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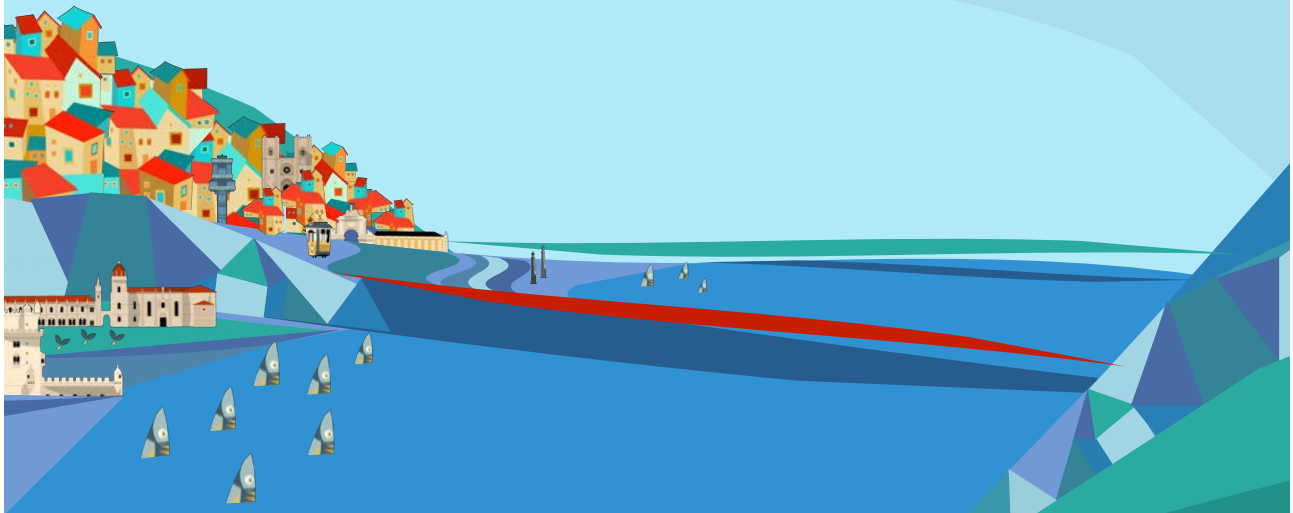

Proceedings
Volume 3 of 3

Edited by:
João Joanaz de Melo, Antje Disterheft,
Sandra Caeiro, Rui F. Santos and Tomás B. Ramos

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Proceedings of the
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ISDRS 2016

Rethinking Sustainability Models and Practices: Challenges for the New and Old World Contexts

Volume 3 of 3

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The ISDRS 2016 Proceedings are divided into three volumes, organized according to the Conference theme special tracks and the core ISDRS themes and tracks. Papers associated to posters are presented at the end of each theme chapter. At the end of each volume there is a complete authors´ index.

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- Track B. Oceans and Marine Sustainability: Innovation and Management
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(FP) full paper

Certification and farmer organization in the Indonesian coffee sector: benefits from a smallholder point-of-view

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Abstract

In this paper we distinguish three types of farmer organizations in the Indonesian coffee sector; farmer groups, cooperatives and KUBEs. These organizations differ in their organizational structure, have been initiated and managed by different ministries and adopt different sets of rules. We are interested in the way in which different organizational structures affect Indonesian coffee smallholders and whether certified group members perceive more or different benefits than their uncertified counterparts. The paper addresses three questions: (1) 1. How do different forms of farmer organizations differ in their organizational structure, and what is the role of certification? (2) How and to what extent can the differences in perceived benefits be related to differences in organizational structure? (3) What is the relative importance of certification -compared to organization- in explaining differences in perceived benefits? To answer these questions, we include certified and uncertified smallholders in our research. The certified smallholders are part of different schemes: Fairtrade, Utz certified, Rainforest Alliance, and 4C. Both for the certified and uncertified farmers, we include farmers who are member of farmer groups, cooperatives or KUBEs (or a combination), and farmers who are not part of any formal form of organization. We found that the differences of organizational structure and certification schemes have little effects on the differences of farmers' perceive benefits, the organizational structures the certified farmers are part of do not necessarily create more benefits than the organizational structure of uncertified farmers, organizational structures in different certification schemes do not differently benefit farmers, and organization is relatively more important than certification in explaining the differences of perceived benefits.

Keywords: coffee certification, farmer organizations, organizational structure, perceived benefits, Indonesia

1. Introduction

Farmer organizations have been progressively promoted as important means for linking smallholders to global certified coffee markets. They are believed to bring a form of collective action that contributes to the success of the smallholders' participation in certification (Narrod et al., 2009). Farmer organizations make certification of smallholders economically feasible through offering economies of scale that reduce compliance costs for farmers and facilitates the distribution of costs among smallholder members, consolidating them as larger producers, reducing individual upfront investments and providing better access to resources (Maertens & Swinnen, 2009; Mausch, Mithöfer, Asfaw, & Waibel, 2009). These organizations also reduce the transaction costs for service providers working with smallholders and serve as essential instruments for systematic knowledge transfer (Brandi et al., 2013). It is, however, not easy to distinguish between effects of certification on the one hand and effects of organization on the other hand, as membership of a farmer organization has become de facto mandatory for smallholders in order to become certified (Brandi et al., 2013; Loconto & Dankers, 2014). Certification is unable to deal with farmers individually because they are large in number and vary widely in terms of financial opportunities, knowledge, and skills. These variations and individual limitations can be overcome by encouraging farmers to form organizations and work together. Although farmer organizations seem to play

important roles for farmers they cannot be analysed or compared as homogeneous entities as different forms of organizations with distinguishing organizational structures exist in practice. In Indonesia for example, we observe three types of farmer organizations that play a role in the coffee sector: farmer groups, cooperatives and KUBEs. These organizations have different organizational structures since they were initiated and managed by different ministries, and are currently regulated by different sets of rules.

