.52 (13.54)	7.29***
Education	7.67 (4.10)	8.16 (3.66)	7.56 (4.05)	4.49 (4.13)	14.03***
Membership years	5.24 (2.89)	9.85 (6.89)	6.28 (4.26)	5.08 (3.46)	21.06***

Table 3.4 (cont'd)

HH Income	12, 262	18,580	9,472	7,052	9.20***
	(12874)	(21876)	(9634)	(13270)	
Income share	68.46	65.28	17.10	41.78	71.69***
	(23.41)	(30.08)	(19.33)	(32.41)	
Expenditure	477	714	545	708	11.22***
	(280)	(427)	(302)	(344)	
Farms	2.32	1.91	2.98	2.77	10.92***
	(1.32)	(0.94)	(1.68)	(1.41)	
Farms size	11.15	5.69	12.68	12.35	9.56***
	(8.10)	(6.24)	(14.03)	(11.34)	
Crop farm size	9.54	4.32	4.49	10.22	18.00***
	(7.75)	(5.47)	(4.47)	(9.54)	

Note: *** p<0.01, ** p<0.05, * p<0.1

Regression estimates

The results of the two regression models are presented in Table 3.5. The first column of the table shows the index variables, while second to fourth columns of Table 3.5 show the results of the regression model that excludes potentially or definitely endogenous control variables. The last three columns of Table 3.5 show the regression estimates from the model containing all the control variables.

Across the two models the results are consistent with many of the univariate analysis but show some variation. For level of training received, the model with all control variables (model 1 henceforth) gives no significant difference between cocoa and pineapple and cashew while the model excluding potentially or definitely exogenous variables (model 2 henceforth) does. For changes made in farming practices and perceptions of intermediary companies' interests, there are significant differences between cocoa and pineapple in model 1 but not model 2. Model 1 gives no significant difference between cocoa and cashew for perceptions of intermediary companies but model 1 does. The next three paragraphs focus on results of model 2 that are consistent with model 1.

The two models consistently give significant differences between pineapple and cocoa for four variables. In two cases, pineapple has a negative effect relative to cocoa while in the two other cases it makes positive difference. On average, a Fairtrade certified pineapple farmer received 1.22 (p=0.061) more training than a Fairtrade certified cocoa farmer. Similarly, a Fairtrade certified pineapple farmer was on average inspected by auditors 0.89 (p=0.001) more than a Fairtrade certified cocoa farmer. On the contrary, for sales and price premium, a Fairtrade certified pineapple farmer is on average 1.01 (p=0.000) less than a Fairtrade certified cocoa farmer. Similarly, a Fairtrade certified pineapple farmer on average has 2.26 (p=0.001) less knowledge of price premium usage than a Fairtrade certified cocoa farmer.

Orange and cocoa farmers have significant differences for all 11 variables, consistent across the two models, with negative effects of orange relative to cocoa except for one variable. On average, an orange farmer received 5.65 (p=0.000) less training than a cocoa farmer. An orange farmer, on average, has 1.00 (p=0.001) less understanding of certification requirements and recommendations than a cocoa farmer, and has made 1.05 (p=0.001) less changes in farming practices. Orange farmers, relative to cocoa farmers, agree 0.76 (p=0.001) less with group decisions and that members are involved with decision-making. Still, orange farmers relative to cocoa farmers have 1.13 (p=0.000) less sales and price premium, as well as 3.32 (p=0.000) less knowledge of price premium usage. Again, orange farmers have less positive perceptions of certification requirements and recommendations (1.27, p=0.000), expected benefits of certification (0.27, p=0.082), and realized benefits of certification (1.61, p=0.000) than cocoa farmers. The only exception is that orange farmers have less negative perception of intermediary companies' interests.

Cashew and cocoa farmers differ significantly on six variables, with cashew having negative effects in all cases. Cashew farmers on average received 1.20 (p=0.059) less training than cocoa farmers. Also, a cashew farmer has made 0.36 (p=0.001) less changes in farming practices and agrees 1.06 (p=0.000) less with group decisions and that members are involved with decision-making. Similarly, for sales and price premium, a cashew farmer is on average 1.42 (p=0.000) less than a cocoa farmer and has 3.22 (p=0.000) less knowledge of price premium usage. Again, cashew farmers have 0.58 (p=0.013) less positive perceptions of realized benefits of certification than cocoa farmers.

Table 3.5: Estimates of multiple OLS regressions

	All control variables			Exogenous control variables		
Dependent variables	**Pineapple (n=104)**	**Orange (n=97)**	**Cashew (n=82)**	**Pineapple (n=104)**	**Orange (n=97)**	**Cashew (n=82)**
Level of training received *(0-18)*	0.39 (0.59)	-4.82*** (1.14)	-0.72 (0.65)	1.22* (0.59)	-5.65*** (1.06)	-1.20* (0.57)
Understanding of requirements and recommendations *(1-5)*	-0.22 (0.15)	-0.98*** (0.22)	-0.01 (0.11)	0.02 (0.19)	-1.00*** (0.24)	0.03 (0.11)
Changes made in farming practices *(1-5)*	-0.32*** (0.10)	-1.09*** (0.22)	-0.46*** (0.08)	-0.14 (0.10)	-1.05*** (0.23)	-0.36*** (0.08)
Group decisions *(1-5)*	-0.10 (0.09)	-0.62*** (0.16)	-1.02*** (0.13)	0.04 (0.10)	-0.76*** (0.17)	-1.06*** (0.15)
Inspections *(0-4)*	0.64** (0.24)	-0.48 (0.28)	-0.17 (0.23)	0.89*** (0.21)	-0.48 (0.28)	-0.17 (0.23)
Sales and price premium *(0-3)*	-0.97*** (0.22)	-1.01*** (0.20)	-1.39*** (0.19)	-1.01*** (0.19)	-1.13*** (0.20)	-1.42*** (0.18)
Knowledge of price premium usage *(0-9)*	-2.36*** (0.41)	-3.20*** (0.42)	-3.23*** (0.36)	-2.26*** (0.48)	-3.32*** (0.49)	-3.22*** (0.43)
Perception of intermediary companies' interests *(1-5)*	0.16* (0.08)	0.23** (0.10)	0.06 (0.06)	0.07 (0.07)	0.18*** (0.06)	-0.10* (0.05)
Perception of requirements and recommendations *(1-5)*	-0.18 (0.11)	-1.32*** (0.19)	-0.10 (0.10)	-0.04 (0.14)	-1.27*** (0.14)	-0.03 (0.10)
Expected benefits of sustainability certification *(1-5)*	-0.19 (0.17)	-0.27 (0.19)	-0.03 (0.14)	-0.0 (0.13)	-0.27* (0.14)	0.03 (0.13)
Realized benefits of sustainability certification *(1-5)*	-0.29 (0.26)	-1.50*** (0.17)	-0.58*** (0.18)	-0.04 (0.36)	-1.61*** (0.11)	-0.58*** (0.11)

Note: Cocoa is used as the base for comparison; *** p<0.01, ** p<0.05, * p<0.1

Discussions

Certification in practice, and farmers' perceptions

For certification programs to succeed, smallholder farmers need to among other things understand practices they are required or recommended to adopt, and accordingly make changes in their farming practices. The study finds that experiences of Fairtrade certified farmers in the survey communities are encouraging in these regards. Fairtrade certified farmers mostly report good understanding of certification requirements and recommendations as well as have made a lot of changes in their farming practices because of their participation in certification. These are interesting findings as there have been concerns of smallholder farmers' inability to adequately comprehend what certification is about (Smith 2010; Lemeilleur et al., 2015). Meanwhile, these findings support more recent literature indicating that smallholder farmers' limited understanding of certification has more to do with the general concepts rather than specific required and recommended practices (Meemken, Veettil, & Qaim, 2017; Glasbergen, 2018). It is also important to note that these are in tandem with the finding that Fairtrade certified farmers mostly receive good levels of training on required and recommended practices.

Another component of certification that determines its success is compliance verification. For this, the study relied on details outlined in Ansah, Kaplowitz, Lupi, & Kerr, (2020) on how compliance verification is expected to be conducted with the help of various stakeholders. Mainly, certified farmer groups are expected to use their internal management/control system to conduct internal inspections to prepare members for auditing by third-party certifiers. The study finds that Fairtrade certified farmers in the survey communities are not adequately inspected (internally and by third-party certifiers) to verify their compliance with certification requirements and recommendations. This suggests that compliance verification is probably not

being conducted with due diligence. Meanwhile, failure to appropriately verify certified farmers for compliance with certification requirements and recommendations undermines the credibility of such programs. For example, it tends to support assertions that some stakeholders use certification programs only to greenwash and do not give needed attention to the letter and spirit of such programs (Auld, Gulbrandsen, & McDermott, 2008; Jaffee, 2012; Smyth, 2014; Waldman & Kerr, 2014).

Again, at the heart of certification is the expectation that certified smallholder farmers will receive a price premium for their produce to compensate for the extra cost of adopting required and recommended practices. Here too, the study drew on Ansah, Kaplowitz, Lupi, & Kerr, 2020 to understand Fairtrade's principles on the management of price premium. The study finds that Fairtrade certified farmers are not able to adequately sell their certified produce and accordingly receive price premium. This is a disturbing finding considering that selling certified produce as such and receiving price premium accordingly is an important way by which smallholder farmers get compensated for their extra cost and efforts. Meanwhile, challenges with the sale of certified produce as well as price premiums have been long identified with certification programs (Ruben & Fort, 2012). But it is particularly worrying for these to persistently be identified with Fairtrade certified farmers because these are the very issues Fairtrade purports to care a lot about. More so, the study finds that Fairtrade certified farmers do not know enough about how their certified farmer groups use the price premium that is collectively received. Yet, Fairtrade certified farmer groups are expected to run on democratic principles and so farmers are expected to know and participate in deciding the use of the group's price premium. Moreover, in line with Fairtrade's democratic principles, the study finds that certified farmers are generally well engaged in group decision-making and

agree with group decisions. So, it appears that certified farmers' lack of knowledge on the use of price premium is conspicuously unique.

In the interest of generating insights on how to improve smallholder farmers' buy-in for certification programs, the study sought to explore their perceptions regarding various components of certification. Like Ansah, Kaplowitz, Lupi, & Kerr, (2020), the study finds that Fairtrade certified farmers perceive the required and recommended practices under the program as worthy of the importance placed on them. They also feel positive about the benefits of certification, though more perceived benefits were expected than realized. These findings suggest that smallholder farmers stand ready to give their best for certification with the expectation that their participation will bring good to all. These are findings that disagree to some extent with the notion that smallholder farmers may consider certification to be a means of promoting and/or imposing foreign ideals (DeFries et al., 2017; Glasbergen, 2018). They are in agreement with the understanding that such a notion only applies to the general concepts of certification and that when it comes to some of the specific details of certification smallholder farmers are actually in tune. In a sharp contrast, the study finds that smallholder farmers have negative perceptions of the interests that intermediary companies have in certification. In other words, while smallholder farmers consider certification to be a good things and want to be in it for the good of all, they feel that intermediary companies are in it only for their own good.

Differences across crops

To improve implementation and scaling-up of certification, it is important to understand if and how its dynamics are affected by crop characteristics. In this regard, part of the analyses in this study sought to help answer questions regarding differences that may exist in how smallholder

farmers of different crops experience certification. The approach was a regression analysis to compare smallholder cocoa farmers with those of pineapple, orange, and cashew. Cocoa farmers in Ghana are entirely smallholders, they face a partially liberalized domestic market, and the beans they produce go through high levels of processing for the final products. Pineapple, orange and cashew are different than cocoa in one or more of these characteristics. As such, based on the hypotheses of the study, certification is expected to work differently in practice for smallholder cocoa farmers than the others, and they are expected to vary in their perceptions of certification. The results of the regression analyses largely support these hypotheses: each of the variables show significant difference between cocoa and at least one other crop; and most of the differences indicate that sustainability certification works better in practice with smallholder cocoa farmers, and they hold more positive perceptions about certification.

First, sustainable supply of cocoa beans from Ghana largely depends on smallholder farmers because cocoa production is entirely a smallholder system. Therefore, successful implementation of certification for smallholder cocoa farmers in Ghana is in the interest of all stakeholders. This could explain why the regression results show that certification works better in practice for smallholder cocoa farmers, relative to the other crops. Because production of cocoa is largely smallholder-based, additional efforts outside of certification are made to organize farmers to facilitate bulk purchase of cocoa beans. For example, LBCs typically work with groups of smallholder cocoa farmers to enable them easily aggregate cocoa beans. Such existing structures also facilitate training of smallholder cocoa farmers on certification requirements and recommendations, which likely enhances their knowledge and experiences with certification programs relative to farmers of other crops. Indeed, the regression results show that smallholder cocoa farmers have better experiences with certified-group decisions

than orange and cashew farmers, which may be indicative of the usefulness of pre-existing smallholder cocoa farmer groups. Cocoa farmers also reported greater understanding of certification requirements and recommendations than orange farmers. Similarly, relative to cashew farmers, smallholder cocoa farmers report having made more changes in their farming practices since joining certification and are more likely to view certification as beneficial.

Second, the partially liberalized domestic cocoa market in Ghana does not allow intermediary companies, LBCs, to engage in price-competition. Certification, therefore, has become a significant market tool for intermediary companies in Ghana's cocoa sector. For most intermediary companies, facilitation of certification of smallholder cocoa farmers provides an avenue to manage the sales of certified cocoa beans and the attendant price premiums as well as expand their client base. As the regression analysis shows, smallholder cocoa farmers sell more certified produce and receive more price premium than all other farmers in the survey. Hence, due to the nature of the competition in the sector, intermediary companies for cocoa have added incentive to implement certification programs in ways that enhance farmer's experiences. This may explain why smallholder cocoa farmers have better experiences with the sale of certified produce and price premium, more positive perceptions of intermediary companies' interests in certification than cashew farmers and know more about the use of the price premium that their certified groups receive than all other farmers.

Third, unlike other crops, cocoa beans go through several stages of processing before reaching the final consumer product. Hence, certified cocoa beans are subject to less stringent food safety standards and attendant farming practices than other crops. So, smallholder pineapple and orange farmers are assumed to find certification requirements and recommendations more familiar. Surprisingly, relative to smallholder cocoa farmers, orange farmers are shown to

report less positive perceptions of certification requirements and recommendations. Also, it is assumed that more robust systems would be in place for verifying compliance with food safety standards that could easily be applied to certification. This possibly explains why the regression results show that smallholder pineapple farmers are inspected more than cocoa farmers. Also, smallholder orange farmers are also shown to have, relative to cocoa farmers, made less changes in their farming practices because of their participation in certification. The assumption is that they already apply the practices for the purposes of food safety standards and so did not have to make a lot of changes when they joined certification. Still, because smallholder orange farmers may find certification as like food safety standards, they less than cocoa farmers expected it to be beneficial and believe less than cocoa farmers that it has actually been beneficial.

Finally, though not expected, the results show that smallholder pineapple farmers receive more training than cocoa farmers, who also indicate less positive perceptions of intermediary companies' interests than orange farmers. Smallholder pineapple farmers receiving more training than cocoa farmers could be explained by the fact that the pre-existence of more stringent standards means that there are already established systems for implementation. These could include systems for conducting trainings, that could be taken advantage of in working towards compliance with certification. Smallholder cocoa farmers having less positive perceptions of intermediary companies' interest than orange farmers could be explained by the fact that intermediary companies that facilitate certification for orange farmers are fewer, larger and more powerful than other spot market orange buyers. They therefore face less competition in the certification landscape and can demonstrate more commitment to the social and environmental aspects of certification. Also, they may have more resources to brand themselves more positively in the certification landscape.

Conclusions and implications for policy and research

This study sought to broaden the understanding of what enhances or impedes the impacts of certification by examining how crop characteristics affect how certification works in practice and perceptions held about it. The conclusion here is that the implementation of certification can be enhanced by drawing lessons from one context to the other. Also, treating all smallholder farmers the same under certification hides important context specific issues that need to be considered during implementation. Furthermore, the dynamics created by crop characteristics have varied effects on the different components of certification. These imply that prior to implementation, there is the need to understand the circumstances of smallholder farmers' specific contexts so that appropriate strategies can be employed to overcome hindrances. Additionally, it is important to learn about and transfer relevant enabling conditions from other context(s) to enhance implementation in another context.

APPENDICES

APPENDIX A: FARMER QUESTIONNAIRE

SUSTAINABILITY CERTIFICATION FOR SMALLHOLDER FARMERS IN GHANA

HOUSEHOLD QUESTIONNAIRE

January - February 2019

DEPARTMENT OF COMMUNITY SUSTAINABILITY
MICHIGAN STATE UNIVERSITY

Community Number	☐☐☐☐
Household Number	☐☐☐☐☐☐
Interviewer Number	☐
Interview Date: ***DD / MM / YYYY***	☐☐ ☐☐ ☐☐☐☐
Interview Start Time: ***HH:MM***	☐☐ ☐☐
Completed Questionnaire Reviewed and Approved: ***Check if yes***	☐

INFORMATION SHEET

1. Community Name
    1. Adarkwa
    2. Anwiam
    3. Asempaneye
    4. Kwaboanta
    5. Mafia
    6. Besibema
    7. Fotobi
    8. Adonten
    9. Jei River
    10. Anyinase
    11. Cannan
    12. Evalue Ankobra
    13. Kusikrom
    14. Ayisikrom
    15. Nyame Akwan
    16. Assin
    17. Ahafo

2. Crop Name
    a) Cocoa
    b) Pineapple
    c) Dry Coconut
    d) Citrus

3. Was an interpreter used for this interview?
    a) Yes
    b) No

CONSENT FORM

My name is
[INTERVIEWER NAME], I am working with a graduate student at Michigan State University. Are you at least 18 year old? [*If not, thank and terminate interview*].

You are being asked to voluntarily participate in a research study of sustainability certification programs in Ghana. If you agree to participate, I will ask you some questions about such programs, and your participation in them. The interview will take approximately one hour of your time.

You should know that your identity and responses to questions will be kept confidential. Also, your participation is voluntary and you may choose not to participate at all, refuse to answer certain questions, or stop the interview at any time without any consequences. Finally, there will be no direct benefits to respondent or community.

If you have any questions or concerns regarding your participation in this study, you may contact the researchers, or Michigan State University's Human Research Protection Program using the contact information on this Information Sheet [hand Information Sheet to respondent].

You indicate your voluntary agreement to participate in this study by beginning the interview with me. May I begin? Yes No [*If no, thank and end*]

SECTION 1: SUSTAINABILITY CERTIFICATION

BRIEFLY EXPLAIN THE CONCEPT OF SUSTAINABILITY CERTIFICATION TO RESPONDENT, AND USE THE COMMON NAME OF THE CERTIFIED [CROP] FARMER ORGANIZATION(S) WHERE APPLICABLE.

