



Beyond Rational Choice Theory: Multifaceted Determinants of Participation in Palm Oil Sustainable Certification Amongst Smallholders in Malaysia

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The demand for palm oil is steadily increasing where global consumption in 2020 has reached 77 million metric tons or equivalent to 7 kg of palm per capita usage. However, the industry is under critics for unsustainable production practice and environmental degradation due to unscrupulous deforestation. One of the measures taken to ensure sustainability practices in the industry in Malaysia includes certifications such as the Roundtable on Sustainable Palm Oil (RSPO) and the Malaysian Sustainable Palm Oil (MSPO). These certifications are offered to industry players/plantation giants in which all stakeholders/members need to fulfill stringent requirements in order to obtain the certification. Efforts are now being taken to ensure that every stakeholder in the palm oil industry obtain sustainable certification, and this includes effort to enable smallholders to also follow the guidelines and fulfill the certification requirements. However, as of 2021, only 30% smallholders were certified despite the rigorous efforts made. Several factors may have hindered the participation of these smallholders. Hence, it is crucial that the agencies involved in managing this industry identify the factors influencing the certification of smallholders. The identification of these determinants will help policymakers to strengthen policy in disseminating sustainability practices in the palm oil industry. The objective of the current study is to identify factors influencing smallholders' participation in palm oil certification in Malaysia. This study looks beyond rational choice theory and develops a model based on elements of social structure and interaction. Quantitative approaches through questionnaire survey were used in this study. Purposive sampling was used, and data collections involved 200 oil palm smallholders in Malaysia. Four elements, namely, "Perceived Economic Benefit," "Social Interaction," "Shared Identity," and "Communication Discourse," were found to have significant influences on smallholders' participation in palm oil sustainable certification. Implication and future recommendation were included in the concluding remark.

Keywords: sustainable certification, oil palm, smallholder—farming sector, RSPO certification, MSPO, social identity, extension, social structure

INTRODUCTION

The term “Smallholders” refer to a group of farmers who own <50 hectares of oil-palm plantation (Siduque et al., 2015). This group is significant as it comprises 40% of the overall plantation area in Malaysia and Indonesia (Hidayat et al., 2015; Siduque et al., 2015). Smallholder inclusiveness and participation are necessary to realize sustainability changes at a production level as they are the gatekeepers in the palm oil industry. Smallholders, however, are vulnerable (Mol, 2007). First, it is because they often experience uncertainties in market accessibility and are often confronted with price fluctuations (Vermeulen et al., 2006). Second, oil palm smallholders mostly depend on middlemen to sell their products (Ishak et al., 2016, 2017). This makes smallholders to have low bargaining power compared to other actors in the value chain. Moreover, palm oil smallholders lack capital and up-to-date agronomic knowledge, and consequently, their productivity is far below its potential (Brandi et al., 2015; Hidayat et al., 2015). It is believed that the participation of smallholders in sustainability standard systems and certification could generally accelerate a transformation toward more sustainable palm oil production and simultaneously improve smallholders’ livelihoods (Hidayat et al., 2015).

Oil-palm sustainability certification is increasingly becoming an important form of standard over palm oil production in the past several years. The establishment of the Roundtable of Sustainable Palm Oil (RSPO) in 2004 as a voluntary form of sustainable certification had been emulated by the emerging of almost similar standards owned by the respective government where the oil palms are planted. For instance, the Malaysia government established the Malaysian Sustainable Palm Oil (MSPO) Certification Scheme as the national scheme and makes it compulsory for producers in each level of palm oil production (Abdul Aziz and Kuntom, 2016; Hidayat et al., 2018). Despite the existence of several different sustainable certifications, all of them face the challenge in obtaining participation by smallholders (Schleifer and Sun, 2020; Teng et al., 2020).

Multiple initiatives have been implemented to attract smallholders’ participation in sustainability scheme. RSPO, for instance, has allocated USD 1.75 million since 2012 to help smallholders obtain their certification (RSPO, 2017). MSPO in another way around through the Malaysian government provided USD 35 million in the form of subsidy for smallholders to obtain their certification (Kushairi Din, 2017).

Despite the effort, empirical evidence still shows a small amount of participation from smallholders. Up until December 2020, there are only 33.6% of independent smallholders in Malaysia that had obtained the certification (MPOCC, 2020). The amount is considerably small despite the rigorous effort and regulation initiated by the government which has passed over more than 7 years.

The current literature has yet to uncover the fundamental questions of why smallholders participate and do not participate in sustainable certification. Based on rational choice theory (RCT), several researchers initially believed that a lack of financial support and awareness was to be the main barrier to smallholders’ participation. Brandi and colleagues, for instance, mentioned

that “...intensive preparations for certification are necessary—but smallholders often lack the financial means to shoulder these costs without financial support” (Brandi et al., 2015, p. 302). Several other studies are supporting such findings (Cheyns, 2014; Brandi et al., 2015; Markne, 2016; Ni et al., 2016; Rietberg and Slingerland, 2016). However, even with financial assistance from either the state government or private institutions, it does not translate into participation.

This study embarks to investigate the influence of multiple determinants on smallholders’ participation in sustainable certification schemes. We will adopt but move beyond the current belief of rational choice theory (i.e., on awareness and perceived financial benefit) and look at how social structure, external environment, or communication discourse in smallholders’ sphere could influence the smallholders’ decision to participate in the sustainable certification.

The article is organized as follows. First, this study highlighted rational choice theory which was found to be applicable in several findings of previous studies that showed the influence of rational choice (awareness and perceptions of benefits/risks) on people’s behaviour (participation in selected activities). The paper then presented the arguments on other factors that could possibly be the determinants to influence participation, besides rational choice. Next, the methodology used was described, then followed by the results obtained. Finally, the discussion, which in line with the objectives was presented, and the conclusion, which includes limitations of this study and suggestions for future research, were addressed.