Although different global certification schemes in Indonesia such as Fairtrade, Rainforest Alliance, Utz-certified and 4C may have different procedures on how to include smallholders in their schemes, they all approach smallholders through the farmer organizations. This paper will offer insights from the Indonesian coffee sector by analysing benefits resulting from the different types of farmer organizations for certified and conventional farmers.

In certification literature, studies mainly focus on evaluating the benefits from participation in certification, and they found certification provides opportunity for farmers to improve their social, economic, and environmental conditions as well as to enhance their capacity building (Bray, Sanchez, & Murphy, 2002; Raynolds, Murray, & Leigh Taylor, 2004; Taylor, Murray, & Raynolds, 2005). In organization literature, studies are rich regarding the benefits of farmer organization (Fischer and Qaim, 2012; Hellin, Lundy, & Meijer, 2009; Kaganzi et al., 2009; Markelova, Meinzen-Dick, Hellin, & Dohrn, 2009;). According to the studies, farmer organization benefits farmers in term of higher access to credit and farming inputs. Farmer organization is also considered as a key factor to enhance smallholder access to market and innovation adoption. However, rarely studies that evaluate both the impact of certification and organization concurrently. While certification needs organization to include farmer in certification, we have lack of knowledge whether certification or organization that is relatively more important in providing benefits for farmers. We also lack of knowledge whether different schemes and different organizational structures meaningfully lead to different benefits.

Organizational structures are believed to influence the fundamental functions of organizations to deliver support and services to smallholders. Smallholders consider support and services as the benefits of their organizational membership. In the context of certifications, it is therefore important to analyse in what way and to what extent the differences in organizational structure matter for the organizations' provision of support and services, and ultimately for farmers' benefits. This paper addresses the following research questions:

1. How do different forms of farmer organizations differ in their organizational structure, and what is the role of certification?
2. How and to what extent do differences in organizational structure lead to differences in perceived benefits from the farmers?
3. What is the relative importance of certification - compared to organization- in explaining differences in perceived benefits?

1.1. The landscape of farmers' organizations in Indonesia

In Indonesia, many existing farmer organizations were unproductive or they merely limit their function as a distributor of aids (material and cash) from the government. However, in 2001, local governments open negotiations with farmers for utilizing protected forests for coffee production activities. The governments only interest to have the negotiations with a group of farmers rather than individual smallholders. This triggers farmers to revive the existing organizations or establish the new ones (Arifin, 2010). The role of organizations for farmers seems to be more important since the presence of certification.

1.1.1. Farmer groups

In Indonesia, farmer groups were initiated by the central government in 1979 and have a formal status in the country. The organization is currently regulated by the Ministry of Agriculture. According to the ministry's regulation of Peraturan Menteri Pertanian Nomor 82 (2013), a farmer group is defined as a group of farmers formed on the basis of mutual interest, similarity of commodities, and geographical closeness among individuals. Averagely a farmer group

consists of 30 individual members who mostly live in the same village. The main functions of a farmer group are to facilitate farmers' learning process and to enhance cooperation among them. A farmer group also serves as a production unit in which members are not seen as individuals but as a whole or a unit to achieve economies of scale.

1.1.2. Cooperatives

Cooperatives are developed based on the principles stated in the Indonesian Cooperative Law (Undang-undang Nomor 17, 2012). According to the law, a cooperative is founded by at least twenty individuals who contribute some of their wealth to the initial capital of the organization. Their agreement to form a cooperative must be drawn up by a notary and legalized by the Ministry of Cooperative. A cooperative therefore has authorised rights and responsibilities, but can also be sanctioned if the organization performs against the law. The main functions of a cooperative are to increase economies of scale, production efficiency, and the bargaining position of farmers.

1.1.3. KUBEs

KUBEs have been initiated by the Indonesian Ministry of Social Affairs since 1983 in a response to the government regulation on welfare services for the poor (Peraturan pemerintah Republik Indonesia Nomor 42, 1981). The underlying idea of the development of KUBEs is to strengthen the existing micro businesses by integrating them into a larger business venture. KUBEs are found in both rural and urban areas and they may differ in their size. A small KUBE consists of five to seven small household-scale businesses that agree to collaborate and merge their available assets. Medium and big KUBEs consist of eight to fifteen, and sixteen to thirty micro businesses respectively. In the Indonesian coffee sector, KUBEs manage different farmer groups, and transport the coffee beans to the roasting companies (in the case of conventional coffee) or exporters (for certified coffee) after cleaning and drying the coffee beans (Ibnu et al., 2015).

1.1.4. Hypotheses regarding organizational structure and certification

Organizational structures influence how organizations provide support and services to their members (Gibson et al., 2011). First, structures influence organizational processes that relate to regularly-occurring organizational activities. In this context, structures provide the foundation for standard operating procedures, routines, and orientations. The later refers to whether an organization focuses more on internal (e.g., strengthening cohesion and increasing mutual support among members) or external (e.g., representing and negotiating farmers interests) relationship.

Second, structure determines which individuals participate in decision-making processes, and thus to what extent their views shape the organization's actions. Third, structure shapes the information flow through organizations and to key decision makers and therefore influences which problems are tackled by an organization and which solutions are considered.

Although not specifically considering the role of certification, the literature is rather rich in presenting the benefits of organizations. These benefits vary widely and differ from better job opportunities (Jena, Stellmacher, & Grote, 2015; Place et al., 2004; van Rijsbergen, Elbers, Ruben, & Njuguna, 2016), to improved skills (Bitzer, Glasbergen, & Arts, 2013; Neilson, 2008; Ruben & Zuniga, 2011 ;Utting, 2008), and from better bargaining power (Bacon, 2010; Taylor, Murray, & Raynolds, 2005) to better networking (Raynolds, Murray, & Leigh Taylor, 2004). For this paper, we divide these benefits in 5 categories. First, economic benefits such as saving costs through collective marketing, better prices for their products, better access to inputs and production facilities, more secure land tenure and better access to credits and options for saving money.