1. Have you ever been a member of any certified [CROP] farmer organization(s)?
a) Yes
b) No ***(SKIP TO Q12)***
98) Don't know
99) Refused to answer

2. What certification standard(s) is/was your organization certified/working with? *(Select all that apply)*
a) Fairtrade
b) UTZ
c) Rainforest Alliance
d) Other (specify)_____
98) Don't know
99) Refused to answer

3. Did you have to do any of the following to qualify for membership in this certified farmer organization? *(Indicate Yes or No for each)*
i) Pay membership fees
ii) Acquire training on sustainability certification standards
iii) Make changes in farming practices
iv) Other (specify)_____
98) Don't know
99) Refused to answer

4. For how many years have you been/were you a member of this organization?
(Type in number, 98 = Don't know, 99 = Refused) ☐☐

5. Are you currently a member of any certified [CROP] farmer organization(s)?
a) Yes
b) No
98) Don't know
99) Refused to answer

INTRODUCE AND EXPLAIN THE LIKERT SCALE, AND LET RESPONDENT KNOW YOU WILL USE IT FOR SEVERAL QUESTIONS.
Strongly Agree = 1; Somewhat Agree = 2; Neutral = 3; Somewhat Disagree = 4; Strongly Disagree = 5; N/A = 97; Don't know = 98; Refused to answer = 99
EXPLAIN TO RESPONDENT THAT QUESTIONS 6 TO 8 ARE MEANT TO HELP US UNDERSTAND WHAT MADE THEM JOIN CERTIFICATION, REMAIN IN IT, OR LEAVE.

6. To what extent do you agree or disagree with the following statements…? *(Use codes above)*

i) I joined certification because I expected it to improve the productivity of my farm(s)
ii) I joined certification because I expected it to improve the income I earn from farming
iii) I joined certification because I expected it to improve my access to farming inputs and services
iv) I joined certification because I expected it to improve the environmental conditions of my farm(s)
v) I joined certification because I expected it to improve community development

7. Apart from the items mentioned in Q6 above, please describe ONE other reason why you joined certification_____

(SKIP TO Q10 if Q5 = No)

8. To what extent do you agree or disagree with the following statements …? *(Use codes above)*

i) I am still in certification because it improved the productivity of my farm(s)
ii) I am still in certification because it improved the income I earn from farming
iii) I am still in certification because it improved my access to farming inputs and services
iv) I am still in certification because it improved the environmental conditions of my farm(s)
v) I am still in certification because it improved community development

9. Apart from the items mentioned in Q8 above, please describe ONE other reason why you are still in certification_____

(SKIP TO Q17)

10. To what extent do you agree or disagree with the following statements…? *(Use codes above)*

i) I left certification because it failed to provide its expected benefits
ii) I left certification because I am unwilling to remain compliant with requirements
iii) I left certification because I am unable to remain compliant with requirements
iv) I left certification because I have an issue with the certified farmer group I was a member of

11. Apart from the items mentioned in Q10 above, please describe ONE other reason why you left certification_____

(SKIP TO Q17)

12. Would you like to join a certified [CROP] farmer organization?

a) Yes
b) No ***(SKIP TO Q15)***
c) Don't know

d) Refused to answer

INTRODUCE AND EXPLAIN THE LIKERT SCALE, AND LET RESPONDENT KNOW YOU WILL USE IT FOR SEVERAL QUESTIONS.
Strongly Agree = 1; Somewhat Agree = 2; Neutral = 3; Somewhat Disagree = 4; Strongly Disagree = 5; N/A = 97; Don't know = 98; Refused to answer = 99

EXPLAIN TO RESPONDENTS THAT QUESTIONS 13 TO 16 ARE MEANT TO HELP US UNDERSTAND WHY THEY HAVEN'T JOINED OR WOULDN'T JOIN CERTIFICATION.

13. To what extent do you agree or disagree with the following statements...? *(Use codes above)*

i) I haven't joined certification because I do not know enough about it
ii) I haven't joined certification because I sell to a different buyer other than the one implementing certification in my community
iii) I haven't joined certification because I cannot afford/meet certification/membership requirements
iv) I haven't joined certification because I am unwilling to comply with certification/membership requirements
v) I haven't joined certification because I am new in this community
vi) I haven't joined certification because I do not believe certification can provide all the benefits it claims
vii) I haven't joined certification because the certified farmer organization(s) in my community is/are not accepting new members

14. Apart from the items mentioned in Q13 above, please describe ONE other reason why you haven't joined certification_____
(SKIP TO Q34)

15. To what extent do you agree or disagree with the following statements...? *(Use codes above)*

i) I wouldn't join certification because I do not know enough about it
ii) I wouldn't join certification because I sell to a different buyer other than the one implementing certification
iii) I wouldn't join certification because I cannot afford/meet certification/membership requirements
iv) I wouldn't join certification because I am unwilling to comply with certification/membership requirements
v) I wouldn't join certification because I am new in this community
vi) I wouldn't join certification because I do not believe certification can provide all the benefits it claims
vii) I wouldn't join certification because the certified farmer group(s) is no longer accepting members

16. Apart from the items mentioned in Q15 above, please describe ONE other reason why you wouldn't join certification_____
(SKIP TO Q34)

EXPLAIN TO RESPONDENTS THAT QUESTIONS 17 TO 21 ARE MEANT TO HELP US UNDERSTAND TRAINING THEY HAVE RECEIVED ON SUSTAINABLE PRACTICES AS A RESULT OF THEIR PARTICIPATION IN SUSTAINABILITY CERTIFICATION, THEIR LEVELS OF UNDERSTANDING FOR SUSTAINABLE PRACTICES, AND CHANGES THEY MAY HAVE MADE IN THEIR FARMING PRACTICES AS A RESULT OF THEIR PARTICIPATION IN SUSTAINABILITY CERTIFICATION.					
	17. How many times has your certified [CROP] farmer organization offered you training on sustainable practices regarding **…**? *(Type in Number)* ***(SKIP TO 19 IF 0)***	**18.** When was the last time your certified [CROP] farmer organization offered you training on sustainable practices regarding **…**? *(Use Codes Below)*	**19.** Briefly describe one specific sustainable practice regarding…	**20.** To what extent do you agree or disagree with the following statements**?** I understand sustainability certification requirements regarding…*(Use Codes Below)*	**21.** To what extent do you agree or disagree with the following statements**?** Because of sustainability certification, I have made changes in my farming practices regarding…*(Use Codes Below)*
…farm establishment and rehabilitation					
…farm management and maintenance					
…soil management and fertilization					
…integrated pest management and crop protection					
…harvest and post-harvest practices					
…safe and healthy farm practices					
…workers' rights,					

including child labor and informal workers					
…waste management					
…environment and natural resource protection					

Codes for Q 18: *a) Never; b) More than three years ago; c) Within the last three years but more than a year ago; d) Within the last year; 98) Don't know; 99) Refused to answer*
Codes for Q 20 & 21: *Strongly Agree = 1; Somewhat Agree = 2; Neutral = 3; Somewhat Disagree = 4; Strongly Disagree = 5; N/A = 97; Don't know = 98; Refused to answer = 99*

EXPLAIN INTERNAL AND EXTERNAL INSPECTIONS, AND LET RESPONDENT KNOW THAT QUESTIONS 22 TO 31 ARE MEANT TO HELP US UNDERSTAND COMPLIANCE VERIFICATION.

22. How many times have you been inspected by internal inspectors? ☐☐
(SKIP TO 24 IF 0)

23. When was the last time your farm was inspected by internal inspectors? *(Select only one)*
a) Never
b) More than three years ago
c) Within the last three years but more than a year ago
d) Within the last year
98) Don't know
99) Refused to answer

24. How many times have you been inspected by external auditors? ☐☐
(SKIP TO 26 IF 0)

25. When was the last time your farm was inspected by external auditors? *(Select only one)*
a) Never
b) More than three years ago
c) Within the last three years but more than a year ago
d) Within the last year
98) Don't know
99) Refused to answer

26. Have you ever been notified about noncompliance?
a) Yes
b) No ***(SKIP TO Q32)***

27. When were you determined to be noncompliant? *(Select all that apply)*
a) During internal inspection
b) During external inspection

c) Other (specify)_____

28. What was the noncompliance about? *(Select all that apply)*
a) Farm establishment and rehabilitation
b) Farm management and maintenance
c) Soil management and fertilization
d) Integrated pest management and crop protection
e) Harvest and post-harvest practices
f) Safe and healthy farm practices
g) Workers' rights, including child labor and informal workers
h) Waste management
i) Environment and natural resource protection
j) Other (specify)_____

29. Are you still noncompliant?
a) Yes ***(SKIP TO Q32)***
b) No

30. Please explain the actions you took to become compliant?
_____
_____
_____

31. Who guided you in taking actions to become compliant?
a) Internal Control/Management System team
b) External agent
c) Certified group colleague farmer
d) Noncertified colleague farmer
e) No one
f) Other (specify)_____

REMIND RESPONDENT OF THE MEANING AND USE OF THE LIKERT SCALE
Strongly Agree = 1; Somewhat Agree = 2; Neutral = 3; Somewhat Disagree = 4; Strongly Disagree = 5; N/A = 97; Don't know = 98; Refused to answer = 99

EXPLAIN TO RESPONDENTS THAT QUESTIONS 32 AND 33 ARE MEANT TO HELP US UNDERSTAND HOW THEY VIEW DECISION-MAKING IN THEIR CERTIFIED FARMER ORGANIZATION.

ISSUE	**32.** To what extent do/did you agree or disagree with decisions of the organization regarding **[ISSUE]**? *(Use Codes Above)*	**33.** To what extent do you agree or disagree that members of the organization are/were engaged in decision-making regarding **[ISSUE]**? *(Use Codes Above)*
Amount paid as price premium		
Distribution of price premium among various uses		
Time of paying price premium		

Selling of certified cocoa beans		
Meetings (frequency, days, times, venue, duration etc.)		
Membership fees and other payments		
Internal inspection		
External auditing		
Requirements for cocoa certification		

34. What are the main issues of interest to [CROP] certification? ***DO NOT PROMPT*** *(Select all that apply)*

a) Conserving/protecting natural resources
b) Improving farmers output and income
c) Eliminating child labor
d) Improving working conditions of farm workers
e) Community development
f) Other (specify)_____
98) Don't know
99) Refused to answer

REMIND RESPONDENT OF THE MEANING AND USE OF THE LIKERT SCALE
Strongly Agree = 1; Somewhat Agree = 2; Neutral = 3; Somewhat Disagree = 4; Strongly Disagree = 5; N/A = 97; Don't know = 98; Refused to answer = 99

EXPLAIN TO RESPONDENTS WHAT INTERMEDIARY COMPANIES ARE, AND THAT QUESTION 35 IS MEANT TO HELP US UNDERSTAND THEIR VIEWS ON INTERMEDIARY COMPANIES AND THEIR INVOLVEMENT IN THE IMPLEMENTATION OF SUSTAINABILITY CERTIFICATION.

35. To what extent do you agree or disagree with the following statements…? *(Use codes above)*

i) Intermediary companies care about the wellbeing of smallholder farmers
ii) Intermediary companies care about environmental and social sustainability
iii) Being involved in sustainability certification helps intermediary companies to make more profit
iv) Being involved in sustainability certification helps intermediary companies to be more competitive
v) Being involved in sustainability certification gives intermediary companies better reputations
vi) Being involved in sustainability certification helps intermediary companies to fulfill their corporate social responsibility
vii) Intermediary companies can be negatively affected by the work of external auditors
viii) Intermediary companies try to influence the work of external auditors

REQUIREMENTS	**36.** To what extent do you agree or disagree with **[REQUIREMENT]** as a requirement for certification? *(Use codes below)*	
Farm establishment and rehabilitation		
Farm management and maintenance		
Soil management and fertilization		
Integrated pest management and crop protection		
Harvest and post-harvest practices		
Safe and healthy farm practices		
Workers' rights, including child labor and informal workers		
Waste management		
Environment and natural resource protection		
Organization for implementation		
BENEFITS	**37.** To what extent do you agree or disagree that you expected certification To bring about **[BENEFIT]**? *(Use codes below)*	**38.** To what extent do you agree or disagree that certification has brought about **[BENEFIT]**? *(Use codes below)*
Improvement in farm management		
Improvement in awareness of environmental protection and farm environmental conditions		
Improvement in output		
Access to price premium and increase income		
Improvement in awareness of labor rights and conditions of workers and children		
Access to credit/financial assistance		
Improvement in knowledge of safety and healthy farm practices		
Access to farm inputs		
Community infrastructure development		
Access to market/buyer requested certification		
Access to extension services		
Codes: ***Strongly Agree = 1*** ***Somewhat Agree = 2*** ***Neutral = 3*** ***Somewhat Disagree = 4*** ***Strongly Disagree = 5*** ***97 = N/A*** ***98 = Don't know*** ***99 = Refused to answer***		

SECTION 2: HOUSEHOLD FARMING

39. How many separate farm(s) does your household cultivate? *(Type in number, 98 = Don't know, 99 = Refused to answer)*

Question	**Farm1**	**Farm2**	**Farm3**	**Farm4**	**Farm5**
Farm Number					
40. Do you own, rent or sharecrop this farm? *(Write Code)* *1.Own 2.Rent 3.Sharecrop 98 Don't know 99 Refused to answer*					
41. What is the size of this farm? *Number* ***Unit Codes*** *1.Acres 2.Poles 3.Ropes 4.Hectares* *98 Don't know 99 Refused to answer* *Unit*					
42. How many different crops are currently cultivated on this farm?					
43. Which crops are currently cultivated on this farm? *(Use Codes Below, Select all that apply)*					
44. What is the size of the part of this farm planted with **[CROP]**? *Number* ***Unit Codes*** *1.Acres 2.Poles 3.Ropes 4.Hectares 98 Don't know* *99 Refused to answer* ***(SKIP TO NEXT FARM IF 0 for Cocoa)*** *Unit*					
45. How old is a typical cocoa tree on this farm? *Type in Number of Years, 98 = Don't know, 99 = Refused to answer*					
46. Are any of the cocoa trees on this farm of the hybrid variety? *1.Yes 2.No 98 Don't know* *99 Refused to answer*					
47. Are the cocoa trees on this farm planted in rows, using lining and pegging? *1.Yes 2.No 98 Don't know* *99 Refused to answer*					

01. Cocoa 08. Colanut 15. Kenaf 22. Oil palm 29. Sugar cane
02. Avocado Pear 09. Coffee 16. Leafy vegetables 23. Pawpaw 30. Tobacco
03. Bananas 10. Colocasia 17. Mango 24. Pepper 31. Tomatoes
04. Beans/Peas 11. Cotton 18. Maize 25.

Pineapple	*32. Yam*		
05. Cassava	*12. Groundnut/Peanut*	*19. Okro*	*26. Plantain*
	33. Another crop write in:		
06. Cocoyam	*13. Guinea Corn/ Sorghum Millet*	*20. Onion*	*27. Potatoes/Sweet potato*
07. Coconut	*14. Garden egg/ Eggplant*	*21. Oranges*	*28. Rice*

48. In the last 12 months, how much **[CROP]** did you harvest from all of your farms?

Amount ☐☐☐

Unit (Use codes below)[2] ☐

(SKIP TO Q59 IF Q1 OR Q2 IS "NO")

49. What amount of this total **[CROP]** harvest was produced as certified?

Amount ☐☐☐

Unit (Use codes below) ☐

50. What amount of this certified **[CROP]** did you sell as certified?

Amount ☐☐☐

Unit (Use codes below) ☐

(SKIP TO Q52 IF EQUAL TO Q49)

51. Why did you sell some of your certified **[CROP]** as conventional?

(Select all that apply)

a) Certified buyer rejected produce
b) Certified buyer was not available
c) Certified buyer did not have money
d) Another reason (specify)_____
98) Don't know
99) Refused to answer

51B. Have you ever sold some of your **[CROP]** as certified?

a) Yes ***(SKIP TO Q52)***
b) No
98) Don't know
99) Refused to answer

51C. As a member of a certified **[CROP]** farmer organization(s), why have you never sold any of your **[CROP]** as certified? Please explain_____

EXPLAIN TO RESPONDENTS WHAT PRICE PREMIUM IS, AND THAT QUESTIONS 52 TO 58 ARE MEANT TO HELP US UNDERSTAND THEIR KNOWLEDGE OF, AND EXPERIENCE WITH PRICE PREMIUMS.

[2] Bag = 1; Bunch = 2; Single = 3; Other (specify) = 4; Don't Know = 98; Refused to answer = 99

52. Do you know if your certified farmer organization receives money as a result of your collective participation in sustainability certification?

a) Yes
b) No ***(SKIP TO Q54)***
98) Don't know
99) Refused to answer

53. Do you know what the money your certified farmer group receives as a result of your collective participation in sustainability certification is used for? *(Select all that apply)*

a) Yes - Community development project(s)
b) Yes - Purchase/subsidize inputs and services
c) Yes - Group management
d) Yes - Defray group certification costs
e) Yes – Pay extra money to members on top of the regular price for their produce
f) Yes – other (specify)_____
g) No
98) Don't know
99) Refused to answer

54. In the last 12 months, did you receive any extra money for your produce on top of the regular price that uncertified farmers receive?

a) Yes
b) No
98) Don't know
99) Refused to answer

55. In the last 12 months, how much did you receive as price premium on your certified [CROP]?

Per unit: ☐☐☐ *OR* *Total:* ☐☐☐

56. Do you know whether or not the extra money you received was as a result of your participation in sustainability certification?

a) Yes
b) No
98) Don't know
99) Refused to answer

57. Do you know if other members of your certified farmer group received similar extra money on top of the regular price for their produce?

a) Yes
b) No
98) Don't know
99) Refused to answer

58. Do you know how much other members of your certified farmer group received as extra money on top of the regular price for their produce?

a) Yes
b) No
98) Don't know
99) Refused to answer

SECTION 3: HOUSEHOLD AND INDIVIDUAL CHARACTERISTICS

59. Name (*Type in only common name*)	**60.** ID	**61.** Gender *1 = Male 2 = Female 98 = Don't know 99 = Refused to answer*	**62.** Age (*years) 98 = Don't know 99 = Refused to answer*	**63.** What is *(NAME'S)* relationship to the household head?	**64.** How many years of schooling has (*NAME*) completed? ***(SKIP TO Q66 IF 0)*** *98 = Don't know 99 = Refused*	**65.** Is (*NAME*) currently enrolled in school? *Yes – 1* ***(SKIP to Q67)*** *No – 2*	**66.** What is the main reason why *(NAME)* is not or has never been enrolled in school? *(Use codes below)* ***(SKIP to Q69)***	**67.** How many days of school did (*NAME*) miss in the last two weeks	**68.** What is the main reason why *(NAME)* missed school? *(Use codes below)*

PART A: DEMOGRAPHICS

Q 63: Relationship Codes	***Q 66 & 68: School enrolment and absent codes***
1……..Household head	1…….Disability/Illness
2……Spouse	2……...No School/School too far
3……...Child	3……..Cannot afford school
4……Step child	4……Family does not allow schooling
5……Niece/Nephew	5……..Not interested in school
6……..Grandchild	6…….Education not considered valuable
7……....Sibling	7……...School not safe
8……Parent	8…….Learning a job
9…….In-law	

10……...Other relative 11……House help 12……Non-relative	9……Work on household farm 10……..Other household work 11……..Work for pay outside household 12……...Unpaid work outside household 13……Household chores 14……Competed School 15……...Vacation 16……..Teacher absent 17……..Bad weather 19……..Other reason (specify) 97……..Not applicable 98……Don't Know 99……....Refused to answer

PART B: HOUSEHOLD INCOME AND EXPENDITURE

69. In the last 12 months, roughly how many Ghana Cedis did your household receive for (SOURCE)**?** *(Type in Ghana Cedis, 98 = Don't know, 99 = Refused to answer)*

i) Cocoa
ii) Pineapple
iii) Citrus
iv) Coconut
v) Other crops
vi) Paid employment
vii) Non-farm enterprise/business
viii) Livestock and animal products
ix) Hunting and gathering
x) Palm wine
xi) Rent from houses you own
xii) Rent from equipment/animals you own
xiii) Trading of non-agricultural goods (e.g. crafts, clothes etc.)
xiv) Tourism
xv) Fishing
xvi) Remittances
xvii) Another source (specify)……..