Second, social or community benefits in the form of better education, health, and housing services as well as access to public facilities (e.g. safe drinking water and sanitation). Farmer organizations also contribute to the organization of social events, strengthening social relations among community members, and providing job. Third, we identify benefits in the domain of representation. Organizations represent farmers in formal meetings, and negotiate their interests with external parties such as the government or firms. In this context, organizations play a role in strengthening the farmers' bargaining power. Fourth, capacity building benefits facilitated by farmer organizations refer to improved knowledge and skills on behalf of the farmers through training, the provision

of information and technical support, but also to enhanced participation in decision making (Bitzer, Glasbergen, & Arts, 2013; Neilson, 2008). Finally, we observe benefits in terms of networking. This often takes the form of networking and collaborating with other organizations (like private companies) to enhance financial capital and secure market access.

The extent to which farmers' benefits should be attributed to certification or organization remains questionable. Based on the certification and organization literatures, we developed four hypotheses regarding the relationships between certification, organizational structure, and benefits for farmers:

Hypothesis 1: Different organizational structures lead to differences in perceived benefits
Hypothesis 2: the organizational structures the certified farmers are part of do not create more benefits than the organizational structures the uncertified farmers are part of.
Hypothesis 3: Organizational structures in different certification schemes differently benefit farmers.
Hypothesis 4: Organizational structures are relatively more important than certification to explain differences in farmers' benefits.

2. Methods

We surveyed coffee farmers in Lampung and Aceh provinces, and the certified farmers are those participating in 4C, Utz-certified, Fairtrade (FT), and Rainforest Alliance (RA). For being certified with 4C, Utz, and RA, individual farmers in Lampung have to join farmer groups, and these groups become member of KUBEs. In Aceh, cooperatives play a role in the FT scheme. Certified farmers mostly have a dual membership status: farmer group plus KUBE (FGKUBE) or farmer group plus cooperative (FGcooperative). Uncertified farmers only involve in farmer groups or become independent smallholders. KUBEs and cooperatives are found to participate in certification, but not all for farmer groups. The uncertified farmer groups refer to independent farmer groups (IFG), and they do not join either a KUBE or a cooperative. Hence, the organizations compared in this paper are IFG, FGKUBE, and FGcooperative.

To answer the first research question, we determine (general) structural aspects based on the government's rules and regulations for the organizations. We then conducted interviews and had open discussions not only with farmers but also with ICS personnel, staffs of cooperatives and KUBEs, and village leaders to have more specific information about the structures.

Table 1 presents our respondents that can be distinguished based on participation in certification (i.e., certified and uncertified farmers) and organizational membership (i.e., being members of organizations and independent smallholders). This study uses a proportional random sampling to collect data from certified and uncertified respondents (i.e., each consisting of 80 farmers). Since four schemes are included in the study, we took twenty respondents per scheme, and this makes 160 respondents in total.

Table 1. Types of respondents

Type of respondents		Schemes
Certified smallholders	Members of FGKUBE	4C, Utz, RA
	Members of FGcooperative	FT
Uncertified smallholders	Members of IFG	-
	Independent smallholders	-

To answer the second research question, we asked the organized farmers several questions (measured by a five-point Likert scale) related to the perceived benefits (see Appendix A). We used One Way Anova test to analyse potential differences in the perceived benefits based on the differences of their organizational structures.

To answer the third research question, we operationalized the benefits. For example, the perceived economic benefit is operationalized by asking farmers whether organizations benefit them in term of easier marketing of their produce, better price, and higher access to farming input, production facility, credit, and financial saving as well as a greater secure of land tenure. All

the questions can be seen in Appendix B and are derived from the different literature sources. Each benefit is also presented on a five-point-Likert-scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

We then operationalize organizations and certification with codes. For organizations, the codes are ranging from 0 (independent farmers) to 3 (FGcooperative). For certification schemes, the codes are ranging from 0 (uncertified) to 4 (FT) (see Table 2).

Table 2. Codes used in the ordinal logistic regression for the dependent variables

Organization	Code	Certification Scheme	Code
Independent farmers *	0	Uncertified	0
IFG*	1	RA	1
FGKUBE**	2	Utz	2
FGcooperative**	3	4C	3
		FT	4

* uncertified
** certified

We applied an ordered logistic regression model to see the influences of certification schemes, organizations, and demographic variables on the perceived benefits. Hence, our general model is the outcomes or dependent variables (i.e., the perceived benefits) are measured by looking at the influences of the predictor or independent variables (i.e., certification schemes, organizations, and demographic variables). Demographic variables included in the regression are age (years), education (years), family number (number of people), experience (years), and landownership (hectares).

The overall score of a perceived benefit per respondent is obtained by summing up the respondent's scores for the benefit's items. The overall response score varies between individual farmers but falls within the ranges set up by the Likert scale. The ranges are distances between the maximum scores per level of Likert scale. For example, if a respondent's overall score for the perceived economic benefit is 30, the score actually fall between 27 (resulted from 9=number of questions items multiply by 3=neutral) and 36 (resulted from 9 multiply by 4= agree). The respondent's score is therefor in the range of 'neutral to agree.'

Based on the ranges, four ordered levels of responses are determined: level 1 ='disagree to strongly disagree', level 2='neutral to disagree', level 3='neutral to agree', and level 4='agree to strongly agree.' Since the maximum Likert scores depend on the number of question items, the ranges differ among the category of perceived benefits. We code the levels from 1 (disagree to strongly disagree) to 4 (agree to strongly agree) (see Table 3).

Table 3. Ordered category of the perceived benefits

Perceived benefits	Number of question items	Likert Scale	Maximum score	Range	Levels	Code
Economic	9	1	9			
	9	2	18	<18	disagree to strongly disagree	1
	9	3	27	≥18 to <24	neutral to disagree	2
	9	4	36	≥27 to <36	neutral to agree	3
	9	5	45	≥36	agree to strongly agree	4
Social/community	15	1	15			
	15	2	30	<15	disagree to strongly disagree	1
	15	3	45	≥30 to <45	neutral to disagree	2
	15	4	60	≥45 to <60	neutral to agree	3
	15	5	75	≥60	agree to strongly agree	4
Representation and/or negotiation	4	1	4			
	4	2	8	<8	disagree to strongly disagree	1
	4	3	12	≥8 to <12	neutral to disagree	2
	4	4	16	≥12 to <16	neutral to agree	3
	4	5	20	≥16	agree to strongly agree	4
Capacity building	11	1	11			
	11	2	22	<22	disagree to strongly disagree	1

	11	3	33	≥22 to <33	neutral to disagree	2
	11	4	44	≥33 to <44	neutral to agree	3
	11	5	55	≥44	agree to strongly agree	4
Networking and/or partnership	3	1	3			
	3	2	6	<6	disagree to strongly disagree	1
	3	3	9	≥6 to <9	neutral to disagree	2
	3	4	12	≥9 to <12	neutral to agree	3
	3	5	15	≥12	agree to strongly agree	4

The significant influence of certification and organization is shown by estimate (i.e., the regression coefficient) in the regression model which has a P-value of 0.05 or lower. The sign of the estimate (positive or negative) show the directions of the influences of organization and certification on the perceived benefits. The interpretation of the estimate is that for a one unit increase in a predictor variable, a perceived benefit level is expected to change by the value of its estimate while the other variables in the model are held constant. We determine the relative strength of organization compared to certification by summing up the estimates of the significant predictor variables to obtain the total estimates.

The ordered logistic model uses the concept of odds ratio to show the predicted probability of independent variables in the regression. The strength of the predictive probability is shown by the proportional odds ratios (i.e., the coefficient exponentiated) and is displayed in the output of regression as ExpB. The interpretations of ExpB are different between categorical and continuous independent variables. For categorical independent variables (e.g., 'organization', which has 4 groups: 'independent smallholder,' 'IFG,' 'FGKUBE,' and 'FGcooperative"), we interpret the odds that one group (e.g., 'independent smallholder' which is significant at P-value≤0.05) has a higher or lower value on the perceived benefits. A higher value means that the independent farmers are likely to 'agree to strongly agree' to the benefits rather than they 'disagree to strongly agree' compared to other reference groups (i.e., groups with ExpB equal to 1). For continuous independent variables (e.g., 'age', measured in years), we interpret that a single unit increase or decrease in age (e.g., a one year increase or decrease in age), is associated with the odds of the perceived benefits having a higher or lower value. A higher value means that a one year increase in farmers' age increasing the odds that they would consider 'agree to strongly agree' to the benefits.

3. Results and discussion

3.1. The influence of different structures of IFG, FGKUBE, and FGcooperative on the perceived benefits

Based mainly on discussions with respondents and the government regulation, Table 4 presents structural aspects of farmer groups, KUBEs, and cooperatives.

Table 4. Structural aspects of farmer groups, KUBEs, and cooperatives

Structural aspects	Farmer groups	KUBEs	Cooperatives
Administration	Rarely record financial activities	Start to manage cash-flow records.	Complete financial report (audited if requested)
Administrative sanction	No legal sanction for administrative failure	No legal sanction for administrative failure	Receive legal sanction for administrative failure
Focus of activities	Production activities	Pre-harvest activities and marketing.	Pre-harvest activities and marketing.
Orientation	Inward oriented (focus on internal relationship)	Start to be outward oriented.	Outward oriented (connect to local buyers, exporters, roasters etc.).
Decision making	Consensus	Consensus	Consensus, if not voting
Member participation in decision making	Tend to passive, rely on leader and other colleague farmers	Tend to passive, rely on business operator	Tend to active, have a right to vote
Level of formality inside the organization	Low	Low	High

Structural aspects	Farmer groups	KUBEs	Cooperatives
Leadership style	Often centralize on group leader	Often centralize on business operator	More decentralize
Flow of information	Mostly through agricultural extension officer and group leader.	Mostly through social worker and business operator.	Through member meeting, supervisory, and executive board
Type of membership	Exclusive (based on many similarities such as neighborhood, type of farming, even ethnicity and language).	Rather exclusive (restricted to those in the nearby neighborhood and similarity of business type).	Inclusive (tries to include many different types of people from different regions).
Sources of funding	Highly depend on internal (e.g., member contribution) and external (i.e., government funding) sources	Internal (member) but still highly depend on additional capital from government	Independent, relies on both Internal (member) and external (private creditors) funding
Legal status	Mostly non-legal entity	Mostly non-legal entity	Legal entity

Certification triggers farmers to join more than one organization. Farmer group membership is insufficient to include farmers in certification. The farmers through their groups must be connected to KUBE which has a relationship with certificate holder (mostly multinational companies) or cooperatives (mostly hold certificate). Discussions with respondents revealed that connection with KUBEs/cooperatives has improved FG's administration aspect since they have to record both quantity and price of the coffee which they sell to KUBEs/cooperatives. FGs also changed their focus of activities from only focusing on production to more considering post-harvest and marketing especially regarding the quantity and quality of coffee requested by KUBEs/cooperatives. FGs farmers have also learned that both KUBEs and cooperatives are not the final buyers of their coffee. Consumers abroad are the final buyers and therefore their coffee production must be oriented to satisfy the consumers' demands as guided by certification principles (e.g., do not use banned pesticides and do not mix certified with uncertified coffee beans). Furthermore, farmers admitted that they no longer depend on group leaders for information. ICS (internal control system) personnel employed by KUBEs and cooperatives (to help farmers to comply with certification requirements) are other sources of information for the farmers.

However, farmers argue that some FGs structures are not influenced by KUBEs and cooperatives. FGs still maintain the informality of situation within the groups, member recruitment procedure, source of funding, and how they reach a decision in the groups. FGs are also still considered as non-legal entity and face no legal sanction for administrative failure. Following the interview results, we re-summarize the structural aspects of IFG, FGKUBE and FGcooperative as presented in table 5.