70. In the last month, roughly how many Ghana Cedis did your household spend on each of the following items**?** *(Type in Ghana Cedis, 98 = Don't know, 99 = Refused to answer)*

i) Food
ii) Drinking water
iii) Energy for lighting
iv) Energy for cooking
v) Rent for dwelling (rough estimate if not renting)

PART C: INDIVIDUAL INFORMATION

71. *ID OF PERSON INTERVIEWED* ☐☐

72. Where were you born?

(1) This village/town
(2) Another village/town in this district
(3) Another district in this region
(4) Another region
(5) Outside Ghana
(98) Don't know
(99) Refused to answer

73. Do you hold any leadership position in this community?
(1) Yes
(2) No
(98) Don't know
(99) Refused to answer

74. Does any member of your household hold any leadership position in this community?
(1) Yes
(2) No
(98) Don't know
(99) Refused to answer

75. Does any close acquaintance of yours hold any leadership position in this community?
(1) Yes
(2) No
(98) Don't know
(99) Refused answer

Interview End Time *HH:MM* ☐☐ ☐☐

GPS Location:
Latitude_____;Longitude_____Altitude_____

THANK YOU VERY MUCH FOR THE INFORMATION YOU HAVE PROVIDED TO US. WE APPRECIATE YOU TAKING THE TIME TO PARTICIPATE IN THE STUDY.

APPENDIX B: ENUMERATORS TRAINING MANUAL

SUSTAINABILITY CERTIFICATION FOR SMALLHOLDER FARMERS IN GHANA

ENUMERATORS' MANUAL FOR HOUSEHOLD SURVEY USING COMPUTER ASSISTED PERSONAL INTERVIEWING

December 2018 - January 2019

DEPARTMENT OF COMMUNITY SUSTAINABILITY

MICHIGAN STATE UNIVERSITY

1. INTRODUCTION

The aim of this research is to help address issues confronting third-party sustainability certification schemes for smallholder agriculture. This farmer household survey you are working on is an exercise to collect data that will help answer the research question. The survey is in two components: a follow-up of cocoa farming households from an initial survey in 2015; and a new survey of cocoa, pineapple, banana, and coconut farmers. The survey is expected to gather information on demographics characteristics of farmers and their households; characteristics of their farming operations; their participation in certified farmer organizations; and their perceptions of sustainability certification. This manual is meant to help you become familiar with the methods and procedures of the survey, and understand the contents of the household questionnaire and how to administer it.

1.1 Project Directorate/Field Team

Survey Manager

The Survey Manager shall be Ebenezer Offei Ansah, PhD Candidate at Michigan State University. He will organise and coordinate all field operations, and will be responsible for making decisions on all field operations. In case of unusual circumstances during the data collection, the point of contact is the Survey Manager. Frequently, the Survey Manager will make random visits to communities. This will act as an independent quality control check outside of the interview team. The Survey Manager may participate as an observer in interviews, which will allow him to address any questions the enumerator may have, and support enumerator in implementing the survey.

Enumerators

After a successful completion of a training program, two teams of four enumerators each will be responsible for listing and interviewing households in selected communities. Each enumerator will sign a service contract with the Survey Manager that defines their status and obligations within the survey. Enumerators will be provided with training and fieldwork material and logistics. In addition, they will have letters of introduction that would assist them in their discharge of duties from the project manager.

The survey is expected to last for a period of about a month and each enumerator is expected to be fully available during this period. Enumerators will be responsible for locating selected communities, enumerating/listing all households in each community, selecting and interviewing households according to the procedures and instructions contained in this manual. An enumerator's work is without doubt, one of the most important tasks in this survey. Coverage, quality and accuracy of information mainly depend on whether the enumerator does their job well and is responsible and cooperative.

Enumerators are responsible for personally filling questionnaires for all selected and assigned households. Enumerator's tasks, functions and obligations cannot be delegated to another person. Enumerators, being important participants of a survey of such high significance, should behave in line with the rules and norms in this manual.

1.2 Dynamics of Teamwork in Field Data Collection

Field data collection thrives on successful teamwork. There are several dynamics that make teamwork in field data collection uniquely fun but challenging. The following should guide us in building strong teams:

- It starts here and now
- Respect for one another

- Acknowledging and working on individual strengths and weaknesses
- Acknowledging and addressing conflicts strategically
- Open-mindedness

1.3 Training and Pretest

This five-day training and pretest program will be organized to equip enumerators with the necessary skills, knowledge and instructions contained in this manual. The training and pretest will have the following specific objectives:

- ❖ Introduce interviewers to the background, purpose and significance of the study.
- ❖ Equip interviewers with knowledge of the methods, techniques and procedures to be employed in the survey.
- ❖ Explain the meaning, concepts, and needs of the questions in the survey questionnaire to interviewers.
- ❖ Test the appropriateness of the questions in the survey questionnaire.
- ❖ Help estimate the time required to complete the survey.

1.4 Specific Enumerator Tasks and Obligations

A. To participate actively in and to complete the training program.

B. To study carefully this manual and other instructions in order to understand them fully.

C. To comply with instructions and recommendations contained in this manual and any instruction given by the project manager.

D. To carry out interviews through personal visits to households to interview the appropriate household member as specified in this manual (Do not forget that an enumerator's task cannot be delegated or transferred to anybody else.)

E. To visit the household as many times as necessary, in order to find the direct respondent, to correct inaccurate or to complete incomplete information. Remember: An enumerator is, by contract, obligated to make himself/herself fully available for work in the survey, thus he/she must be available for carrying out the survey at any time the respondent specifies as the most convenient for him/her: weekend, holidays, evenings, etc.

F. To complete given assignments according to the correct standards. To hand over to the survey manager all filled questionnaires with properly entered information, as when requested.

G. To perform all scheduled interviews at the time they are planned. In case it is not possible to interview a selected household, the enumerator should inform the team and survey manager, so that a decision on necessary changes in accordance with established procedures can be made. Remember that the enumerator is not allowed to select on his/her own a replacement household to interview.

1.5 What an Enumerator Must Not Do

A. The work of the enumerator is personal and cannot be transferred to anybody else. In other words, no one else can do the enumerator's work.

B. No enumerator involved in the survey can be engaged in any other job during the survey. Work on the survey is a full-time job throughout the duration of the survey.

C. The enumerator is not allowed to amend any information obtained from the respondent.

D. The enumerator must not disclose, repeat or comment on information obtained from the respondent, nor show the completed questionnaire to any other person except the

survey manager or other interviewers. Remember that information given by the respondent is confidential.

E. Do not bring anybody who is not a work team member during interviews with respondents.
F. Do not put any pressure on respondents, nor encourage them to answer by giving false promises or offers.
G. All collected information must be handed over to the survey manager without any amendments or destruction.

1.6 Materials for the Enumerator

Each enumerator will be given the following materials for the fieldwork:

A. A copy of this manual
B. An introductory letter
C. A list of selected communities
D. A list of follow-up households
E. A tablet computer
F. Supplementary paper questionnaires
G. Listing forms
H. Randomization sheet
I. A clipboard
J. A backpack
K. A first aid box (for the entire team)

2. GENERAL INSTRUCTIONS FOR FIELDWORK AND ORGANIZATION

2.1 Definition of Key Terms and Concepts

Valid respondent: The person to respond to the questionnaire ***MUST*** be the main farmer. This in most instances is the head of the household but can sometimes be the spouse or another adult household member. In the case of certified [CROP] farming households, the valid respondent ***MUST*** be the household member who is a member of the identified certified farmer organization in the community, if s/he is different from the main farmer.

Household: the definition and descriptions for a household as given above under household listing shall be used throughout the survey.

Head of household: this is a self-defined concept; the head of the household is the person who is named as head of household by members of the household.

Common name is defined as the name that individuals are commonly called within their household or community.

Main Farmer is the household member who makes the most important decisions regarding the operation of the farm(s), even if he/she doesn't own the farm(s). If there is more than one farmer that shares the same responsibilities in the farm(s), the main farmer is the one with responsibilities over the largest amount of total acres across the plots. If there is more than one farmer that cultivates the same size of land, the main farmer is the one that has the most decision-making responsibilities over the operation of the farm. If there is more than one farmer that shares the same responsibilities and cultivates the same total size of land, if one of the farmers is the household head he/she is the main farmer. If, under this scenario, neither of the farmers is the household head, the main farmer is the oldest among them.

Sustainability Certification for the purpose of this study shall refer to the concept whereby smallholder farmers are organized in a group with special arrangements for training on and compliance verification for sustainable production and sale of specific crops. A very important identification of sustainability certification is the payment of a price premium to members of a certified farmer organization.

Price Premium refers to an extra amount of money (besides the government's declared price for buying cocoa in a particular cocoa season, and regular market price for other crops) paid to members of a farmer organization usually at the end of a season/period. This money is different from what is referred to as bonuses in the cocoa sector.

Certified Farmer Organization refers to any group of farmers that operates with arrangements under the concept of sustainability certification as described above.

Internal Inspection refers to an activity where some members of the certified farmer organization (either at the local level or beyond) go to the farm(s) of other members to check for compliance of the requirements for sustainability certification. This is done prior to external auditing.

External Auditing refers to an activity where person(s) from an external (within or outside Ghana) independent audit firm go to check the farming system of the certified cocoa farmer organization and some of its members for compliance of the requirements for cocoa certification.

Requirements for sustainability certification: please refer to the separate document provided for details on the codes of conduct or requirements for sustainability certification.

Intermediary company: these are companies that buy produce directly from smallholder farmers. For cocoa these are the licensed buying companies. In the context of sustainability certification, some intermediary companies facilitate the process of certifying smallholder farmers.

***Farm*:** refers to an area of land with defined boundaries that a person or household cultivates with the aim of producing income from growing agricultural products (for example, crops, fruit, vegetables, livestock, fishery). Farmers may also produce for own consumption.

Cultivation: refers to the operation of a farm. For the purposes of this study, it does not matter whether the household owns the land on which the farm is being cultivated. What matters is that a member or members of the household make business and operational decisions concerning the farm.

Sharecropping: this is an arrangement in which a landowner allows another person to farm on part or all of his/her land in return for a share of the harvest. This means that payment hinges in part on the size of the harvest. There are three main types of sharecropping based on the share of the harvest that goes to each party (landowner and farmer/cultivator). There is the case where the harvest is shared into two equal halves. Another is where the harvest is shared into three parts and the landowner takes two parts and the farmer/cultivator takes a part. The last is the case where the harvest is shared into three parts and the farmer/cultivator takes two parts and the landowner takes a part.

2.2 Arrival in the Community

Upon arriving in the community, the team will visit the Chief, Assemblymen, Unit Committee members, and/or other community leaders. During these meetings, the team will explain the purpose of the survey, introduce the members of the team, and discuss the survey program.

To ensure that community arrival goes smoothly, the team will take the following specific steps.

- Prior to arrival in the communities, the Survey Manager will arrange for a meeting with community leaders to explain the survey's purpose and identify the intended arrival date in the selected communities.
- Upon arriving in the community, the team will announce itself to the town's spokesperson. Then, depending on which leader is available and/or in charge, the team will ask the spokesperson to take them either to the Chief, Assemblyman, Unit Committee members, or other prominent community figure(s).
- At the meeting with the local leader, the team will explain in the local language the purpose of the study and how some of the households may be selected for interviews.

Specifically, the team should emphasize that this is an academic research and not providing monetary compensation. Consequently, there are no immediate benefits for farmers in the particular community for participating in the survey. Finally, the researchers will ensure confidentiality of all data gathered.

- Throughout your time in the community and especially when meeting with the leaders in the community, it is important to follow local customs. In particular, be sure to do the following things: shake with your right hand, bow properly, and do not make eye contact with the leader until he/she makes eye contact with you.

2.3 Enumerator Conduct and Technique

Introduction to the Household

The moment the enumerator and respondent meet for the first time is crucial for the success of the interview. Thus, the first impression is important: an enumerator's appearance; his/her attitude at the very beginning and what he/she says are crucial for further work. Enumerators should be properly and professionally dressed for their work. During the listing of households and once selected households are located, the enumerator should ask to talk to the head of the household, the spouse of the household head or an adult household member. The enumerator should greet the person in a kindly and friendly manner; introduce him/herself in accordance with the introductory letter. Then the enumerator should explain briefly and concisely the purpose of the survey, the importance of the project and the need for cooperation by all community members. It is important that the enumerator has a friendly attitude towards the respondent with self-confidence. If the enumerator gives the impression of being nervous or insecure, he/she will not convey enough confidence to the respondent in order to obtain necessary cooperation, participation and attention from the respondent.

Effective Communication

Communication is to be established after the enumerator introduces him/herself, explains that this is a survey implemented in selected communities, and explains the importance of the respondent's cooperation. During this short introduction, as the enumerator is getting ready to start the interview, the enumerator must explain the purpose of the survey, and emphasize that collected data are confidential. The latter is crucial to avoid any fear of misuse of the answers given. All data will be used for statistical purposes, and the data, which identify in any way any person or household will not be used. Keep in mind that at the beginning of the interview, level of attention, communication, confidence, participation and data provision is low. The enumerator's task is to gradually increase the respondent's attention and interest and to maintain it at the highest possible level throughout the interview. The rhythm of the survey, tone of questions, adequate speed in question formulation, dynamics of the interview itself, knowledge about the questions and their order are all factors that determine the success of the interview. If the enumerator reads questions with a monotonous or nervous voice, or without any rhythm, obtained information are likely to be of poor quality and the respondent will not be interested to answer. The enumerator should not give the impression that he/she considers him/herself an important person because of the assignment he/she performs on behalf of MSU. He/she should be open, friendly and decisive, show that he/she is an experienced person. He/she should not be authoritative or aggressive. The best communication can be established when the respondent sees that the enumerator is honest and up to the task.

During and After the Interview

When the interview starts, the enumerator should comply continuously with the following instructions:

- Plan sufficient time for the interview.

- Behave appropriately throughout the interview.
- Do not give any information you are not sure of. It is better to seem uninformed, but honest. Avoid any conversation or attitude that could lead to a discussion or argument with the respondent. Limit the conversation to the survey topics only.
- Do not show surprise at any answer given by the respondent, either by the tone of your voice or facial expressions.
- The enumerator should always try to maintain the same mood throughout the interview: if the respondent for any reason gets tired or disturbed, take a few minutes break in the interview for the respondent to calm down, and start again only then.
- Comply strictly with the order and format while asking questions from the questionnaire. In other words, comply strictly with instructions given. Any modification could jeopardize the uniformity of information that each questions generates.
- Read questions without putting any pressure on the respondent in any way. Never say something like: "You worked last week, right?" Never assume that you know the answer in advance.
- In terms of the rhythm of the interview, keep in mind that the interview consists of questions, answers, moments of silence and breaks. Read questions trying to keep the same rhythm all the time, leaving the respondent time to think about the answer. The enumerator must assess the level of respondent's understanding: the question reading speed will depend on this. Also the enumerator must pronounce clearly every single word he/she reads.
- Read questions exactly as they are written in the questionnaire (without any modification). In case the respondent does not understand it, read it again. If the respondent does not understand it after second reading, explain carefully to him/her the purpose of the question (except when the instructions in the questionnaire specifically ask you not to provide any explanation), taking care not to amend in any way the original meaning of the question and not to influence the answer.
- Give the respondent the time required to answer the question. Try to ensure that the respondent does not amend the meaning of the question. Do it in a friendly way: experience will show which are best ways to achieve this.
- At the end of the interview, check carefully the questionnaire to make sure that no answer is missing or was entered in the wrong box. If there is any mistake, take advantage of the respondent's presence to correct it.
- Do not offer copies of the questionnaire or any other material that the enumerator is not authorized to distribute.
- Leave the household thanking all the respondents for their cooperation in the survey, and for the time and effort they invested.

2.4 Listing of Households

An important task of this survey that will mark the start of work in each community is a complete listing of all households in the community. The purpose of the listing is threefold. First, it will enable the team to create a catalog (or "list") of all households and indicate those that are eligible to be surveyed. Second, it will enable you to introduce yourselves to households. Third, it provides you an opportunity to alert community members that you may want to interview them. The listing exercise is the responsibility of the team, with each individual enumerator performing specific tasks upon mutual agreement.

The "listing exercise" refers to the field operation where enumerators visit ***each selected community*** to prepare a list of all households currently living there by visiting door to door all the dwellings in the community. Households to be interviewed for this survey will then be randomly selected from strata of this list. Each selected community is estimated to have about 300 households.

Household listing is a field operation that requires training and diligence: It is essential to list all households in the community. This seems obvious and trivial, but achieving this objective is harder than it seems, and not achieving it will critically affect the quality of the survey, because excluded households cannot be assumed to be similar to listed households.

In household level socioeconomic surveys, there is typically listing of households only, dwellings/housing structures, or all physical structures depending on the needs of the survey and the use of the listing information. It is therefore important to note that in this survey we are listing households and not dwellings/housing structures nor all physical structures. These terms or concepts have different definitions depending on the specifications, purpose and needs of a particular survey. For the purpose of this survey especially for the listing exercise, they shall be defined and implemented as follows:

A physical structure is a building of any material housing or non-housing, occupied or not that is located within a selected community. This may be an occupied or empty house, a school building, a student's dormitory, a military or police barracks, a hospital, a market, a shop etc. Note that in this survey, non-housing, unoccupied and collective dwelling (e.g. prisons, hospitals, nursing homes or college dormitories, halfway homes, and workers' quarters) structures shall not be considered.

A dwelling/housing structure is a group of rooms or a single room occupied as separate living quarters by one or more family(s) or some other group(s) of persons living together, or a person(s) living alone. More than one household may occupy a dwelling/housing structure but a single household occupies the large majority of dwellings/housing structures. Note that in this survey, all dwellings/housing structures shall be considered but not listed as such. Rather, household(s) occupying them shall be listed.