Table 5. Structural aspects of IFG, FGKUBE and FGcooperative

Structural aspects	**IFG**	**FGKUBE**	**FGcooperative**
Administration, focus of activities, orientation, and flow of information	Maintain FG's structure on Table 6	FG's structure is influenced by KUBE	FG's structure is influenced by cooperative
Administrative sanction, decision making, member participation in decision making, level of formality inside the organization, leadership style, type of membership, sources of funding, legal status	Maintain FG's structure on Table 6	Maintain FG's structure on Table 6	Maintain FG's structure on Table 6

We then run Anova test for administration, focus of activities, orientation, and flow of information to see their influences on the perceived benefits. The results are presented in Table. 6. The table shows that the structural aspects are only significant for the perceived benefits of representation of interests (P-value=0.003) and collaboration with others (P-value=0.000). First, FGKUBE and FGcooperative farmers perceived more benefits in term of representation of interests than the IFG farmers. The farmers perceive that FGKUBE or FGcooperative can connect them to buyers such as exporters or multinational companies. In contrast, the IFGs are perceived lack of direct access to such a buyer. Second, compared to IFG farmers, both FGKUBEs and FGcooperative farmers perceive they have more opportunities to have collaborations with other farmers outside their groups through meetings and events organized by KUBEs/cooperatives.

Table 6. Anova results for organized farmers

Perceived benefit		Sum of Squares	df	Mean Square	F	Sig.
Representation of interests *	Between Groups	4.841	2	2.420	6.263	.003*
	Within Groups	41.350	107	.386		
	Total	46.191	109			
Collaboration with others *	Between Groups	7.691	2	3.845	10.550	.000*
	Within Groups	39.000	107	.364		
	Total	46.691	109			

*. The mean difference is significant at the 0.05 level.

Multiple comparisons (Table 7) further show the effects of structural differences between FG, FGKUBE, and FGcooperative. However, the results tell us that the differences of administration, focus of activities, orientation, and flow of information do not lead FGKUBE versus FGcooperative farmers to be significantly different in the perceived benefits. We are thus unable to confirm the hypothesis 1 that different organizational structures lead to differences in the perceived benefits.

Table 7. Multiple comparison of Anova

Perceived benefit	(I) Administration, focus of activities, orientation, and flow of information	(J) Administration, focus of activities, orientation, and flow of information	Mean Difference (I-J)	Std. Error	Sig.
Representation of interests *	FGKUBE	IFG	.46667*	.13901	.003
		FGcooperative	-.01667	.16051	1.000
	FGcooperative	IFG	.48333*	.17945	.025
		FGKUBE	.01667	.16051	1.000
Collaboration with others *	FGKUBE	IFG	.61667*	.13500	.000
		FGcooperative	.13333	.15588	1.000
	FGcooperative	IFG	.48333*	.17428	.020
		FGKUBE	-.13333	.15588	1.000
*. The mean difference is significant at the 0.05 level.					

3.2. The influence of different forms of organizations and certification schemes on the perceived benefits

Table 8 presents the descriptive statistic of farmers' responses for the perceived benefits. Overall, the highest response is 'neutral to agree' (46.6%), followed by 'agree to strongly agree' (28.8%) and 'neutral to disagree' (24.6%). This statistics therefore implies that farmers tend to value higher the benefits rather than they value them lower.

Table 8. Descriptive statistic of farmers' responses for the perceived benefits

Perceived benefit	Response	N	Marginal Percentage
Overall	neutral to disagree	197	24.6%
	neutral to agree	373	46.6%
	agree to strongly agree	230	28.8%

Table 9 shows the results of ordered logistic regression which reveals the individual influences of the predictor variables of organization and certification on the perceived benefits. For the perceived economic benefits, we can see that all the predictor variables of organization (i.e., Independent farmers, IFG, FGKUBE, and FGcooperative farmers) have no significant results (all P-values > 0.05). This implies that the different forms of organization do not lead to differences in the perceived economic benefits. The results also reveal that the organization in which FT certified farmers are part of (i.e., FGcooperative), and the organization in which RA, Utz and 4C certified farmers are part of (i.e., FGKUBE) do not significantly lead the farmers to perceive the benefit differently. Thus, we cannot confirm hypothesis 3 that organizational structures in different certification schemes differently benefit farmers.

For the predictor variables of certification, only 4C certified farmers that significantly value the economic benefit (P-value= 0.035). Indicated by the positive sign of estimate (1.499), the 4C certified farmers value higher the benefit which means they 'agree to strongly agree' to feel the benefit rather than they 'disagree to strongly disagree.' Based on ExpB, the odds of 4C farmers considering 'agree to strongly agree' is 4.88 (95% CI, 1.11 to 18.11) times that of uncertified farmers (ExpB=1), RA certified (ExpB=1), and FT certified farmers (ExpB=1). Nevertheless, Utz certified farmers (insignificant with P-value=0.061, and ExpB=3.74) cannot be treated as a

reference group to 4C certified farmers, meaning their odds differ insignificantly. The Utz certified farmers also have no considerable different from uncertified farmers, RA certified, and FT certified farmers.