A household comprises a person or group of related or unrelated persons that share the same dwelling unit(s), acknowledges one adult male or female as the head of the household, shares the same housekeeping and cooking arrangements, and is considered one unit. There are cases in which one may find a group of people living together in the same dwelling/housing structure, but each person has separate eating arrangements – here, each person should be counted as separate one-person households. Not all related persons living in a dwelling/housing structure form one household, and more than one household may live in the same dwelling/housing structure, but one household cannot live in two different dwellings/housing structure. Probe thoroughly to ensure that each person is covered in the correct household.

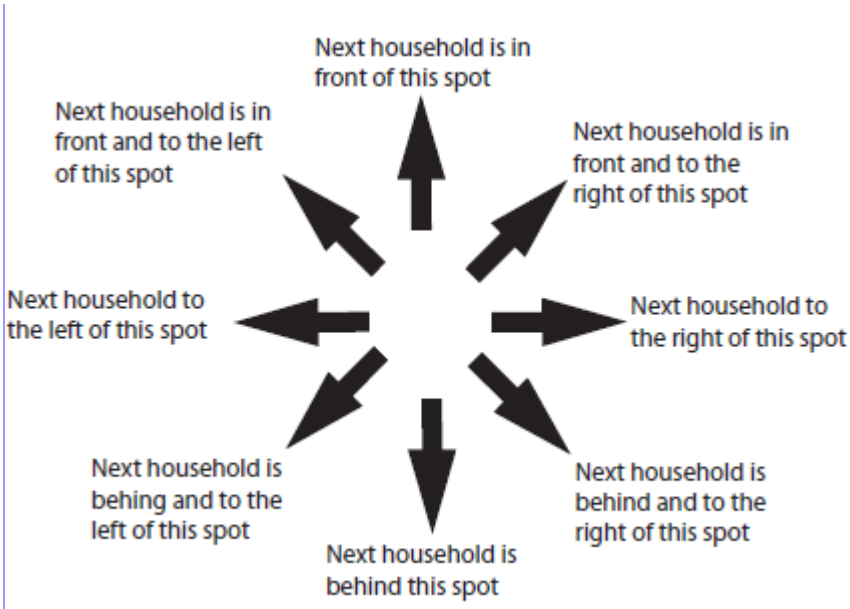
It is not an easy task putting persons found in a dwelling/housing structure into the right households. The following examples are therefore given as guidelines:

- In general, a household consists of the head, his/her spouse, children and some other relative(s) or helper(s) who may be living with them.

- In a large family compound where there may be two or more generations of relations living (e.g., a grandfather, his married children and their families), care should be taken to distinguish whether this is a one or multiple household. If the families share meals only occasionally, probe thoroughly to separate the various households. If the family almost always shares meals, it is considered as one household.
- Treat as one household if a man lives with more than one wife and their children in the same compound and eats successively with each of the wives in turn. If a man does not live in the same compound as his wife or wives, the man and his wife/wives must be considered as separate households. Children and others must be included in the household of the one in whose compound they sleep. Thus, if a man and his wife live in different compounds and their two sons sleep in the father's compound after eating in their mother's compound, the children must be included in the father's household while the mother is listed as a single-person household.
- A lodger who sleeps and eats at least one meal with the household a day must be treated as a member of that household.
- Household helper(s) and their families who live in the same compound, as their employers must not be included in the employer's household if they prepare their own food. However, if they eat and sleep with the employer, they should be considered as part of the employer's household.
- If two or more unrelated persons live together in one room or apartment, they should be considered as separate single-person households if they do not share a common catering arrangement.

The team shall assign individual listing tasks to members upon mutual agreement. To create a good list of all households in each community, the team should undertake these steps:

- Write in chalk on the sides of each dwelling/housing structure a number that identifies it. In a given community, you will use a common set of numbers to be determined by a community code that will be provided by the Survey Manager. Each dwelling/housing structure number shall be prefixed with SCGH (Sustainability Certification in Ghana) followed by a number in a sequence starting from 001. For example, if you are listing households in a community, the first dwelling/housing structure should be chalked as SCGH 001 and the twentieth dwelling/housing structure d as SCGH 020.
- Before moving on to the next dwelling/housing structure you are going to chalk, you must mark next to the number that identifies the dwelling/housing structure the direction anybody would have to walk in order to reach the next dwelling/housing structure using the following system of arrows:



So for example, if you would have to walk straight from the point you are standing when you write the dwelling/housing structure number to reach the next dwelling/housing structure, you would be required to draw an upward arrow.

- If the dwelling/housing structure has several units or parts, write the identification number or number on all of the units or parts. Try to do so in a place that is highly visible *and* sheltered from the rain. You should try to ask permission to chalk the house and be ready to explain politely to anybody why you are doing so.
- Enter each dwelling/housing structure and enumerate the household(s) currently occupying it. If there are several households living in the same dwelling/housing structure, all the households should be listed.
- For each household you list, you must complete an entry on a listing form that will contain the following information:
    1. **Dwelling/housing structure number:** copy the dwelling/housing structure number written on the walls of the dwelling/housing structure.
    2. **Address:** It is very important that this address is written as detailed as possible, because it is the information that you or another team member will need to locate the households later. When street addresses are not available (which is the case in most cocoa growing communities), the address should include references to landmarks that are known in the area and can help in easily locating the dwelling/housing structure.
    3. **Household serial number:** This is a number that identifies each household in a dwelling/housing structure. This should be a two-digit number starting from 01.
    4. **Name of household head:** The common name of the head of the household being listed.
    5. **[CROP] farming status:** Whether a specified crop farming was a source of income for the household in the past 12 months.
    6. **Certification status:** Whether the main farmer in the household is a member of an identified certified [CROP] farmer organization in the community.

There are two more columns that are to be filled in after the household listing has been completed for a community:

7. **Household listing ID:** Number all the [CROP] farming households listed in each community sequentially, starting from 001. Number certified and noncertified households separately.
8. **Household selection ID:** Number all selected households using the 2-digits selection numbers from the randomization sheet.

During the course of this listing process, you may encounter a few challenges. First, it is possible someone might not be at home. If this is the case, try to learn the name of the head of the household from people in the community and return to the household later with hopes of gathering more information for the listing. If you cannot gather the information needed for the listing sheet after three attempts because people are not at home, you should cross that household off the listing sheet.

Second, it is possible that a member of a specific household or a person in the community will challenge you. Someone may challenge you over whether you are allowed to be in the community, about whether the work you are doing is appropriate, or for some other reason (such as suspicions about political motivations).

If you encounter a hostile respondent, please do the following: First, be polite. Even if community members are being hostile, try to remain calm. Second, explain that you have permission from the village leaders to be doing your work. Third, emphasize the purpose of the study and that the research is not political. Fourth, assure them that participation in the research, if selected for an interview, is voluntary. You may also show your introduction letter.

2.5 Household Selection and Tracking

Once the listing exercise is completed in a community, the team will randomly select some households for interview in the community. It is important to follow the instructions below on how to do this in order to ensure that the household selection and tracking is sound. For each community:

- Ensure that all information required on the listing form has been correctly provided on all listing forms used in the community.
- As described earlier under "Household listing ID", number all the [CROP] farming households, using separate numbering for certified and non-certified households.
- Enter the number of certified and non-certified households listed in the excel spreadsheet provided.
- Copy the selection number for each selected household unto the listing form as described above under "Household selection ID".
- Use the comment box to indicate the status of the household: ineligible, selected, or not selected.

2.6 Household Assignments

Before initiating interviews in a cluster, interviewers need to receive the household assignments from the supervisor. Upon arriving in a cluster, the supervisor using a system designed for his/her use, assigns households to every interviewer in the team. This assignment is possible because as was mentioned in the introduction, the SampSel file has information of the households to be visited in each cluster. Once the supervisor assigns the households, he transfers the assignment to all members of the team using Bluetooth. Interviewers cannot begin an interview without having received the assignments.

2.7 Tracking Follow-Up Households

The initial cocoa farmer household survey was conducted in six communities and we will revisit all six of the same communities and try to interview the same households. For each community, a list of household will be provided. The list will include the names of household heads/initial respondents, a detailed description of the location of each household, and a description of the cocoa farm(s) of the household based on the baseline survey data. The list is meant to enable you identify the appropriate households and respondents for the follow-up survey. The goal of the follow-up survey is to interview the same "main farmers" of the same cocoa farms as those who participated in the initial survey. The following instructions should guide you in identifying the appropriate households and respondents:

- Identify the same household and respondent from the baseline survey. If possible, administer the follow-up survey to the same respondent.
- If the previous respondent/main farmer is unavailable (relocated beyond district, deceased, hospitalized, etc.), interview the household member currently identified by members as the main farmer of the same cocoa farm as in baseline study.
- If the previous respondent/main farmer is unavailable and that household is no longer working the same cocoa farm as in the baseline study, then the enumerators should 1) identify the household/farmers currently farming the cocoa farm in the previous study to interview the current 'main farmer,' and 2) locate a member of the previous household for a brief follow-up survey.

Summary of Tracking Instructions

Initial Main Farmer Available	Cultivates Initial Farm(s)	Lives in Initial Household	Lives in Initial Community	Lives in Initial District	What to Do
Yes	Yes	Yes	Yes	Yes	Administer
No	Yes	Yes	Yes	Yes	Administer to next available household member
Yes	No	Yes	Yes	Yes	Administer to initial main farmer and household, and also new household cultivating farm(s)
No	No	Yes	Yes	Yes	Administer to initial household using next available household member, and also household currently cultivating farm(s)
Yes	Yes	No	Yes	Yes	Administer to initial main farmer in new household
Yes	No	No	Yes	Yes	Administer to new main farmer and initial household
Yes	Yes	Yes	No	Yes	Administer to initial main farmer and household in new community

Yes	Yes	No	No	Yes	Administer to initial main farmer and new household in new community
Yes	No	No	No	Yes	Administer to new main farmer in initial household

3. THE HOUSEHOLD QUESTIONNAIRE

3.1 Purposes and Overview

As indicated earlier, the purpose of the survey is to collect information from smallholder farmers to help answer the research questions of the study. This shall be achieved through the administration of the household questionnaire. This section is meant to walk you through the content of the questionnaire and how to complete it properly.

3.2 Filling the Questionnaire

The questionnaire includes different elements:

Questions: they are to be read exactly as they are written to the respondent: this is how the information required in the survey is obtained. Each question is numbered. Translation of the questions into Twi will be discussed and leant during the training exercise.

Instructions for enumerator: are printed in *CAPITAL AND ITALIC LETTERS*. The actual question to read to the respondent is in normal case. They are to be read carefully before proceeding to ask the questions that follow. They are meant to remind enumerators of the import of the questions and how to handle them.

Answer modality:

- For most questions there are possible responses and the enumerator should select the response code which is closest to the respondent's response.
- For some questions enumerators are expected to select only one response, and for others multiple responses apply. Questions that take multiple responses are indicated.
- Several questions where only one response should be selected involve the use of a Liker Scale. Introduce the Likert Scale the first time it is used, and explain it carefully to the respondent. Enumerators MUST ensure that respondents fully understand the use of the Likert Scale before proceeding to asking the first set of questions using the Likert Scale. Subsequently when the Likert Scale is to be used, remind respondent of its meaning and how to use the responses.
- "DON'T KNOW", "REFUSE TO ANSWER", and "NOT APPLICABLE" are coded for almost every question. Note that these are not supposed to be read out to respondents. Also, enumerators are not supposed to quickly select these responses. Enumerators are expected to probe carefully for appropriate responses. Select "DON'T KNOW", "REFUSE TO ANSWER", or "NOT APPLICABLE" only after all techniques to extract an appropriate response have been exhausted.
- For many questions, enumerators can use possible responses as examples to illustrate the meaning of questions when respondents have difficulty in understanding. Where applicable, there are instructions to indicate that possible answers are ***NOT TO BE READ OUT*** to the respondent.

Skip patterns: Questions are normally asked in order one after another. However, in some cases, a given answer defines which question to ask next, or which question is to be skipped. Skips are written in ***CAPITAL LETTERS WITH BOLD AND ITALICS FONT.***

Question types: most of the questions in the questionnaire are closed ended.

- In the first kind of closed questions, the possible answers are coded and they appear as a list of alternatives just after the question.
- The second kind of closed questions does not have a list of possible answers, but asks for a number or date to be given, such as an amount of money, a number of days, a number of months, a year, a month, etc.; and you should only write a number.
- For the open ended questions, the enumerator reads only the text of the question and then enters the answer exactly as given by the respondent.

Correcting responses in the questionnaire: The questionnaire is programmed unto tablet computers and responses will be automatically entered into a database. It is therefore important to make any necessary corrections before the end of the interview and prior to saving the completed questionnaire.

3.3 Cover Page

The first page of the questionnaire is the identification page, i.e. the cover page. It contains the title and source of the study and requires the enumerator to fill in vital information on the household whose information is contained in the questionnaire. It is key to have the information recorded properly and completely so that all data is associated correctly with this household. The information to be filled on the cover page include:

- **Unique ID:** each questionnaire will be identified with an eleven-digits unique number, made up of a four-digits community number and a seven-digits household number. ***THIS UNIQUE ID MUST BE COPIED ON EACH PAGE OF EVERY PAPER QUESTIONNAIRE.***
- **Community Number:** each community has a unique four-digit number that will be used to identify households interviewed in it. These numbers are shall be assigned to the selected communities prior to the start of the actual fieldwork.
- **Household Number:** each household will be identified with a seven-digits number. The first three digits represent the household listing number, and the 4th and 5th digits represent the household selection number (household listing and selection numbers are describe above). The last digit indicates the certification status of the household, with 1 for certified households and 2 for noncertified households.
- **Interviewer Number:** a number in the series of 1 to 8 will identify each enumerator and this will be assigned prior to the beginning of the fieldwork.
- **Interview Date and Start Time:** record the date for conducting the interview as well as the time for the start of the interview.
- **Approval:** the survey manager shall check each questionnaire for quality for it is FINALIZED. Approved questionnaires shall be marked as such.

3.4 Information Sheet

This page is meant to give further identification details of the questionnaire. It requires information on:

- **Community Name:** from a dropdown list of all selected communities, select the name of the community in which the household resides and was selected from.
- **Interviewer Name:** select your name from a dropdown list of all enumerators.
- **Interpreter:** in a case where the valid respondent for a selected household speaks a language that no team member speaks, special permission should be sort from the respondent for the use of an interpreter and indicated as such on the questionnaire. In such a case, the respondent should decide who the interpreter should be. Another household member who can speak a language of at least a team member would be most

ideal. Otherwise, the respondent should be made to identify a trusted neighbor as an interpreter. ***If none of these ideal situations holds, the household should not be interviewed.***

3.5 Consent Form

After you have introduced yourself, identified the valid respondent for the household and gaining permission to start the interview, you should take the respondent through the consent form ***BEFORE STARTING THE INTERVIEW.*** Emphasize the following points in obtaining consent for the interview:

- Purpose of the Research
- Topics and Length of the Survey
- Voluntary Participation
- Confidentiality
- No Direct Benefits or Services

Indicate the respondents concern by circling *YES* before proceeding with the interview. ***REMEMBER TO HAND OVER THE CONTACT INFORMATION SHEET TO THE RESPONDENT AT THIS STAGE.***

3.6 Section 1: Sustainability Certification

Questions 1 to 16**:** this set of questions asks for the farmer's membership and participation in a certified [CROP] farmer organization, and reasons for participation or nonparticipation. The use of the Likert Scale begins with this set of questions, and it is important that it is explained thoroughly to respondent.

Questions 17 to 33: these questions ask about certified farmers' experiences with the activities for implementing sustainability certification. Two subsets of questions are in tables and refer to groups of items. To ensure consistency in the flow of questions and also to help the respondent to easily understand, all subset of questions should be asked for each item before moving to the next item. For example, questions 17 to 21 should be ask for *"...farm establishment and rehabilitation"* before moving on to ask them for *"...farm management and maintenance",* and in that order. This technique should be applied in asking similar sets of questions.

Questions 34 to 38**:** ask about farmers' knowledge of the objectives of sustainability certification, as well as their perceptions of intermediary companies and the requirements and expected benefits of certification.

3.7 Section 2: Household Farming

Questions 39 to 47: this set of questions asks about the farm(s) cultivated by the household. Questions are to be answered by farm. Ask the respondent to identify farms from the largest to the smallest, coding them under the headings Farm 1 (largest) to Farm 5 (smallest). Ask each question for Farm 1 before repeating each question for Farm 2, then for Farm 3, etc. The important point is to fill in this grid by columns.

Questions 48 to 51: This set of questions asks about [CROP] harvests. For question 48, if the answer given by the respondent seems outrageously high or low (for example if they claim they get 1500 kg of cocoa beans or 5 bunches of banana per acre,) you should probe to make sure they are not exaggerating the truth. For question 49, please bear in mind that in the case of non-certified farmers, shall always be zero (0). For certified farmers, the answers to questions 48 and 49 can be equal or different. This is because there are instances where farmers do not register for certification with all of their farms. Also, the answers to questions 49 and 50 can be equal or different. This is also because there are instances where farmers sell some of their certified produced beans as conventional beans.

***Questions 52 TO 58*:** These questions ask about price premiums. Using the definition offered earlier for price premium, first explain the concept to the respondent and ensure that they understand it before proceeding to ask the questions.

3.8 Section 3: Household and Individual Characteristics

Questions 59 to 68: these questions ask for the common name, gender, age and education of household members. To ensure consistency in the flow of questions and also to help the respondent to easily understand the questions, the questions should be asked in rows, i.e. ask all the questions for one household member before moving to the next household member. However, it is important to list all household members (in question 59) before asking the questions for each member in turns.

***Questions 69 and 70*:** ask for household income and expenditure. For both questions, ask for the amount for each item, going through the list from top to bottom.

***Questions 71 to 75*:** these questions ask for some personal information about the respondent.

4. GUIDELINES FOR COMPUTER ASSISTED PERSONAL INTERVIEWING AND TABLET USAGE

4.1 Introduction

This section will highlight the major operations of the computer assisted personal interviews (CAPI). Because computer-aided interviewing techniques are likely to be new for some of you, it is particularly important to understand how to ask questions and deal with problems arising in interviews and fieldwork using this new technology. In particular this document will explain how to record responses correctly and follow instructions given by the program.

4.2 Managing Batteries and Power with your Tablet

- You should charge the battery until the LED battery status light (described above) changes to green, indicating that the battery is fully charged.
- You should charge the powerbank fully before stepping out for interviews, and ensure that you have it with you.
- To conserve battery power, it is recommended that the “Sleep” mode be used to shut down the tablet if it is likely to be restarted within two hours (for example, during the day when carrying out interviews).
- If the tablet will not be used in the next two hours it is better to use the “Power Off” option.