Table 9. The results of ordinal logistic regression for individual predictor variables of organization and certification

Perceived benefits	Predictor Variables	Estimate	Std. Error	Wald	df	Sig	ExpB	Lower _95_CI	Upper _95_CI
Economic	*Organization*								
	Ind. smallholders	0.015	0.576	0.001	1	0.979	1.02	0.33	3.14
	IFG	1.218	0.654	3.466	1	0.063	3.38	0.94	12.19
	FGKUBE	0.895	0.709	1.591	1	0.207	2.45	0.61	9.82
	FGcooperative	0.000	-	-	0	-	1.00	-	-
	Certification								
	Uncertified	0.000	-	-	0	-	1.00	-	-
	RA certified	0.000	-	-	0	-	1.00	-	-
	Utz certified	1.319	0.705	3.498	1	0.061	3.74	0.94	14.90
	4C certified*	**1.499**	**0.713**	**4.424**	**1**	**0.035**	**4.48**	**1.11**	**18.11**
	FT certified	0.000	-	-	0	-	1.00	-	-
Social/ community	*Organization*								
	Ind. Smallholders*	**1.175**	**0.519**	**5.133**	**1**	**0.023**	**3.24**	**1.17**	**8.95**
	IFG	0.714	0.566	1.591	1	0.207	2.04	0.67	6.19
	FGKUBE	0.575	0.614	0.877	1	0.349	1.78	0.53	5.92
	FGcooperative	0.000	-	-	0	-	1.00	-	-
	Certification								
	Uncertified	0.000	-	-	0	-	1.00	-	-
	RA certified	0.000	-	-	0	-	1.00	-	-
	Utz certified	0.950	0.613	2.400	1	0.121	2.58	0.78	8.59
	4C certified*	**1.847**	**0.639**	**8.363**	**1**	**0.004**	**6.34**	**1.81**	**22.16**
	FT certified	0.000	-	-	0	-	1.00	-	-
Representation and/or negotiation	*Organization*								
	Ind. Smallholders*	**-3.407**	**0.728**	**21.901**	**1**	**0.000**	**0.03**	**0.01**	**0.14**
	IFG	-1.293	0.732	3.118	1	0.077	0.27	0.07	1.15
	FGKUBE*	**2.433**	**0.945**	**6.624**	**1**	**0.010**	**11.39**	**1.79**	**72.68**
	FGcooperative	0.000	-	-	0	-	1.00	-	-
	Certification								
	Uncertified	0.000	-	-	0	-	1.00	-	-
	RA certified	0.000	-	-	0	-	1.00	-	-
	Utz certified*	**5.017**	**1.047**	**22.947**	**1**	**0.000**	**150.99**	**19.38**	**1176.14**
	4C certified*	**2.070**	**0.949**	**4.758**	**1**	**0.029**	**7.92**	**1.23**	**50.88**
	FT certified	0.000	-	-	0	-	1.00	-	-
	Organization								
Capacity building	**Ind. Smallholders***	**-5.367**	**0.920**	**34.067**	**1**	**0.000**	**0.00**	**0.00**	**0.03**
	IFG	-0.589	0.633	0.865	1	0.352	0.55	0.16	1.92
	FGKUBE	1.123	0.686	2.684	1	0.101	3.07	0.80	11.79
	FGcooperative	0.000	-	-	0	-	1.00	-	-
	Certification								
	Uncertified	0.000	-	-	0	-	1.00	-	-
	RA certified	0.000	-	-	0	-	1.00	-	-
	Utz certified*	**3.363**	**1.140**	**8.712**	**1**	**0.003**	**28.89**	**3.10**	**269.56**
	4C certified	1.233	0.702	3.089	1	0.079	3.43	0.87	13.58
	FT certified	0.000	-	-	0	-	1.00	-	-
Networking and/or partnership	*Organization*								
	Ind. Smallholders*	**-4.961**	**0.903**	**30.213**	**1**	**0.000**	**0.01**	**0.00**	**0.04**
	IFG	-0.079	0.648	0.015	1	0.903	0.92	0.26	3.29
	FGKUBE*	**1.651**	**0.707**	**5.448**	**1**	**0.020**	**5.21**	**1.30**	**20.86**
	FGcooperative	0.000	-	-	0	-	1.00	-	-
	Certification								
	Uncertified	0.000	-	-	0	-	1.00	-	-
	RA certified	0.000	-	-	0	-	1.00	-	-
	Utz certified	22.789	0.000	-	1	-	7.89E+09	7.89E+09	7.89E+09

	4C certified*	**1.551**	**0.709**	**4.790**	**1**	**0.029**	**4.71**	**1.18**	**18.90**
	FT certified	0.000	-	-	0	-	1.00	-	-
*. Significant at the P-value 0.05									

For the perceived social/community benefit, the effects of the predictor variables of organization and certification are significantly shown by independent farmers (P-value=0.023) and 4C certified farmers (P-value=0.004) respectively. Both independent smallholder (estimate=1.175) and 4C certified (estimate=1.847) farmers value higher the social/community benefit. The odds of independent farmers considering 'agree to strongly agree' is 3.24 (95% CI, 1.17 to 8.95) times that of the farmers belong to FGcooperative (ExpB=1). However, no significant differences among the independent farmers, IFG, and FGKUBE farmers. These results once again reveal that different forms of organizations do not lead to differences in perceived benefits. The results also tell us that the organizational structures the certified farmers are part of (i.e., FGKUBE) do not create more benefits than the organizational structure of uncertified farmers (i.e., IFG). Thus, confirming hypothesis 2. Additionally, the odds of 4C certified farmers valuing 'agree to strongly agree' is 6.34 (95% CI, 1.81 to 22.16) times higher than uncertified farmers (ExpB=1), RA certified (ExpB=1), and FT certified farmers (ExpB=1). The odds of these 4C farmers nevertheless differ insignificantly from Utz certified farmers.

In term of the benefit of representation and/or negotiation, the significant results of the predictor variables for organization are revealed by independent farmers, and for certification are shown by Utz certified and 4C certified farmers. The independent farmers significantly value lower the benefit (estimate=-3.407, P-value=0.01), meaning these farmers is likely to consider 'disagree to strongly disagree' to the perceived representation and/or negotiation benefit. The odds of the independent farmers considering 'disagree to strongly disagree' is 0.03 (95% CI, 0.01 to 0.14) times that of the farmers belong to FGcooperative (ExpB=1). In contrast, the farmers belong to FGKUBE significantly value higher the benefit (estimate=2.433, P-value=0.010) with the odds of considering 'agree to strongly agree' equal to 11.39 (95% CI, 1.79 to 72.68) times that of the farmers belong to FGcooperative (ExpB=1). The results, however, reveal that the odds of the independent farmers differ insignificantly from FGKUBE farmers. For the predictors of certification, both Utz certified (estimate=1.047, P-value=0.000) and 4C certified farmers (estimate=2.070, P-value=0.029) significantly value higher the representation and/or negotiation benefit. Their odds of valuing 'agree to strongly agree' insignificantly differ to each other, but their odds are 150.99 (95% CI, 19.38 to 1176.14) and 7.92 (95% CI, 1.23 to 50.88) times respectively that of uncertified farmers (ExpB=1), RA certified (ExpB=1), and FT certified farmers (ExpB=1).

Regarding the perceived capacity building benefit, the significant predictors of organization and certification are independent smallholders (P-value=0.000) and Utz certified farmers (P-value=0.003) respectively. The independent farmers value lower the benefit, but Utz certified farmers value it higher. Based on the odds ratio equal to 0.00 (95% CI, 0.00 to 0.03), the chance of comparing the independent farmers and FGcooperative (ExpB=1) will never happens, meaning that their differences are very large. The independent farmers also differ insignificantly regarding their perception of the capacity building benefit from IFG, FGKUBE, and FGcooperative farmers. Furthermore, the odds of Utz certified farmers valuing 'agree to strongly agree' is 28.89 (95% CI, 3.10 to 269.56) times that of uncertified farmers (ExpB=1), RA certified (ExpB=1), and FT certified farmers (ExpB=1). The odds of these Utz farmers nevertheless differ insignificantly from 4C certified farmers.

For the benefit of networking and/or partnership, the effects of the predictor variables of organization are significantly shown by independent farmers (P-value=0.000) and FGKUBE farmers (P-value=0.020). The effects of the predictors of certification are significantly revealed by 4C certified farmers (P-value=0.029). The independent farmers value lower the benefit (estimate=-4.961) with the odds of valuing 'disagree to strongly disagree' equal to 0.01 (95% CI, 0.00 to 0.04) times that of FGcooperative farmers (ExpB=1). FGKUBE farmers oppositely value higher the benefit (estimate=1.651) and have the odds of valuing 'agree to strongly agree' equal to 0.020 (95% CI, 1.30 to 20.86) times that of FGcooperative farmers. 4C certified farmers similarly value higher the benefit (estimate=1.551). The odds of these farmers considering 'agree to strongly

agree' is 4.71 (95% CI, 1.18 to 18.90) times that of uncertified farmers (ExpB=1), RA certified (ExpB=1), and FT certified farmers (ExpB=1).

3.3. The relative importance of certification compared to organization in explaining differences in perceived benefits

Table 10 presents the results of ordered logistic regression evaluating overall, cumulative influence of both organizational structure and certification on the perceived benefits. The results reveal that organization is found to have significant influences on the perceived economic benefit (P-value=0.000), representation and/or negotiation (P-value=0.000), capacity building (P-value=0.000), and the perceived networking and/or partnership benefit (P-value=0.000). We can also see that the sign of estimates are positive. This means one unit increase in organization (e.g., going from 0=independent smallholder to 1=IFG) will cause 0.894, 3.410, 4.051, and 4.470 increase in the ordered log odds of being in a higher level of perceived economic benefit, representation and/or negotiation, capacity building, and perceived networking and/or partnership benefit respectively. The results also reveal that, based on ExpB, for one unit increase in organization (e.g., going from 0 to 1) the odds of 'agree to strongly agree' versus 'neutral to agree,' and 'neutral to agree' versus 'neutral to disagree' are 2.44 times greater (for the perceived economic benefit), 30.27 times greater (for the perceived representation and/or negotiation benefit), 57.44 times greater (for the capacity building benefit), and 87.32 times greater (for the perceived networking and/or partnership benefit).

Table 10. The results of ordered logistic regression for the overall influences of organization and certification on perceived benefits

Perceived benefit	Predictor Variables	Estimate	Std. Error	Wald	df	Sig	ExpB	Lower _95_CI	Upper _95_CI
Economic	**Organization***	**0.894**	**0.308**	**8.392**	**1**	**0.004**	**2.44**	**1.34**	**4.47**
	Certification*	**-0.613**	**0.264**	**5.398**	**1**	**0.020**	**0.54**	**0.32**	**0.91**
Social/community	Organization	-0.009	0.256	0.001	1	0.971	0.99	0.60	1.64
	Certification	-0.059	0.222	0.070	1	0.791	0.94	0.61	1.46
Representation and/or negotiation	**Organization***	**3.410**	**0.432**	**62.189**	**1**	**0.000**	**30.27**	**12.97**	**70.65**
	Certification*	**-1.588**	**0.302**	**27.715**	**1**	**0.000**	**0.20**	**0.11**	**0.37**
Capacity building	**Organization***	**4.051**	**0.512**	**62.482**	**1**	**0.000**	**57.44**	**21.04**	**156.82**
	Certification*	**-1.878**	**0.326**	**33.157**	**1**	**0.000**	**0.15**	**0.08**	**0.29**
Networking and/or partnership	**Organization***	**4.470**	**0.561**	**63.446**	**1**	**0.000**	**87.32**	**29.07**	**262.27**
	Certification*	**-2.232**	**0.359**	**38.703**	**1**	**0.000**	**0.11**	**0.05**	**0.22**

*. Significant at the P-value 0.05

The results reveal that certification is also found to have significant influences on the perceived benefits of economic (P-value=0.020), representation and/or negotiation (P-value=0.000), capacity building (P-value=0.000), and networking and/or partnership (P-value=0.000). The sign of estimates, however, are negative. One unit increase in certification (e.g., going from 0=uncertified to 1=RA certified) will cause 0.613, 1.588, 1.878, and 2.232 decrease in the ordered log odds of being in a higher level of perceived economic benefit, representation and/or negotiation, capacity building, and perceived networking and/or partnership benefit respectively. For one unit increase in certification (e.g., going from 0 to 1), the odds of 'agree to strongly agree' versus 'neutral to agree,' and 'neutral to agree' versus 'neutral to disagree' are 0.54 times lower (for perceived economic benefit), 0.20 times lower (for perceived representation and/or negotiation benefit), 0.15 times lower (for capacity building benefit), and 0.11 times lower (for perceived networking and/or partnership benefit).