4.3 Directory of Folders and Files

4.4 Starting the Household Questionnaire

Prior to starting the household interview, interviewers should (first of all) have been assigned that household, and should have received the identification information of the household. To begin the household interview, starting from the Main Menu, first select the “Start household data collection” option.

4.5 Error Messages

As mentioned earlier, CSPro checks automatically the possible values for every question. If a value for a question that is not valid is entered, CSPro displays the following message. To dismiss the window message click on the OK button. After clicking OK the cursor stays in the field until a valid value (within the ranges) is entered.

The CAPI system also includes a number of consistency checks among questions. When the rules for the consistency check are not met, CSPro display an error message. There are three types of error messages.

Errors that need to be corrected
This type of errors are critical to the data integrity and as result they need to be corrected. Example, for an individual to be considered as household member he/she needs to be a usual resident or had spent the night before in the household.

The message window itself has three elements. The "Error number" is essentially a number given by the CAPI developer. When asking questions about errors displayed by the CAPI system users should refer to this number as it helps the developer to identify where the problem is located. The "Error type" identifies the severity of the error, errors that begin with the letter "E" indicate that they are serious errors that need to be resolved before the program proceed to the next question. The "Message text" is essentially a textual description of the problem. Users should use the text to identify the cause of the problem and to provide a solution to it. Once the text is analyzed users should press the OK button. In this type of errors the cursor will stay in the field that originated the error until the problem is resolved.

Warning Errors
This type of errors are normally inconsistencies that aren't critical to the data integrity. However, interviewers should read and understand the message before dismissing it with the OK button. If after reading the error it is found that message was displayed as a result of a keying error, interviewers should go to the source of problem and fix it. The source of the problem isn't necessary the current question but a previous question or questions that were used to establish the consistency with the current one. Messages that start with the letter W (Error type) are warnings. After dismissing the message with the OK button, the CAPI system continues with the following question applicable.

The error above is saying that the age given by the respondent in the individual individual questionnaire is different than the age provided for this individual in the hosuehold questionnaire. This is possible because the information in the household could be provided by another person different than the individual respodent. DHS don't require to change the age in the household unless it changes the eligbility critieria for the individual questionnaire. For example a woman in the household was declared to be 16 years old and when intervieweing her with the individual questionnaire it was found that in fact she is only 14 years old. Since the individual questionnare is applied to women 15 to 49, this woman became not eligible. As a result, the age in the household needs to be changed because if not the woman is still eligible according to the household questionnaire. If the change isn't done, later on when reconciling the household with the individuals the system is going to find a critical inconsistency.

Errors with multiple return options
These type of errors are designed to facilitate the navigation for the interviewers. In other words, the error provides buttons to return to two or more of the intervening questions that cause the error.

These errors can be of the same type as the two previously described. **E** for critical and **W** for warnings. When the error is of a warning type a button with the legend "Continue" is displayed as one of the return buttons. When the continue button is pressed the CAPI system will continue to the following applicable question.

The error above is displayed when entering children names for the woman's birth history in 2011-2016. In Ghana MIS it is critical that the birth history in 2011-2016 is consistent with the reproduction summary, if the woman's births occurred since year 2011 and up. If the woman has had births before 2011, then the total number of birth reported in the birth history section should be less than the total number of birth reported in the reproduction section. In the example above, the program identified that the number of girls listed exceeded the total number of girls declared in the reproduction section. There are two possibilities that the sex declared while listing the woman's children is incorrect or in fact the number of girls declared in the reproduction section isn't correct. By pressing the "Reproduction" button the cursor returns to the reproduction section and by pressing "Child sex" the cursor returns to the question on sex of the child.

Instructions for Resolving Error Messages

Do not ignore the messages. If you see a message it is a warning to you that one or more of the following has happened:

- You have made an error recording a response that was given to you by the respondent.
- The respondent did not understand your question and has given you a response to the question that does not make sense.
- The respondent has understood your question and you have correctly recorded the response, but the information is either not precise or is inconsistent with other responses collected.

Each time you see an error message you must pause, think carefully about the reason for the message and try to resolve the problem if possible.

The most effective and simple preparation for resolving error messages is to master the principles of the questionnaires, during the training conducted on the paper questionnaires. These principles are described in the interviewer manual. In doing so you will gain a good understanding of the structure of the questionnaires and you will be able to understand and resolve problems that cause error messages more easily.

Specific instructions for resolving error messages are provided in the **Editing Manual**. Each message is identified by a message number, and for each message, instructions are provided for dealing with the error message. You should take the time to become familiar with the instructions for dealing with each message.

In addition to the specific instructions for resolving particular error messages, you should follow these general guidelines when attempting to resolve error and warning messages.

1. Read the message carefully. Pay particular attention to responses collected during the interview that are included in the message and that may be inconsistent. Take the time to read the message carefully and to develop an understanding of the reason why the message is being shown.
2. Check that the message was not caused by a keying error committed by you. Check the recorded responses related to the message and verify that the message was not caused by a keying error. Identify the responses concerned and check with the respondent that what you entered in the tablet corresponds to the responses they gave.

3. If inconsistent responses were in fact given by the respondent, probe as much as possible to try to obtain a correct response.
4. Be careful to remain polite and diplomatic when verifying responses with the respondent. Do not assume that the respondent is at fault even if the responses given were not consistent.
5. **Do not make up responses just to resolve an error message.** If the problem cannot be resolved after checking for keying errors and probing with the respondents, it is better to continue the interview without making a correction. If necessary, make a note to explain the situation.

If you have an error message that must be resolved before continuing, and you cannot resolve the problem, you may modify the responses to allow the interview to continue. However, in such a case the original response **must be recorded** using the Note function (see section E.8).

4.6 End of the Questionnaire

When the household interview is completed, the program automatically records the time at the end of the interview and the cursor positions next to the field with label "End of household Interview". Click the  "Advance" button in the toolbar or the enter key in the keyboard to continue.

If in add mode the application will proceed with the screens described in the next paragraphs. In modify mode the application will return to the main menu.

The program will present a box for entering any notes the interviewer wishes to type. It is important that interviewers document any event that may have been relevant to the interview process. Type any notes you wish to make into the box and click the "**OK**" button as shown in the figure.

The program will then show a window with two options "Review Interview" and "Finalize Interview". To go back to the interview that was completed (for example, to make corrections), click "Review Interview" otherwise click "Finalize Interview" to save the interview and return to the Interviewer main menu. However, it is important to note that the application periodically saves the data to the computer hard disk to prevent data losses.

Every time that a questionnaire is completed or revised, the system will ask to insert in the computer a flash memory device to back-up the data. Backing-up data is very important to prevent data loses in case of computer failure or some other event.

4.7 Data Transfer and Other Utilities

The system used allows transfers of data between tablets using a wireless technology called "Bluetooth". This feature allows data to be transferred without the need to physically connect machines. There is no need to learn complex commands to copy the files – the system is designed to make the data transfer process quick and easy. All data transfers are carried out by choosing options on the menus of the interviewers and supervisors. Interviewers and supervisors do not need to select the files to be transferred; this will be done automatically by the data collection system.

The Bluetooth is carried out by a system of client/server shake hands protocol. The client sends data and the server recives them. In order to do that the sender and receiver need to be syncrhonized. The sender searches for bluettooth devices in the proximity and filters them based on the team composition established in the Interv.Dat data file discussed in the introduction. The client only searches for devices that are in listening mode.

Transfers Menu

This next section is perhaps the most important and in some ways, the most critical to the operation. All transfers between interviewers and supervisors are done using the "Data Exchange and other utilities" sub-menu in the interviwers machine (Option A from the main menu).

The following operations are done using Bluetooth. We will discuss them one by one.

- Cluster data is sent back to the supervisor.
- Household assignments are received from the supervisor.
- Data is exchanged between interviewers (for example it might be necessary to transfer the household questionnaire collected by a male interviewer to a female interviewer, so that she can interview the eligible women in the household).
- The application is updated from the supervisor.

All transfers between interviewers and supervisors are done using the "Transfer and utilities" sub-menu. To access the "Transfer and utilities" sub-menu, select on option A "Data exchange/other utilities" in the main menu.

The options in the "Transfer and utilities" sub-menu are:

Number	Title	Description
1	**Transfer cluster data to supervisor**	Send all data collected by the interviewer in the cluster to the supervisor
2	**Share HH data with other interviewer**	Share household data for the cluster with another interviewer
3	**Receive HH data from other interviewer**	Receive household data for the cluster from another interviewer. This is done in order to be able to carry out interviews for eligible individuals in that household
4	**Modify IDs/delete individuals**	Used to modify survey identifiers like cluster numbers, household numbers and interviewer who collected the data
5	**Receive system updates from supervisor**	Receive system updates from the supervisor
6	**Receive HH assignment from supervisor**	Receive household assignment from the supervisor
7	**Fix interviewer code/result in a household**	To use when the result code of a household or interviewer that collected the data needs to be changed
8,9	**Household listing and transferring**	These options are related to household listing for sampling purposes. In this case household selection is done concurrently with fieldwork. These options are not discussed in this document

4.8 Modifying Previously Entered Data and Correcting Errors

If a mistake has been made in the middle of entering data into a numeric field, pressing the Space bar can erase the information already entered in that field. For example, if code 01 was to be entered for a question but the key for "2" was pressed first then the whole field can be erased by pressing the SPACE bar. The corrected data can then be entered into the field. The BackSpace and Del keys cannot be used to correct data entered in numeric fields.

If a previously-entered numeric field contains a mistake, the correct data can be entered "over the top" of this previously-entered data. However, if the interviewer is not sure, s/he should use the SPACE bar to empty the field before entering the data.

In correcting data in alphabetic fields, the BackSpace, Del and Insert keys can be used. The Space bar may be used to enter a single blank character in these fields, but it does not completely blank out the field.

Moving Around the Questionnaire

Backward Movement

If a mistake is made during the interview, it is possible to return to the question and correct the error. It is possible to correct any question already entered, even those that come before the current data entry screen. There are several methods for moving back to previously entered questions.

a) Use the left arrow button on the toolbar to move back one field at a time.

b) If the question you wish to modify is located on the current data entry screen you may click on it with the stylus to move the cursor to that field.

c) Use the «Go To» function in the data entry system menu. To use this option, first click on the menu item titled « Navigation » at the top of the screen.

Then, click on the option « Go To » in the menu that appears and the following window will be displayed.

Enter the name of the variable and then click OK to go to that field. If the field is part of a repeating section, then an occurrence number can be given in the lower half as shown above. Click OK when ready.

In order to use the function key F6, it is necessary to know the exact names of the questions used by the CSPro system. A list of names together with descriptions of the questions is given at the end of this manual.

Moving Forward through the Data

There are several ways to move forward through the questions. Note that you cannot move beyond the last question that has had a response entered.

a) Use the right arrow button on the toolbar.
b) Click on the field directly with the stylus.

c) Use the « Go To » option described above.
d) If it is desired to move to the last variable entered in the questionnaire, click on the button “>>|” – “Advance to end” on the toolbar. It is not possible to move forward further than the last variable entered, so CSPro will advance only as far as the last field entered. You will then see a message saying that the value entered is out of range – this is because no value is present in the last field. Click “OK” to continue the interview. In case of inventory entry it takes you to DECISION or <GotoSection> screen and where user can select “Y” to end the interview.

4.9 TROUBLESHOOTING

Problems with Inactive Windows

When you begin a new interview from the window, the CSPro data collection system opens a new window for the interview. As a result there are now two CSPro windows open, one for the menu and one for the interview. However, only the interview window is considered « active », and the menu window is « suspended » and waits for the interview window to be closed (i.e. as a result of the interviewer exiting the interview) before it can become active again.

While the menu window is inactive **it cannot respond to any clicks of the stylus or any keyboard inputs**. You can tell whether a window is inactive because a symbol of a wheel is visible at the center of the window and the screen is grey.

Normally a suspended menu window does not pose a problem because the interview window is usually the one that is visible. However, occasionally the menu window can hide the interview window.

To resolve this problem, click on the icon of a computer that is visible at the bottom left hand side of the screen (see diagram). When you do so the system will display two icons representing the two windows, as shown in the figure below. Click on the icon that is to the left in order to restore the interview window.

The Tablet does not Respond to Commands

Sometimes when using the tablet, it becomes « stuck » and cannot respond to any commands or clicks.

To resolve this problem:

First check that the problem is not with the stylus or touch screen by converting it to the laptop mode and using the physical mouse and keyboard. If this method works the problem may be due to poor calibration, in which case the tablet should be re-calibrated using the instructions provided in section G1.

If the above step does not resolve the problem, there may be a « hidden » window that is causing the problem. To remove the hidden window, press keys ALT + F4 on the physical keyboard (shown below).

If these two methods do not work, press continuously on the power button until the screen goes dark to shut down the machine forcibly.

«Failed to open » Message

Sometimes, when trying to run the menu you may see a message beginning with the words "Failed to open" as shown below.

This problem normally occurs when the interviewer has already started the menu and is trying to run it again. Click on the « OK » button to remove the message. Then, look for the CSPro computer icon at the bottom left hand side of the screen as described in section G2 and click on the icon to restore the menu window.

GOOD LUCK IN YOUR JOB AS A FIELDWORKER

YOUR PROJECT MANAGER AND THE MSU TEAM ARE THERE TO SUPPORT YOU, SO PLEASE KEEP IN CONSTANT CONTACT AND DISCUSS ANY PROBLEMS THAT YOU AND YOUR TEAM MAY ENCOUNTER

APPENDIX C: LOCATION OF STUDY COMMUNITIES: FAIRTRADE CROPS

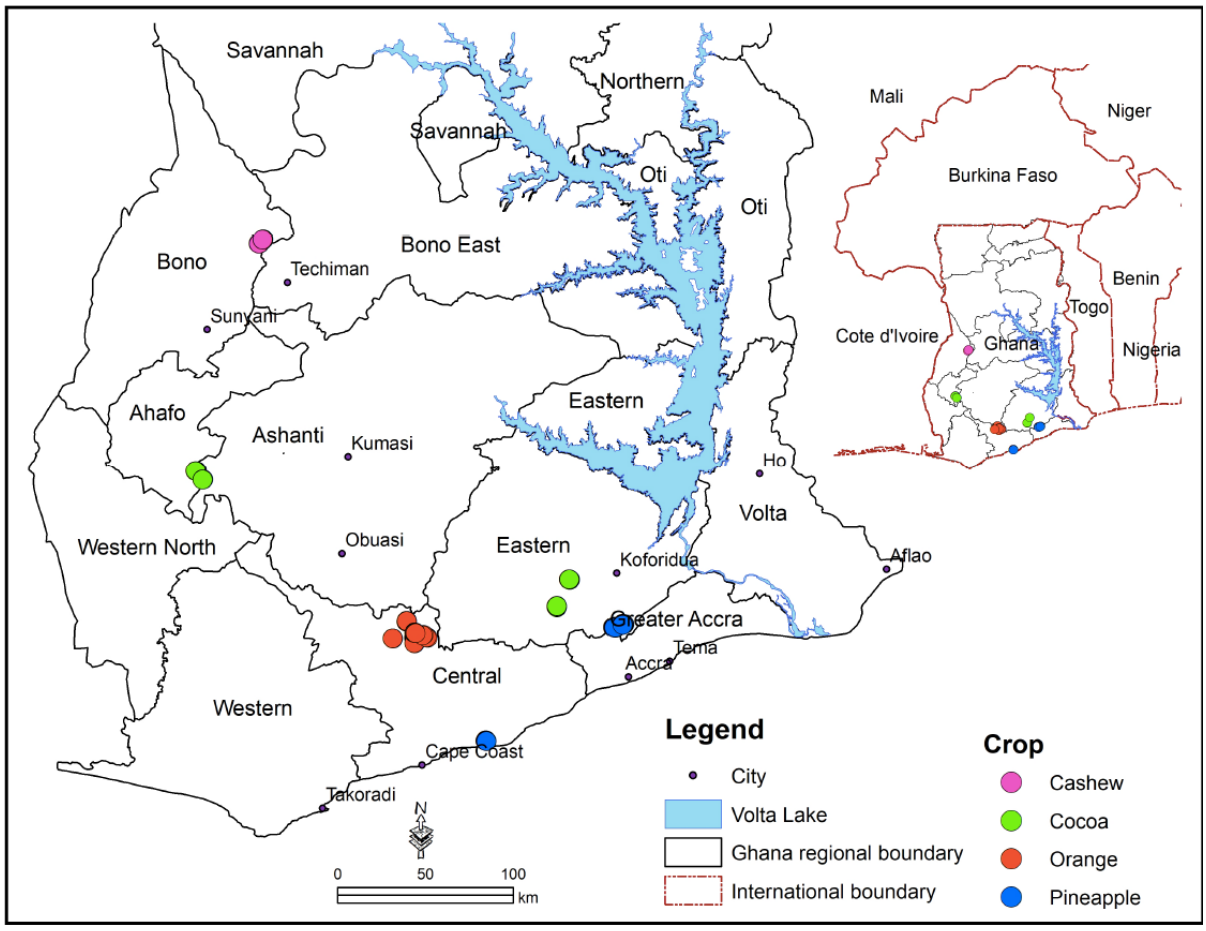


Figure C.1: Location of Study Communities: Fairtrade Certified Crops

APPENDIX D: HOUSEHOLD LISTING FORM

Table D.1: Household listing form

Community Name **Community Code**

Dwelling/Housing Structure Number	Address of dwelling/housing Structure or exact location of structure (e.g.) Name of House Owner, House No., Street Name, etc	Serial No. of HH in structure	Name of Household Head	Income from [CROP] cultivation in the last 12 months? Yes/No	Member of a certified [CROP] farmer organization? Yes/No	HH listing ID	HH selection ID	Comments
1	2	3	4	5	6	7	8	9