Based on the value of estimates, organization has the highest influences on the perceived networking and/or partnership benefit (estimate=4.470), followed by capacity building (estimate=4.051), representation and/or negotiation (estimate=3.410), and perceived economic benefit (estimate=0.894). Similar in order with organization, certification has the strongest

effects on the perceived networking and/or partnership benefit (estimate=-2.232), followed by capacity building (estimate=-1.878), representation and/or negotiation (estimate=-1.588), and the perceived economic benefit (estimate=-0.613). If we compare the relative importance of organization to certification, we found that organization (with overall estimate value=12.825) is more important than certification (overall estimate value=-6.311) in explaining the differences in the perceived benefits. Based on these results, we therefore confirm hypothesis 4 that organizational structures are relatively more important than certification to explain differences in farmers' perceived benefits.

4. Conclusions

Several conclusions are drawn from the findings. First, organization overall has significant influences on the perceived economic benefit, representation and/or negotiation, capacity building, and the perceived networking and/or partnership benefit. However, the differences of organizational structure have little effects on the differences of farmers' perceive benefits. Similarly, different schemes have little influence to the differences of the perceive benefits although certification overall also significantly influences the perceived benefits.

Second, the organizational structures the certified farmers are part of do not necessarily create more benefits than the organizational structure of uncertified farmers. Without being certified, farmers feel they can obtain the benefits of representation and/or negotiation, capacity building, and networking and/or partnership through their uncertified farmer groups. These make uncertified farmers' perceived benefits differ insignificantly from certified farmers.

Third, organizational structures in different certification schemes do not differently benefit farmers. However, schemes determine organizational structures that can survive. As observed in Aceh, FT scheme requires buyers to collect coffee directly from farmers, implement floor price, give farmers price premium, give payment in advance/credit if farmers ask, and pay farmers on schedule. The buyers consequently need to have sufficient financial capital. KUBEs are hardly able to fulfil the requirements, but cooperatives supported by various stakeholders and creditors are likely to meet the requests. The other schemes (4C, RA, and Utz) in Lampung do not emphasize FT-like requirements, allowing KUBEs to emerge as an alternative to cooperatives in the schemes.

Fourth, organization is relatively more important than certification in explaining the differences of perceived benefits. The order of the perceived benefits influenced by organization and certification is, however, similar. This similarity can be the immeasurable (cross) effects of certification on organization that are not clearly detected in the logistic regression model (since both are independent variables with categorical data).

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Appendices

A. Question items for the farmers that are member of an organization (or more organizations):

Items*
1. Being a member of an organization(s) allows me to experience financial benefits.
2. Economic benefits of being a member of an organization(s) outweigh economic disadvantages
3. Being a member of an organization(s) allows me to experience benefits for my health
4. Being a member of an organization(s) allows me to experience social benefits, for example strengthening social relationship through using public facilities.
5. Being a member of an organization(s) allows me to experience benefits for acquiring knowledge
6. Being a member of an organization(s) allows me to experience benefits for acquiring skills
7. Personally, benefits of being a member of an organization(s) outweigh the disadvantages
8. Being a member of an organization(s) allows me to experience benefits of better representation of my interests
9. Being a member of an organization(s) allows me to experience benefits from stronger relations between the farmers in my group
10. Being a member of an organization(s) allows me to experience benefits in the collaboration with others

* Measured by likert scale, ranging from 1 to 5 (1= strongly disagree; 2= disagree; 3=neutral; 4=agree; 5=strongly agree)

B. Question items for all farmers

The perceived benefits	**Question items***
Economic	1. It is easy for me to sell my coffee 2. I can sell my coffee at different places 3. The prices I receive for my coffee are good 4. I have good access to farming inputs 5. I have easy access to coffee processing equipment 6. I have good access to storage facilities 7. I have good access to credit 8. I have enough opportunities to save money 9. I feel secure regarding land tenure

The perceived benefits	**Question items***
Social/ community	1. Access to health services is good 2. People receive proper assistances to build their houses 3. People receive proper assistance to renovate their houses 4. Opportunity to have well education is high 5. Working opportunity is good for people in my area 6. Safe drinking water is available 7. Sanitary conditions are good 8. Funerals are well organized in my community 9. Funerals are well financed in my community 10. Wedding are well organized in my community 11. wedding are well financed in my community 12. *Arisan* (i.e., form of social gathering) is common in the community 13. *Gotong royong* (i.e., form of communal work) is regular in community *14.* We have strong social relationships in our community 15. People are willing to help one another in community
Representation and/or negotiation	1. I feel my interests are represented in governmental authorities 2. I feel my interests are represented in firms or businesses 3. I feel there is enough negotiation with the exporters 4. I think I have strong bargaining power over buyers
Capacity building	1. I have a good opportunity to enhance my knowledge on farming practices 2. I have a good opportunity to develop my farming skills 3. I can easily find information regarding farming inputs 4. I can easily access information regarding market price 5. I receive trainings on technical aspects (e.g., how to use chemical inputs, new tools, new technique etc.) regularly 6. I receive trainings on managerial aspects (e.g., how to make bookkeeping, how to make a plan etc.) regularly 7. I meet extension workers regularly 8. It is easy to get help from agricultural experts 9. Helps from agricultural experts solve my problems 10. I can freely express my opinion in a meeting 11. I can use my rights to vote in an election
Networking and /or partnership	1. I know farmers from other groups pretty well 2. I can easily contact farmers from other groups 3. We collaborate with other groups

* Measured by likert scale, ranging from 1 to 5 (1= strongly disagree; 2= disagree; 3=neutral; 4=agree; 5=strongly agree)