APPENDIX E: LOCATION OF STUDY COMMUNITIES: PRODUCER GROUPS

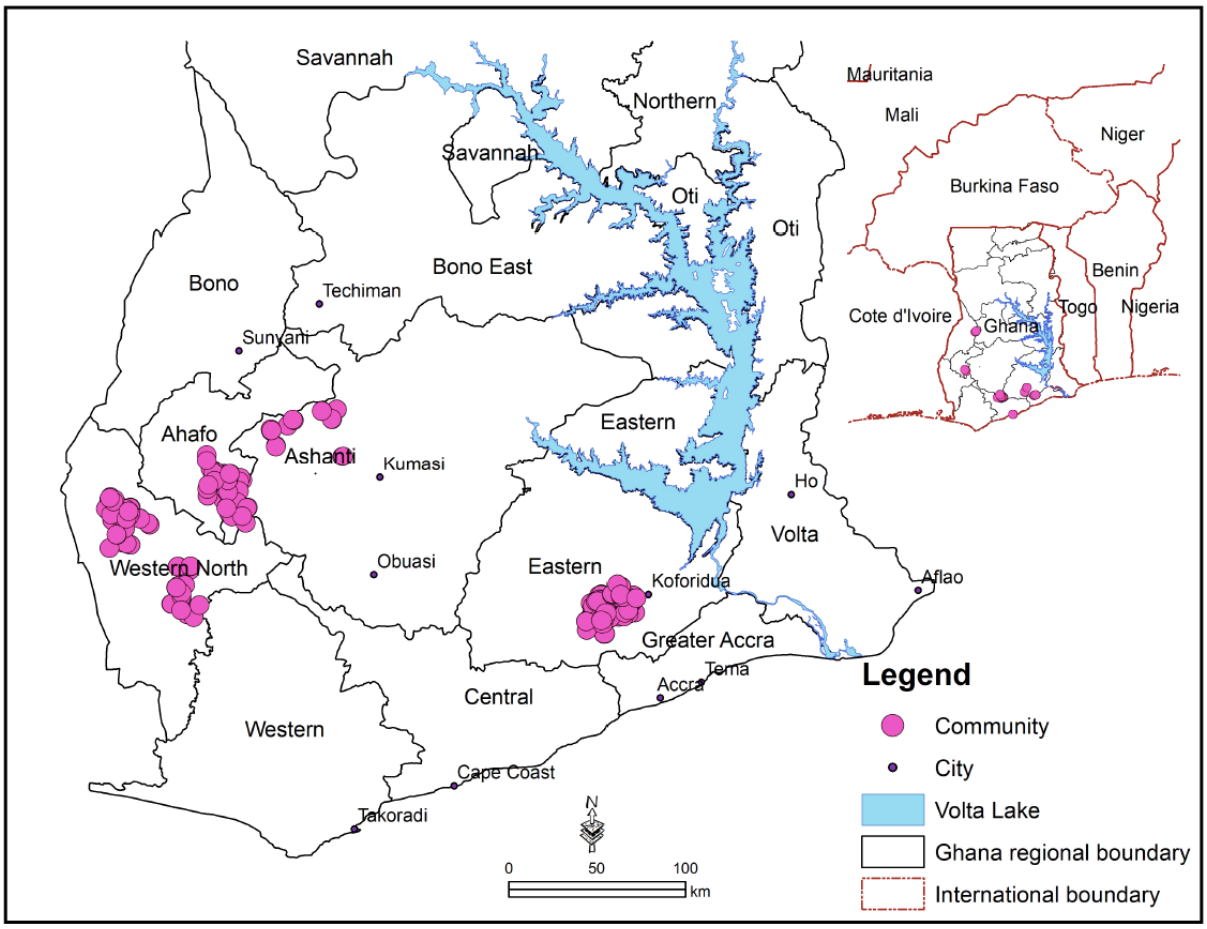


Figure E.1: Location of Study Communities: Certified Farmer Groups

APPENDIX F: CERTIFIED PRODUCER GROUP QUESTIONNAIRE

SUCCESS AND FAILURE OF SMALLHOLDER COCOA PRODUCER GROUPS

FARMER QUESTIONNAIRE

August - September 2019

DEPARTMENT OF COMMUNITY SUSTAINABILITY
MICHIGAN STATE UNIVERSITY

Community Number	☐☐☐
Group Name	
Certification Standard	☐
Group Type	☐
Respondent Type	☐
Interviewer ID	☐
Interview Date: ***DD/MM/YYYY***	☐☐ ☐☐ ☐☐☐☐
Interview Start Time: ***HH:MM***	☐☐ ☐☐

CONSENT

My name is Ebenezer Offei Ansah, I am working on my PhD dissertation at Michigan State University. Are you at least 18 year old? [*If not, thank and terminate interview*].

You are being asked to participate in a research study of sustainability certification programs in Ghana. If you agree to participate, I will ask you some questions about your farmer group, and its involvement in such programs. The interview will take approximately forty five minutes to an hour of your time.

You should know that your identity and responses to questions will be kept confidential. Also, your participation is voluntary and you may choose not to participate at all, refuse to answer certain questions, or stop the interview at any time without any consequences.

If you have any questions or concerns regarding your participation in this study, you may contact the researchers, or Michigan State University's Human Research Protection Program using the contact information on this Information Sheet [hand Information Sheet to respondent].

You indicate your agreement to participate in this study by beginning the interview with me.

[pause]

Let's begin….

SECTION 1: GENERAL INFORMATION TO BE ASKED OF KEY INFORMANTS

NOTE: INSTRUCTIONS TO INTERVIEWER ARE IN ITALICS. WORDS AND PHRASES TO BE EMPHASIZED ARE IN BOLD

ASK THE QUESTIONS IN THIS SECTION TO THE TWO KEY INFORMANTS AND RECONCILE RESPONSES

BEFORE STARTING THE INTERVIEW, BRIEFLY EXPLAIN THE CONCEPT OF SUSTAINABILITY CERTIFICATION TO RESPONDENT, ILLUSTRATING WITH THE CERTIFIED FARMER GROUP(S) IN THE COMMUNITY. LET THE RESPONDENT KNOW THAT THIS INTERVIEW IS MEANT TO HELP US UNDERSTAND THE STATUS AND OPERATION OF THE PARTICULAR FARMER GROUP THEY ARE/WERE A PART OF..

1. **Currently**, what sustainability certification organization(s) operate in this community? *[READ ALL AND SELECT THOSE THAT APPLY]*

1. Fairtrade Labeling Organization
2. UTZ Certified-Rainforest Alliance
3. Organic
4. Fine flavor
5. Other, please specify
6. None

x. Don't know

xx. Refused to answer

2. **Three** years ago, what sustainability certification organization(s) operated in this community? *[READ ALL AND SELECT THOSE THAT APPLY]*

1. Fairtrade Labeling Organization
2. UTZ Certified-Rainforest Alliance
3. Organic
4. Fine flavor
5. Other, please specify
6. None

x. Don't know

xx. Refused to answer

3. **Currently**, how many licensed buying companies (LBCs) operate in this community? *WRITE NUMBER, 98=Don't know; 99=Refused to answer*

4. **Three** years ago, how many licensed buying companies (LBCs) operated in this community? *WRITE NUMBER, 98=Don't know; 99=Refused to answer*

5. There are different kinds of farmers group in different communities. **Currently**, how many farmer groups operate in this community? *WRITE NUMBER, 98=Don't know; 99=Refused to answer*

6. How many of those *[answer from #5]* farmer groups are certified with a sustainability standard? *WRITE NUMBER, 98=Don't know; 99=Refused to answer*

7. About four years ago, we were aware that *[insert group name]* was certified with a sustainability certification standard. Is *[insert group name]* **still** certified with a sustainability standard?

1. Yes
2. No
98. Don't know
99. Refused to answer *[IF "2", "98", OR "99" SKIP TO Q9]*

8. **Three** years from now, how likely do you think it is that *[insert group name]* will continue to be certified with a sustainability standard? *[READ ALL AND SELECT ONLY ONE]*

1. Very unlikely
2. Unlikely
3. Neither unlikely nor likely
4. Likely
5. Very likely
98. Don't know
99. Refused to answer

9. For how many years was [*insert group name*], or has [*insert group name*] been, certified with a sustainability standard? *WRITE NUMBER, 98=Don't know; 99=Refused to answer*

10. Did [*insert group name*] exist before sustaianability certification was introduced to this community?

1. Yes
2. No
98. Don't know
99. Refused to answer *[IF "2", "98", OR "99", SKIP TO Q12]*

11. How many years was [*insert group name*], or has [*insert group name*] been, in existence in total from the time when [*insert group name*] was first formed? *WRITE NUMBER, 98=Don't know; 99=Refused to answer*

12. During the **first** year of [*insert group name*]'s operation, how many members did [*insert group name*] have? *[AVERAGE ESTIMATE] WRITE NUMBER, 98=Don't know; 99=Refused to answer*

13. During the **last** year, did [*insert group name*] operate?

1. Yes
2. No
98. Don't know
99. Refused to answer

14. During the **last** year [the last year of [*insert group name*]'s operation], how many members, on average, did [*insert group name*] have? *AVERAGE ESTIMATE WRITE NUMBER, 98=Don't know; 99=Refused to answer*

SECTION 2: INDIVIDUAL RESPONDENT QUESTIONS

ASK THE QUESTIONS IN THIS SECTION TO ALL RESPONDENTS - ENSURE THAT THE QUESTIONS IN THIS SECTION ARE ANSWERED BY REPSONEDENTS INDEPENDENTLY.

{FOR RESPONDENTS WHO DID NOT START AT #1} -- BEFORE STARTING THE INTERVIEW, BRIEFLY EXPLAIN THE CONCEPT OF SUSTAINABILITY CERTIFICATION TO RESPONDENT, ILLUSTRATING WITH THE CERTIFIED FARMER GROUP(S) IN THE COMMUNITY. LET THE RESPONDENT KNOW THAT THIS INTERVIEW IS MEANT TO HELP US UNDERSTAND THE STATUS AND OPERATION OF THE PARTICULAR FARMER GROUP THEY ARE/WERE A PART OF, WHICH IS/WAS INVOLVE(D) IN SUSTAINABILITY CERTIFICATION.

PART A: GROUP STATUS, FORMATION, AND EXTERNAL SUPPORT

15. **As of today**, do you consider *[insert group name]* to be: *[READ ALL AND SELECT ONY ONE]*

1. Fully operational
2. Partially operational or
3. Ceased operating? *[SKIP TO Q17]*

16. **Three** years from now, how likely do you think it is that *[insert group name]* will continue to be operating? *[READ ALL AND SELECT ONLY ONE]*

1. Very unlikely
2. Unlikely
3. Neither unlikely nor likely
4. Likely
5. Very likely
98. Don't know
99. Refused to answer

EXPLAIN THIS SCALE, AND LET RESPONDENT KNOW YOU WILL USE IT FOR SEVERAL QUESTIONS. NOTE THE DIFFERENCE BETWEEN THIS AND OTHER SCALES
1–Not important at all, 2–Somewhat important, 3–Important, or 4–Very important

17. Now think back to the formation of [*insert group name*] in this community, how important would you say that the following entities were in helping to establish *[insert group name]*? Would you say that *[insert a-g]* was/were *[insert 1-4]* in helping to establish *[insert group name]?*

a. Community leaders
b. Community members (people who don't hold any leadership)
c. Sustainability certification organization(s)
d. Government agency(s)
e. NGO(s)
f. LBC(s)
g. Other private business(es)

1–Not important at all, 2–Somewhat important, 3–Important, or 4–Very important; 98=Don't know; 99=Refused to answer
NOW, I AM GOING TO ASK ABOUT THE VARIOUS GOALS THAT COMMUNITY LEADERS AND MEMBERS MIGHT HAVE. FIRST, I'LL ASK ABOUT COMMUNITY LEADERS.

18. In thinking about the motivation behind the formation of *[insert group name]* in this community, how important would you say that the following goals were for the **community leaders**? Would you say that for **community leaders** when forming the group**,** it was *[insert 1-4]* for the group to *[insert a-f]*?

1–Not important at all, 2–Somewhat important, 3–Important, or 4–Very important; 98=Don't know; 99=Refused to answer

a. Improve farming practices
b. Buy inputs and services, and sell produce as a group in order to make more gains
c. Access price premium
d. Facilitate labor exchange
e. Improve relationship with LBCs by working as a group
f. Receive additional support from organizations like government agencies, NGOs, and private businesses

19. Now, for the **community members**, when you think about their motivation for forming [*insert group name*] in this community, how important would you say that the following goals were for them? Would you say that for **community members** when forming the group**,** it was *[insert 1-4]* for the group to *[insert a-f]*?

1–Not important at all, 2–Somewhat important, 3–Important, or 4–Very important; 98=Don't know; 99=Refused to answer

a. Improve farming practices
b. Buy inputs and services, and sell produce as a group in order to make more gains
c. Access price premium
d. Facilitate labor exchange
e. Improve relationship with LBCs by working as a group
f. Receive additional support from organizations like government agencies, NGOs, and private businesses

I AM GOING TO ASK ABOUT SOME ORGANIZATIONS THAT MAY HAVE SUPPORTED [INSERT GROUP NAME] WITH RESOURCES AND TECHNICAL GUIDANCE SUCH AS FINANCES, INPUTS, EXTENSION SERVICES, CAPACITY BUILDING ETC.

[ENSURE THAT RESPONDENT UNDERSTANDS THE CONCEPT OF SUPPORT BEFORE PROCEEDING TO THE QUESTIONS]

20. Has *[insert group name]* **ever** received support from organizations that are part of the government, NGOs, LBCs, or other private businesses?

1. Yes
2. No
98. Don't know
99. Refused to answer *[IF "2", "98", OR "99" SKIP TO Q27]*

21. In thinking back to the formation of *[insert group name]*, during its **first** year of operation, what organization(s), if any, supported *[insert group name]*?

[Record name(s) of all organizations] *[IF NONE, SKIP TO Q24]*

22. During the **first** year of [insert group name]'s operation, which organization(s) was/were most supportive to it?

[Record name(s) of organization(s)]

23. In thinking back to the formation of *[insert group name]*, you mentioned some organizations that helped. During the **first** year of *[insert group name]*'s operation, what kind(s) of support did *[insert each org name mentioned in 21, one at a time]* offer or provide the group? Did *[org name]* provide: *{go through all orgs mentioned in 21, one at a time},*

a. Training and capacity building on farming practices, farm management, etc
b. Free inputs like fertilizer and other agro chemicals, tools, and infrastructure
c. Financial assistance like loans, input subsidies, and grants
d. Paid extension agents
e. Other, please specify

24. During the **last** year [the last year of [*insert group name*]'s operation], which organizations supported *[insert group name]*?

[Record names of all organizations] *[IF NONE, SKIP TO Q26]*

25. You mentioned some organizations that helped *[insert group name]* during the **last** year [the last year of [*insert group name*]'s operation]of it's operation, what kind(s) of support did [insert each org name mentioned in 24, one at a time] offer or provide *[insert group name]* during the last year? Did *[org name]* provide: *{go through all orgs mentioned in 24, one at a time}*,

a. Training and capacity building on farming practices, farm management, etc
b. Financial assistance, including loans, input subsidies, and grants
c. Free inputs, such as fertilizer and other agro chemicals, tools, and infrastructure
d. Paid extension agents
e. Other, please specify

[SKIP TO Q27]

26. When would you say that external organizations stopped providing *[insert group name]* with help and support?

For groups that are still operating, was it: *[READ ALL AND SELECT ONLY ONE]*

1. Less than one year ago
2. About one year ago
3. More than a year ago
98. Don't know
99. Refused to answer

For groups that ceased operating, was it: *[READ ALL AND SELECT ONLY ONE]*

1. Less than one year before the group ceased operating
2. About one year before group ceased operating
3. More than a year before group ceased operating
98. Don't know
99. Refused to answer

PART B: GROUP STRUCTURES, LEADERSHIP, AND SERVICES

NOW I'D LIKE TO ASK YOU SOME QUESTIONS ABOUT THE STRUCTURE AND LEADERSHIP OF [*INSERT GROUP NAME*]

27. **Currently/[just before** *[insert group name]* ceased operating], how many **executive positions** does/did *[insert group name]* have? *WRITE NUMBER, 98=Don't know; 99=Refused to answer*

28. What are/were they?
[Record titles of all executive positions] 98=Don't know; 99=Refused to answer

29. What is/was the **principal executive position**?
[Record title of principal executive position] 98=Don't know; 99=Refused to answer

30. How is/was **[*insert title of principal executive position*] typically** chosen for [*insert group name*], is it *[READ ALL AND SELECT ONLY ONE]*

1. Appointed by supporting organization(s) (if so, which org?)
2. Appointed by community leader(s)
3. Vote of all group members
4. Vote by executive board
5. Self-appointed
6. Other, please specify
98. Don't know
99. Refused to answer

31. Groups may or may not change their executives. Since you joined [*insert group name*], how many times has/did *[insert group name]* gone/go through the processes of selecting the ***[insert title of principal executive position]***? *WRITE NUMBER, 98=Don't know; 99=Refused to answer*

32. Since you joined *[insert group name],* how many **different individuals** have held the principle executive position, the one held by *[insert title of principal executive position]*? *WRITE NUMBER, 98=Don't know; 99=Refused to answer*

33. How are/were **other** executives **typically** chosen for *[insert group name]*? *[READ ALL AND SELECT ONLY ONE]*

1. Appointed by supporting organization(s) (if so, which org?)
2. Appointed by community leader(s)
3. Vote of all group members
4. Vote by executive board
5. Self-appointed
6. Other, please specify
98. Don't know
99. Refused to answer

34. Since you joined *[insert group name]*, how many times has/did *[insert group name]* gone/go through the processes of selecting the **other executives**? *WRITE NUMBER, 98=Don't know; 99=Refused to answer*

35. We have learned of a wide range of challenges for group members; during the **last** 3 years [the last 3 years of *[insert group name]*'s operation]. What would you say are/were the

most pressing **leadership** challenges that *[insert group name]* faced? *[READ ALL OF ITEMS, 2 – 7, AND SELECT THOSE THAT APPLY; MARK "1" IF MENTIONED]*

1. Executives embezzle group resources (*DO NOT PROMPT)*
2. Executives do not have adequate leadership training and capacity
3. The group is unable to develop new leaders
4. Executives discriminate among members, e.g. in sharing resources
5. Lack of commitment among executives
6. Executives do not engage members in group management and decision-making
7. Other, please specify
8. None

x. Don't know
xx. Refused to answer

36. During the **last** 3 years [the last 3 years of *[insert group name]*'s operation], how often did [*insert group name*]'s executives discuss financial reports with members? *[READ ALL AND SELECT ONLY ONE]*

1. Every week
2. Every two weeks
3. Every month
4. Every two months
5. Every three months
6. Every six months
7. Every year
8. Other, please specify
9. Never

98. Don't know
99. Refused to answer

37. During the **last** 3 years [the last year of *[insert group name]'s* operation], how often does/did the executives of [*insert group name*] assign tasks to members and/or groups of members? *[READ ALL AND SELECT ONLY ONE]*

1. Very often
2. Often
3. Rarely
4. Never

98. Don't know
99. Refused to answer

38. Since you joined *[insert group name]*, has any of the supporting organizations **ever** taking steps to train and build leadership capacity for **executives** of *[insert group name]*?

1. Yes
2. No

98. Don't know
99. Refused to answer

39. Since you joined *[insert group name], h*as *[insert group name]* itself **ever** taken steps to train and build leadership capacity of its **executives**?

1. Yes
2. No

98. Don't know

99. Refused to answer

40. Since you joined *[insert group name]*, has any of the supporting organizations **ever** taking steps to develop **new** leaders to take up executive positions in *[insert group name]*?

1. Yes
2. No
98. Don't know
99. Refused to answer

41. Since you joined *[insert group name]*, has [*insert group name*] itself **ever** taken steps to develop **new** leaders to take up executive positions in *[insert group name]*?

1. Yes
2. No
98. Don't know
99. Refused to answer

EXPLAIN THIS SCALE, AND LET RESPONDENT KNOW YOU WILL USE IT FOR SEVERAL QUESTIONS. NOTE THE DIFFERENCE BETWEEN THIS AND OTHER SCALES
1–Strongly agree, 2–Somewhat agree, 3–Neither agree nor disagree, 4–Somewhat disagree, or 5-Strongly disagree

42. In thinking about the executives of *[insert group name]* during the **last** year [the last year of *[insert group name]*'s operation], to what extent do you (dis)agree with the following statement? Would you say you *[insert 1-5]* that *[insert a -g]*?

1–Strongly agree, 2–Somewhat agree, 3–Neither agree nor disagree, 4–Somewhat disagree, or 5-Strongly disagree; 98=Don't know; 99=Refused to answer

a. Executives are knowledgeable about everything the group is engaged
b. Members are condifdent that advice given my executive is the same as the executive would do.
c. Executives are accountable to members
d. Members are confident that executives are truthful and frank in dealing with members, even when there are problems
e. Executives understand the problems of members
f. Executives are concerned about members' welfare during important decision-making
g. Executives create and sustain supportive environment

43. In thinking about the relationship between members and executives of [*insert group name*] during the **last** year [the last year of *[insert group name]*'s operation], how often did the following happen? Would you say that *[insert a-g]* happened *[insert 1-4]?*

a. Friction among group members
b. Personality conflicts
c. Tension among members
d. Emotional conflicts among members
e. Disagreements regarding how the group is run
f. Conflicts about ideas
g. Differences of opinion

1–Very often, 2–Often, 3–Rarely, or 4 – Never; 98=Don't know, 99=Refused to answer

44. **Currently,** does *[insert group name]* have processes and procedures for resolving conflicts and disagreements?

1. Yes
2. No
98. Don't know
99. Refused to answer *IF "2", "98", OR "99" SKIP TO Q46*

45. To what extent do you (dis)agree with the following statements regarding the current processes and procedures for resolving conflicts and disagreements in *[insert group name]*? Would you say you *[insert 1-5]* that the processes and procedures for resolving conflicts and disagreements in *[insert group name]* are *[insert a-d]*?

1–Strongly agree, 2–Somewhat agree, 3–Neither agree nor disagree, 4–Somewhat disagree, or 5 - Strongly disagree; 98=Don't know; 99=Refused to answer

a. Open and transparent
b. Applied to everyone equally
c. Always followed in resolving conflicts and disagreements
d. Effective in resolving conflicts and disagreements

NOW, I WOULD LIKE TO ASK YOU ABOUT HOW YOU VIEW DECISION-MAKING IN [INSERT GROUP NAME]		
ISSUE	**46.** To what extent do/did you agree or disagree with decisions of the organization regarding **[ISSUE]**? *(Use Codes Below)*	**47.** To what extent do you agree or disagree that members of the organization are/were engaged in decision-making regarding **[ISSUE]**? *(Use Codes Below)*
Amount paid as price premium		
Distribution of price premium among various uses		
Time of paying price premium		
Selling of certified cocoa beans		
Meetings (frequency, days, times, venue, duration etc.)		
Membership fees and other payments		
Internal inspection		
External auditing		
Requirements for cocoa certification		
Strongly Agree = 1; Somewhat Agree = 2; Neutral = 3; Somewhat Disagree = 4; Strongly Disagree = 5; ***N/A = 97; Don't know = 98; Refused to answer = 99***		

NOW, I'D LIKE TO ASK YOU SOME QUESTIONS ABOUT MEMBERSHIP PARTICIPATION AND MEETINGS

48. In thinking about the membership of *[insert group name]* during the **first** 12 months of its operation, what proportion of group members fall into the following three categories?

INDICATE PROPORTION FOR EACH CATEGORY AND ENSURE THAT THEY ADD UP, 98=Don't know, 99=Refused to answer

a. Members who almost always attend meetings/activities
b. Members who attend some meetings/activities
c. Members who almost never attend meetings/activities

49. In thinking about the membership of *[insert group name]* during the **last** year [the last year of [*insert group name*]'s operation], what proportion of group members fall into the following three categories? *INDICATE PROPORTION FOR EACH CATEGORY AND ENSURE THAT THEY ADD UP, 98=Don't know, 99=Refused to answer*

a. Members who almost always attend meetings/activities
b. Members who attend some meetings/activities
c. Members who almost never attend meetings/activities

	50. During the last 3 years [the last 3 years of *[insert group name]*'s operation], has/did it have *[insert meeting type a.]*? *Repeat for b to d and indicate YES/NO/98/99 for each* *IF "NO" SKIP TO NEXT MEETING TYPE*	**51.** How often? *(Use Codes Below)*	**52.** What is the share of group members who attend(ed) a typical *[insert meeting type a - d.]*? *98=Don't know, 99=Refused to answer*
a. "Regular/general meetings" for members			
b. Trainings on sustainable practices and/or sustainability certification requirements			
c. Special topic workshops			
d. Other, please specify			
Every week – 1, Every two weeks – 2, Every month – 3, Every two months – 4, Every three months – 5, Every six months – 6, Every year – 7, Other – 8, Never – 9, Don't know – 98, Refused to answer – 99			

NOW I'D LIKE TO ASK YOU ABOUT SERVICES AND BENEFITS THAT [INSERT GROUP NAME] MAY OR MAY NOT OFFER

53. **Currently/just before** *[insert group name]* ceased operating, what service(s) and benefits does/did *[insert group name]* offer its members? *[READ ALL AND SELECT THOSE THAT APPLY]*

1. Subsidized inputs
2. Free inputs
3. Loans
4. Training and capacity building on farming practices, farm management, etc

5. Other, please specify
6. None
x. Don't know
xx. Refused to answer

54. What service(s) and benefits did *[insert group name]* **previously** offer its members that it no longer offers to its members? *[READ ALL AND SELECT THOSE THAT APPLY]*

1. Subsidized inputs
2. Free inputs
3. Loans
4. Training and capacity building on farming practices, farm management, etc
5. Other, please specify
6. None
x. Don't know
xx. Refused to answer

55. **Currently/just before** [insert group name] ceased operating, does/did *[insert group name]* offer any service(s) and benefits to non-members?

1. Yes
2. No
98. Don't know
99. Refused to answer *[IF "2", "98", OR "99" SKIP TO Q57]*

56. Which of these service(s) and benefits does/did *[insert group name]* offer to non-members? *[READ ALL AND SELECT THOSE THAT APPLY]*

1. Subsidized inputs
2. Free inputs
3. Loans
4. Training and capacity building on farming practices, farm management, etc
5. Other, please specify
6. None
x. Don't know
xx. Refused to answer

57. Which of these service(s) and benefits can non-members access elsewhere in the community or nearby? *[READ ALL AND SELECT THOSE THAT APPLY]*

1. Subsidized inputs
2. Free inputs
3. Loans
4. Training and capacity building on farming practices, farm management, etc
5. Other, please specify
6. None
x. Don't know
xx. Refused to answer

PART C: SUSTAINABILITY CERTIFICATION

NOW, I WOULD LIKE TO ASK YOU VARIOUS ASPECTS OF SUSTAINABILITY CERTIFICATION. THE QUESTIONS ARE ABOUT OBJECTIVES OF SUSTAINABILITY CERTIFICATION, SELLING OF CERTIFIED BEANS, PRICE PREMIUM, COMPLIANCE VERIFICATION, AND INTERESTS OF LBCs.

BENEFITS	**58.** To what extent do you agree or disagree that you expected certification to bring about **[BENEFIT]**? *(Use codes below)*	**59.** To what extent do you agree or disagree that certification has brought about **[BENEFIT]**? *(Use codes below)*
Improvement in farm management		
Improvement in awareness of environmental protection and farm environmental conditions		
Improvement in output		
Access to price premium and increase income		
Improvement in awareness of labor rights and conditions of workers and children		
Access to credit/financial assistance		
Improvement in knowledge of safety and healthy farm practices		
Access to farm inputs		
Community infrastructure development		
Access to market/buyer requested certification		
Access to extension services		
Codes: Strongly Agree = 1, Somewhat Agree = 2, Neutral = 3, Somewhat Disagree = 4, Strongly Disagree = 5 97 = N/A, 98 = Don't know, 99 = Refused to answer		

60. We have heard a range of feedback from farmers about their experience selling certified beans. We would like to understand your experience and that of fellow group members. Since *[insert group name]* got certified, how often are you confronted with the following issues while trying to sell your certified beans? Would you say *[insert a-d]* happened *[insert 1-4]?*

1. A certified buyer rejecting your beans
2. A certified buyer was not available to purchase your certified beans
3. A certified buyer did not have money to purchse your certified beans
4. Other, please specify

1 - Very often, 2 – Often, 3 - Rarely, 4 - Never

61. How typical is your experience with selling certified beans in your community? *[READ ALL AND SELECT ONLY ONE]*

1. Most members of *[insert group name]* are confronted with the issues I face
2. About half of the members of *[insert group name]* are confronted with the issues I face
3. Less than half of the members of *[insert group name]* are confronted with the issues I face
4. Only a few of the members of *[insert group name]* are confronted with the issues I face
98. Don't know
99. Refused to answer

[EXPLAIN WHAT PRICE PREMIUM IS TO RESPONDENT AND LET THEM KNOW THAT THE NEXT SET OF QUESTIONS ARE ABOUT PRICE PREMIUM]

62. Since *[insert group name]* got certified, has/did *[insert group name]* receive(d) price premium for certified beans sold by its members?

1. Yes
2. No
98. Don't know
99. Refused to answer *[IF "2", "98", OR "99", SKIP TO Q66]*

63. How does/did [*insert group name*] use the price premium*?*
Would you say: *[READ ALL AND SELECT THOSE THAT APPLY]*

1. Some of it is/was used for **community development project**(s)
2. Some of it is/was used to **purchase/subsidize inputs** for members
3. Some of it is/was used to **pay for services (e.g. training and capacity building**) for [*insert group name*]'s members and/or executives
4. Some of it is/was used to defray [*insert group name*]'s **certification costs**
5. Some of it is/was used to pay for [*insert group name*]'s **other operational costs**
6. Some of it is/was **paid to individual members** of [*insert group name*]
7. Other, please specify

x. Don't know
xx. Refused to answer

64. How did you know about price premium and its use(s)? *[READ ALL AND SELECT THOSE THAT APPLY]*

1. We discussed them during [*insert group name*]'s group meetings
2. I discussed with executive(s) of [*insert group name*]
3. LBC that buys certified cocoa announced the price premium and its uses to the entire community
4. I recive(d) some of the price premium from [*insert group name*]
5. Other, please specify

x. Don't know
xx. Refused to answer

65. Since [*insert group name*] got certified, have/did you or your household ever receive(d) price premium?

1. Yes
2. No
98. Don't know
99. Refused to answer *[IF "2", "98", OR "99" SKIP TO Q70]*

66. Since you joined [*insert group name*], how many cocoa seasons have you or your household received price premium? *WRITE NUMBER, 98=Don't know; 99=Refused to answer*

67. When was the last season you or your household received price premium? *WRITE YEAR, 98=Don't know; 99=Refused to answer*

68. The last time you or your household received a price premium payment, how much ***additional payment of a price premium*** did you receive per bag or in total? *WRITE IN GHC, 98=Don't know; 99=Refused to answer*

69. Since [*insert group name*] got certified, have other members received price premium?

1. Yes
2. No
98. Don't know
99. Refused to answer

70. Since [*insert group name*] got certified, have some members complained of not getting their price premium?

1. Yes
2. No
98. Don't know
99. Refused to answer *[IF "2", "98", OR "99" SKIP TO Q73]*

71. About what percentage of members have complained of not getting their price premium?

TRY TO GET AN APPROXIMATE PERCENTAGE (0-100) WRITE NUMBER, 98=Don't know; 99=Refused to answer

EXPLAIN WHAT INTERNAL AND EXTERNAL INSPECTIONS ARE TO RESPONDENT AND LET THEM KNOW THAT THE NEXT SET OF QUESTIONS ARE ABOUT COMPLIANCE VERIFICATION

72. How many times have you been inspected by internal inspectors? *WRITE NUMBER, 98=Don't know; 99=Refused to answer (SKIP TO 75 IF 0)*

73. When was the last time your farm was inspected by internal inspectors? *[READ ALL AND SELECT ONLY ONE]*

1. Never
2. More than three years ago
3. Within the last three years but more than a year ago
4. Within the last year
98) Don't know
99) Refused to answer

74. How many times have you been inspected by external auditors? *WRITE NUMBER, 98=Don't know; 99=Refused to answer (SKIP TO 77 IF 0)*

75. When was the last time your farm was inspected by external auditors? *[READ ALL AND SELECT ONLY ONE]*

1. Never
2. More than three years ago
3. Within the last three years but more than a year ago
4. Within the last year
98) Don't know
99) Refused to answer

76. Have you ever been notified about noncompliance?

1. Yes
2. No
98. Don't know

99. Refused to answer *(IF "2", "98", OR "99" SKIP TO Q83)*

77. When were you determined to be noncompliant? *[READ ALL AND SELECT ALL THAT APPLY]*
1. During internal inspection
2. During external inspection
3. Other, please specify other
x. Don't know
xx. Refused to answer

78. What was the noncompliance about? *[READ ALL AND SELECT ALL THAT APPLY]*
1. Farm establishment and rehabilitation
2. Farm management and maintenance
3. Soil management and fertilization
4. Integrated pest management and crop protection
5. Harvest and post-harvest practices
6. Safe and healthy farm practices
7. Workers' rights, including child labor and informal workers
8. Waste management
9. Environment and natural resource protection
10. Other, please specify
x. Don't know
xx. Refused to answer

79. Are you still noncompliant?
1. Yes *(SKIP TO Q83)*
2. No
98. Don't know
99. Refused to answer

80. Please explain the actions you took to become compliant_____

_____

_____

81. Who guided you in taking actions to become compliant? *[READ ALL AND SELECT ALL THAT APPLY]*
1. Internal Control/Management System team
2. External agent
3. Certified group colleague farmer
4. Noncertified colleague farmer
5. No one
6. Other, please specify
x. Don't know
xx. Refused to answer

NOW I WILL ASK YOU ABOUT LBCs AND THE INTERESTS THEY MAY OR MAY NOT HAVE IN SUSTAINABILITY CERTIFICATION

82. To what extent do you agree or disagree with the following statements? Would you say you *[insert 1-5]* that *[insert a -h]*?

1–Strongly agree, 2–Somewhat agree, 3–Neither agree nor disagree, 4–Somewhat disagree, or 5-Strongly disagree, 98=Don't know; 99=Refused to answer

a. LBCs care about the wellbeing of smallholder farmers
b. LBCs care about environmental and social sustainability
c. Being involved in sustainability certification helps LBCs to make more profit
d. Being involved in sustainability certification helps LBCs to be more competitive
e. Being involved in sustainability certification gives LBCs better reputations
f. Being involved in sustainability certification helps LBCs to fulfill their corporate social responsibility
g. LBCs can be negatively affected by the work of external auditors
h. LBCs try to influence the work of external auditors

SECTION 3: QUALITATIVE QUESTIONS

THANK FOR YOUR ANSWERS AND HELP SO FAR. NOW I WOULD LIKE TO BETTER UNDERSTANDING YOUR POINT OF VIEW AND LEARN A LITTLE MORE ABOUT STRENGTHS AND WEAKNESS/OPPORTUNITIES AND ISSUES CONCERNING [*INSERT GROUP NAME*]

ASK FOR PERMISSION TO AUDIO-RECORD THIS SECTION OF THE CONVERSATION

83. In addition to what you told me about various entities and their help in establishing [*insert group name*], as well as the goals they had in mind, explain/describe what you think were other circumstances surrounding the formation of [*insert group name*] in your community.

Prompt about:
Which specific individual(s) and/or organization(s) was/were originally behind [*insert group name*]*'s formation?*
What other goals did these individual(s) and/or organizations have for themselves and the community?
Was [*insert group name*] *welcomed, in general, by the community? Who did and who did not, and why?*

84. I'd like to better understand your perspective on how members of [*insert group name*] participate in its operation and activities. How are members involved in the operations and activities of [*insert group name*]?

Prompt about:
Is there some system or procedure or practice in place to recruit new people into [*insert group name*]
Why, if so, has membership size decreased or increased over time?
What are the personal characteristics of members who attend some meetings/activities?
What are the personal characteristics of members who almost always attend meetings/activities?
What are the personal characteristics of members who almost never attend meetings/activities?
Are these always the same specific people or some active members become passive over time and vise versa?

85. We already talked about the executive positions [*insert group name*] and I will like to understand some other aspects of [*insert group name*]'s leadership structure. Describe the leadership structure and composition of [*insert group name*]?

Prompt about:
One primary executive versus other types of group's leadership
Has this changed over time? How? Why?
Have different (new) people become executives of [*insert group name*] *over time? How? Why?*
Have the relationships among executives of [*insert group name*] *changed over time? How? Why?*
Do you think the leadership structure is working? Why?

86. Describe efforts that **[*insert group name*]** and/or **supporting organizations** make to develop the leadership capacity of **executives** and **potential** executives.

Prompt about:
Supporting organizations engaging executives in higher-level decision-making and other managerial activities
Sponsorship to leadership training and conferences/workshops
Mentorship programs
When and how often

87. Do/did members of [*insert group name*] always agree with the group executives and their decisions?

Prompt about:
How are different opinions expressed among members? Between members and executives? Among different executives of [*insert group name*]*?*
Has this changed over time?

88. What procedures does/did [*insert group name*] have for resolving conflicts and disagreements?

Prompt about:
Who do members, executives and (non-members?) first go to when they have conflicts? Where next if not resolved until a resolution in reached?
What happens if a conflict does not get resolved after all steps have been taken to resolve it
Where necessary, how are punishments and compensations decided?

89. How does [did] the price premium work in [*insert group name*]?

Prompt about:
Who manages [managed] the price premium? Executives? Members? LBC?
Is [was] information about the price premium shared with members? When? How?
Is [was] the price premium 'enough' for the farming practices required? Explain why?
Other …

90. What are/were the challenges that [*insert group name*] is facing [or was facing at the time it ceased operating].

Prompt about:
Issues concerning executives and leadership. How are these issues related to capacity of leaders?
Issues concerning members and membership How are these issues related to capacity of members?
Issues concerning the group's relationship with government, LBO, third-party certification organization, others. How are these issues related to capacity of 3rd party organization(s)?
Other…

ASK THIS LAST QUESTION TO THE CHIEF OR ASSEMBLY(WO)MAN OF THE COMMUNITY. LET THE RESPONDENT KNOW THAT WE WOULD LIKE THEM TO THINK OF THESE QUESTIONS FROM THE PERSPECTIVE OF THEM BEING THE CHIEF OR ASSEMBLY(WO)MAN.

IF THIS IS SOMEONE WHO HAS RESPONDED TO THE REST OF THE SURVEY, MAKE SURE THAT YOU GET THEIR PERSPECTIVES OUTSIDE OF ALL THAT THEY HAVE ALREADY SAID

91. Based on your position as a community leader [and besides all that you mentioned earlier], what do you think could be the reason(s) why farmer groups succeed or not in this community?

Prompts:

- *What do you know about the community (leaders and/or members) that could contribute to the success or failure of farmer groups?*
- *What do you know about farmer groups in this community that could contribute to their success or failure?*
- *What do you know about organizations that support farmer groups that could contribute to their success or failure?*

THANK YOU SO MUCH FOR SHARING WITH ME. I HAVE A FEW FINAL QUESTIONS.

SECTION 4: RESPONDENT INFORMATION

92. How many years have you been a member of [*insert group name*]?

93. Have you ever helD an executive position in [*insert group name*]?
a. Yes
What position(s) and for how long
b. No
Why not?

94. Is/was any executive of [*insert group name*] a member of your household?
a. Yes
What position(s) and for how long
b. No

95. *INDICATE GENDER OF RESPONDENT*
a. *Male*

b. *Female*

96. How old are you? *WRITE AGE IN COMPLETED YEARS*

97. What is the highest level of education you have completed?

a. None
b. Elementary/Primary
c. Middle School/JSS/JHS
d. A/O Level/SSS/SHS
e. Tertiary other than bachelor degree
f. Bachelor's degree
g. Master's degree
i. PhD/other terminal degree

Interview End Time: *HH*__ __:*MM*__ __

GPS Location:
Latitude_____Longitude_____Altitude_____

THAT'S IT! THANK YOU SO MUCH FOR YOUR TIME AND HELP.

APPENDIX G: RESULTS OF DATA FROM GROUP MEMBERS

Table G.1: Importance of various entities and objectives in group formation

Variable	Mean (SD)			ANOVA (F)
	Fully operational (n=66)	Partially operational (n=31)	Ceased operating (n=28)	
… were *(1 - 4)* important in helping to establish group				
Community leader(s)	3.23	3.00	3.28	0.45
	(1.23)	(1.28)	(1.10)	
Community member(s)	3.90	3.60	3.76	2.69*
	(0.30)	(0.86)	(0.72)	
Sustainability certification organization(s)	2.16	2.14	3.16	3.74**
	(1.46)	(1.46)	(1.26)	
Government agency(s)	1.87	1.48	1.58	0.95
	(1.36)	(0.90)	(1.07)	
NGO(s)	2.44	2.11	1.32	4.33**
	(1.50)	(1.49)	(0.95)	
Licensed buying company(s) (LBCs)	2.40	1.96	2.75	1.65
	(1.48)	(1.36)	(1.41)	
Private business(s), other than LBCs	1.07	1.00	1.00	0.51
	(0.45)	(0.00)	(0.00)	
… was *(1 - 4)*^{2} important for community **leaders** during the formation of group				
Improving farming practices	3.96	3.95	3.91	0.32
	(0.21)	(0.21)	(0.29)	
Buying inputs and services, and selling produce as a group	3.31	3.00	3.50	1.14
	(1.12)	(1.20)	(1.01)	
Access to price premium	1.80	2.18	1.47	1.59
	(1.29)	(1.37)	(1.12)	
Facilitating labor exchange	2.71	1.91	2.18	3.58**
	(1.20)	(1.19)	(1.30)	
Improving relationship with LBCs by working as a group	2.58	2.18	3.24	4.33**
	(1.26)	(1.22)	(1.00)	
Receiving additional support from organizations	3.96	3.73	3.77	1.72
	(0.21)	(0.77)	(0.69)	
… was *(1 - 4)*^{2} important for community **members** during the formation of group				
Improving farming practices	3.93	3.86	3.92	0.51
	(0.25)	(0.44)	(0.28)	
Buy inputs and services, and sell produce as a group	3.28	2.90	3.48	1.95
	(1.11)	(1.21)	(1.08)	
Access to price premium	2.09	2.52	1.54	3.57**
	(1.35)	(1.40)	(1.14)	
Facilitating labor exchange	2.45	1.76	1.92	3.60**
	(1.27)	(1.12)	(1.32)	
Improving relationship with LBCs by working as a group	2.33	1.90	3.16	7.68***
	(1.25)	(1.18)	(1.11)	

Table G.1 (cont'd)

Receiving additional support from organizations	3.89 (0.45)	3.66 (0.90)	3.80 (0.71)	1.25

1–Not important at all, 2–Somewhat important, 3–Important, or 4–Very important

Table G.2: Support that group received during first and last year of operation

Variable	Mean (SD) Fully operational (n=66)	Partially operational (n=31)	Ceased operating (n=28)	ANOVA (F)
Support received during first year of operation				
Number of organizations that supported group	0.91 (0.52)	0.91 (0.43)	1.00 (0.32)	0.32
Group received support from…*(0/1)*				
Government agency(s)	0.12 (0.33)	0.23 (0.43)	0.21 (0.42)	1.09
Sustainability certification organization(s)	0.18 (0.39)	0.29 (0.46)	0.14 (0.36)	1.14
NGO(s)	0.23 (0.42)	0.13 (0.34)	0.11 (0.32)	1.29
Licensed buying company(s) (LBCs)	0.22 (0.42)	0.09 (0.29)	0.48 (0.51)	4.80**
Private business(s), other than LBCs	0.08 (0.27)	0.10 (0.30)	0.00 (0.00)	1.31
Cooperative union	0.00 (0.00)	0.00 (0.00)	0.04 (0.19)	1.75
Group received **MOST** support from…*(0/1)*				
Sustainability certification organization(s)	0.09 (0.29)	0.10 (0.30)	0.11 (0.32)	0.03
Government agency(s)	0.12 (0.33)	0.16 (0.37)	0.18 (0.39)	0.31
NGO(s)	0.20 (0.40)	0.13 (0.34)	0.07 (0.26)	1.28
Licensed buying company(s) (LBCs)	0.08 (0.27)	0.10 (0.30)	0.36 (0.49)	7.31***
Private business(s), other than LBCs	0.05 (0.21)	0.00 (0.00)	0.00 (0.00)	1.37
Cooperative union	0.00 (0.00)	0.03 (0.18)	0.00 (0.00)	1.53
Proportion of supporting organizations that offered…				
Training and capacity building	0.93 (0.26)	0.89 (0.32)	0.90 (0.31)	0.11
Financial assistance	0.77 (0.41)	0.79 (0.42)	0.45 (0.51)	4.31**
Free inputs	0.09 (0.26)	0.05 (0.23)	0.00 (0.00)	1.03
Free extension services	0.55 (0.49)	0.68 (0.48)	0.50 (0.51)	0.76
Other support	0.07 (0.25)	0.00 (0.00)	0.10 (0.31)	0.90

Table G.2 (cont'd)
Support received during last year of operation

Number of organizations that supported group	1.17 (0.50)	0.41 (0.59)	0.38 (0.50)	25.99***
Group received support from…*(0/1)*				
Government agency(s)	0.17 (0.38)	0.13 (0.34)	0.18 (0.39)	1.87
Sustainability certification organization(s)	0.14 (0.35)	0.06 (0.25)	0.00 (0.00)	1.03
NGO(s)	0.45 (0.50)	0.35 (0.49)	0.25 (0.44)	1.49
Licensed buying company(s) (LBCs)	0.14 (0.35)	0.10 (0.30)	0.14 (0.36)	1.18
Private business(s), other than LBCs	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-
Cooperative union	0.02 (0.12)	0.10 (0.30)	0.04 (0.19)	1.54
Proportion of supporting organizations that offered…				
Training and capacity building	0.91 (0.28)	0.75 (0.46)	1.00 (0.00)	1.32
Financial assistance	0.88 (0.28)	0.88 (0.35)	0.75 (0.46)	0.43
Free inputs	0.04 (0.20)	0.00 (0.00)	0.13 (0.35)	0.79
Free extension services	0.57 (0.47)	0.25 (0.46)	0.38 (0.52)	1.74
Other support	0.02 (0.14)	0.13 (0.35)	0.00 (0.00)	1.46
External support ceased more than three years ago/before group ceased operating	0.05 (0.21)	0.45 (0.51)	0.36 (0.49)	15.09***

Table G.3: Selection of executives, and leadership challenges

Variable	Mean (SD)			ANOVA (F)
	Fully operational (n=66)	Partially operational (n=31)	Ceased operating (n=28)	
Number of executive positions				19.21***
	4.46	2.08	1.61	
	(2.49)	(2.28)	(2.13)	
Principal executive position				
Principal executive is chosen through…*(0/1)*				
Appointment by supporting organization(s)	0.02	0.00	0.11	3.47**
	(0.12)	(0.00)	(0.32)	
Appointment by community leader(s)	0.02	0.00	0.04	0.59
	(0.12)	(0.00)	(0.19)	
Vote of all group members	0.76	0.35	0.11	26.01***
	(0.43)	(0.49)	(0.32)	
Vote by executive board	0.00	0.00	0.00	-
	(0.00)	(0.00)	(0.00)	
Self-appointment	0.00	0.00	0.04	1.75
	(0.00)	(0.00)	(0.19)	
Other means	0.05	0.10	0.18	2.22
	(0.21)	(0.30)	(0.39)	
Number of times selection process has been conducted	1.98	1.64	1.00	9.12***
	(0.87)	(0.74)	(0.00)	
Number of different individuals that have occupied position	1.44	1.27	1.00	5.14***
	(0.54)	(0.46)	(0.00)	
Other executive positions				
Other executives are chosen through…*(0/1)*				
Appointment by supporting organization(s)	0.02	0.00	0.04	0.59
	(0.12)	(0.00)	(0.19)	
Appointment by community leader(s)	0.02	0.00	0.04	0.59
	(0.12)	(0.00)	(0.19)	
Vote of all group members	0.77	0.35	0.11	28.08***
	(0.42)	(0.49)	(0.32)	
Vote by executive board	0.00	0.00	0.00	-
	(0.00)	(0.00)	(0.00)	
Self-appointment	0.00	0.00	0.00	-
	(0.00)	(0.00)	(0.00)	
Other means	0.03	0.10	0.21	4.36**
	(0.17)	(0.30)	(0.42)	
Number of times selection process has been conducted	2.02	1.64	1.00	9.09***
	(0.88)	(0.74)	(0.00)	
Group ever taken steps to train and build capacity of **executives** *(0/1)*	0.00	0.00	0.00	-
	(0.00)	(0.00)	(0.00)	
Group ever taking steps to develop **new** leaders *(0/1)*	0.00	0.00	0.00	-
	(0.00)	(0.00)	(0.00)	

Table G.3 (cont'd)

Supporting organizations ever taken steps to train and build capacity of **executives** *(0/1)*	0.87 (0.34)	0.55 (0.51)	0.36 (0.50)	14.81****
Supporting organizations ever taking steps to develop **new** leaders *(0/1)*	0.06 (0.24)	0.00 (0.00)	0.00 (0.00)	1.37
Executives discuss financial reports with members … *(1 - 4)*b	2.06 (0.65)	1.32 (0.65)	1.18 (0.55)	25.79***
Executives assign tasks to members and/or groups of members *(1 - 4)*[b]	2.24 (1.02)	1.26 (0.51)	1.18 (0.48)	24.23***
Most pressing leadership challenges during the last 3 years (0/1)				
Executives embezzle group resources *(respondent not prompted)*	0.23 (0.43)	0.39 (0.50)	0.24 (0.44)	1.02
Executives do not have adequate leadership training and capacity	0.09 (0.28)	0.26 (0.45)	0.10 (0.30)	2.03
The group is unable to develop new leaders	0.26 (0.44)	0.48 (0.51)	0.10 (0.30)	4.38**
Executives discriminate among members, e.g. in sharing resources	0.17 (0.38)	0.13 (0.34)	0.19 (0.40)	0.15
Lack of commitment among executives	0.31 (0.47)	0.61 (0.50)	0.19 (0.40)	4.90**
Executives do not engage members in group management and decision-making	0.31 (0.47)	0.30 (0.47)	0.19 (0.40)	0.54

Note: [b] 1– Never, 2– Rarely, 3– Often, or 4 – Very often

Table G.4: Participation in group decision-making and activities

Variable	Mean (SD)			ANOVA (F)
	Fully operational (n=66)	Partially operational (n=31)	Ceased operating (n=28)	
(Dis)agrees with group decisions regarding… (1 - 5)[f]				
Amount paid as price premium	4.76	2.90	3.46	14.80***
	(1.58)	(1.66)	(1.02)	
Distribution of price premium among various uses	4.44	4.48	3.71	40.39***
	(1.58)	(0.93)	(1.37)	
Time of paying price premium	4.33	3.71	2.00	20.02***
	(0.80)	(1.17)	(1.05)	
Selling of certified cocoa beans	4.29	2.16	3.18	6.17***
	(1.22)	(1.30)	(1.06)	
Meetings (frequency, days, times, venue, duration etc.)	3.73	4.13	3.96	6.83***
	(1.05)	(1.55)	(1.35)	
Membership fees and other payments	3.74	4.48	1.93	22.07***
	(0.97)	(0.99)	(0.77)	
Internal inspection	4.62	4.48	3.54	6.17***
	(0.81)	(0.81)	(1.12)	
External auditing	4.26	4.32	3.36	10.43***
	(1.03)	(0.85)	(1.00)	
Requirements for cocoa certification	4.62	2.52	1.93	9.41***
	(1.21)	(1.55)	(1.12)	
(Dis)agrees that group members are engaged in decision-making regarding… (1 - 5)[f]				
Amount paid as price premium	2.36	2.10	3.71	9.24***
	(1.72)	(1.32)	(0.86)	
Distribution of price premium among various uses	4.38	2.68	1.71	14.76***
	(1.76)	(1.40)	(1.02)	
Time of paying price premium	3.42	1.29	2.86	7.91***
	(1.74)	(1.09)	(1.18)	
Selling of certified cocoa beans	2.80	2.00	1.75	3.52**
	(1.67)	(1.29)	(0.98)	
Meetings (frequency, days, times, venue, duration etc.)	3.89	1.87	3.07	3.92**
	(1.60)	(1.60)	(1.49)	
Membership fees and other payments	2.85	4.39	2.00	8.79***
	(1.60)	(1.47)	(1.69)	
Internal inspection	2.68	1.94	2.46	2.88*
	(1.76)	(0.69)	(1.36)	
External auditing	2.47	1.39	2.93	2.45*
	(1.11)	(0.84)	(1.10)	
Requirements for cocoa certification	2.61	1.90	2.75	1.47
	(1.82)	(1.38)	(1.04)	

Table G.4 (cont'd)

During the last 3 years group had… (1 - 4)[g]				
Regular/general meetings for members	1.30 (0.38)	2.55 (0.36)	2.00 (0.00)	25.31***
Trainings on sustainable practices and/or sustainability certification requirements	2.71 (0.55)	1.06 (0.77)	1.86 (0.97)	9.87***
Share of group members who attend(ed) a typical…				
Regular/general meetings for members	50.00 (25.00)	56.05 (12.20)	0.00 (0.00)	9.71***
Trainings on sustainable practices and/or sustainability certification requirements	69.70 (14.57)	50.00 (13.93)	54.42 (22.03)	8.68***
First 12 months of operation				
Members who almost always attend meetings/activities	69.15 (14.81)	76.26 (12.99)	66.85 (17.25)	2.49*
Members who attend some meetings/activities	18.62 (11.11)	17.81 (13.68)	29.50 (19.50)	5.20***
Members who almost never attend meetings/activities	8.71 (10.02)	3.15 (6.39)	13.50 (21.03)	4.04**
Last 12 months of operation				
Members who almost always attend meetings/activities	68.10 (16.53)	46.55 (24.17)	42.81 (23.20)	17.68***
Members who attend some meetings/activities	20.79 (12.24)	27.88 (20.45)	33.14 (23.39)	4.70**
Members who almost never attend meetings/activities	10.21 (11.13)	12.75 (14.12)	33.43 (27.50)	16.52***

Note: [f]1– Strongly disagree, 2– Somewhat disagree, 3–Neither agree nor disagree, 4– Somewhat agree, or 5- Strongly agree. [g]1– Never, 2– Rarely, 3– Often, or 4 – Very often

Table G.5: Trust in executives, intra-group conflicts and conflict resolution

Variable	Mean (SD)			ANOVA (F)
	Fully operational (n=66)	Partially operational (n=31)	Ceased operating (n=28)	
Trust in executives during the last year (1 - 5)[c]				
Executives are knowledgeable about everything the group is engaged	4.47 (0.85)	3.26 (1.21)	3.21 (1.10)	23.46***
Members are confident that advice given my executive is the same as the executive would do.	4.33 (1.04)	3.16 (1.27)	3.50 (1.07)	13.66***
Executives are accountable to members	4.12 (1.10)	2.90 (1.37)	2.68 (1.22)	19.22***
Members are confident that executives are truthful and frank in dealing with members, even when there are problems	4.11 (1.18)	2.90 (1.33)	3.50 (1.17)	10.71***
Executives understand the problems of members	4.03 (1.24)	2.94 (1.29)	3.18 (1.31)	9.58***
Executives are concerned about members' welfare during important decision-making	4.11 (1.22)	2.71 (1.27)	2.96 (1.26)	16.79***
Executives create and sustain supportive environment	4.02 (1.33)	2.90 (1.25)	3.04 (1.20)	10.50***
How often did the following happen last year (1 - 4)[d]				
Friction among group members	3.38 (0.89)	3.39 (0.96)	3.54 (0.93)	0.29
Personality conflicts	3.53 (0.83)	3.50 (0.88)	3.71 (0.69)	0.52
Tension among members	3.58 (0.85)	3.54 (0.84)	3.50 (0.98)	0.09
Emotional conflicts among members	3.58 (0.82)	3.54 (0.84)	3.71 (0.81)	0.32
Disagreements regarding how the group is run	3.35 (0.94)	2.75 (1.24)	3.17 (1.05)	3.28**
Conflicts about ideas	3.32 (0.86)	2.75 (1.11)	3.72 (0.68)	8.01***
Differences of opinion	1.68 (0.79)	1.93 (0.94)	2.20 (1.12)	3.14**
Group has processes and procedures for resolving conflicts and disagreements *(0/1)*	0.25 (0.43)	0.00 (0.00)	0.00 (0.00)	7.06***
Processes and procedures for resolving conflicts and disagreements in group are… (1 - 5)[e]				
Open and transparent	3.35 (0.73)	3.00 (0.00)	3.00 (0.00)	6.60***

Table G.5 (cont'd)

Applied to everyone equally	3.35	3.00	3.00	6.60***
	(0.73)	(0.00)	(0.00)	
Always followed in resolving conflicts and disagreements	3.35	3.00	3.00	6.60***
	(0.73)	(0.00)	(0.00)	
Effective in resolving conflicts and disagreements	3.33	3.00	3.00	6.46***
	(0.71)	(0.00)	(0.00)	

Note: [c] 1– Strongly disagree, 2– Somewhat disagree, 3–Neither agree nor disagree, 4– Somewhat agree, or 5- Strongly agree [d]1– Never, 2– Rarely, 3– Often, or 4 – Very often

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