The study will allow practitioners and academicians to reevaluate factors that affect smallholders’ decision to participate in sustainable certification. Moreover, findings from this study will lead to the potential solutions of getting more smallholders to participate in the sustainable certification.

LITERATURE REVIEW

The Role of Rational Choice in the Agriculture Industry

Earlier studies have indicated a strong relationship between rational choice and decisions or behaviour amongst farmers in the agricultural industry. For example, it is not uncommon for policymakers and researchers in agriculture to acknowledge that many farmers/smallholders’ decisions in matters pertaining to their planting were made in a rational approach (Rogers, 2010; Adejumo et al., 2014). This means that farmers were known to make decisions after calculating the potential benefits or estimating the potential costs to be incurred in a given situation. The most common theoretical approach used to explain this phenomenon is RCT (Boudon, 1998). RCT assumes that individual action is instrumental, i.e., the action taken by an individual is explained by the actor’s motivation or will to reach certain goals (Boudon, 1998, p. 818). The basic idea of RCT is that the patterns of behaviour in a society are reflected by the choices made by individuals in the society as they try to maximize their benefits and minimize their costs. The applicability of RCT was so deeply rooted in agricultural institutions. It is believed

that reducing the cost incurred by the farmers will reduce their burden and thus increase their profit. An example of the application of RCT is the provision of agricultural subsidy to farmers. Farmers were agreeable to the subsidy because they see the potential benefits of the subsidy and the potential risk of not taking the subsidy. Several studies supported the theory, in which smallholders were found to participate in sustainability initiatives after they weighed the potential benefits and risks of such initiatives (Hidayat et al., 2015; Siduque et al., 2015; Rietberg and Slingerland, 2016).

However, RCT is limited in explaining many other reasons behind the participation of farmers in several occasions. For example, RCT does not consider important social elements such as historical, cultural, and institutional specialness of a particular society toward individual action (Hodgson, 2012). Hodgson (2012) argued that RCT is limited due to “its excessive quest for generality, it will fail to focus on the historically and geographically specific features of the socio-economic systems that we wish to study and understand” (Hodgson, 2012, p. 104).

Hence, this current study aims to identify other factors that may motivate the participation behaviour in sustainability certification amongst palm oil smallholders in Malaysia. Smallholders in the palm oil industry in Malaysia are concentrated in the rural areas with farmers largely from amongst older people and people with a lower education level. They are generally following the footsteps of their older generations. In this study, the two existing constructs from RCT will be tested as controlling factors in our model, while another three variables will be introduced to determine the other factors influencing smallholders’ participation in sustainable practice. Therefore, the first and second hypotheses for this study are as follows:

H1: There is a positive influence between awareness and smallholders’ participation behaviour in the sustainable certification scheme.

H2: There is a positive influence between perceived economic benefits and smallholders’ participation behaviour in the sustainable certification scheme.

Other Influencing Factors: Social Interaction, Shared Identity, Extension Services, and Communication Discourse

Social Interaction and Shared Identity

Smallholders are associated with family farmers, and they share some of the characteristics of rural local community social structure. They live within a nucleus or expanded family, and several families are clustering together forming a village (Thompson, 2004). Relationships amongst smallholders within the village are normally horizontal where informal interpersonal networks are formed amongst the smallholders themselves (Rogers, 2003). Interaction amongst them normally occurred in public spaces including coffee shops, religious hall, and municipal hall. It is also argued that a farmer’s capacity to demonstrate “good farming” practices to the wider farming community influences how they are regarded by their peers (Taylor and van Grieken, 2015). Moreover, they interchange multiple information

amongst other group members including advancement in technology and innovation to increase plantation productivity and output (Mannan et al., 2017). Scholars in social study argue that two important elements that contribute to the strength of social structure within the society are shared identity and social interaction.

Scholars postulate that a person’s behaviour is partially shaped and controlled by the influences of the social system and the person’s cognition (e.g., expectations, beliefs) (Chiu et al., 2006). It is shown in the literature that members’ identity and organizational identity are closely linked (Scott and Lane, 2012). The shared identity is described as a set of beliefs shared by the members about the central, enduring, and distinctive characteristics of a society. For instance, it is shown by a study in Kenya how, through collective action, farmers are able to obtain more valuable information, which is amongst the huge obstacles in southern countries. These led them to have better market access and improved their income (Kirui and Njiraini, 2013).

Another important construct in the social structure is the social interaction ties. It represents the strength of interaction amongst community members within society. Interaction is proven to be an important factor that contributes to healthy societal development. Adoption of innovation and policy implementation are associated with a strong relation and interdependence between a person and other group members of the society (Jenkins, 2014; Thévenot, 2014). If each person’s close friends know one another, they form a closely knit clique. The cliques then are connected to the other cliques through social ties and interaction. Individuals within a clique are then connected to other cliques through their weaker rather than their stronger ties. Hence, the third and fourth hypotheses for this study are:

H3: There is a positive influence between social interaction and smallholders’ participation in the sustainable certification scheme.

H4: There is a positive influence between shared identity and smallholders’ participation in the sustainable certification scheme.

The Extension Services

Besides a strong social structure as a possible determinant of participation in sustainability certification, smallholders could be relying on another external factor to obtain valuable resources such as information and work plan. Amongst the multiple external factors shown in agricultural research, the existence of extension officers is the most crucial factor (Shah et al., 2013). Smallholders’ reliance on extension officers is an expression of trust toward the institution (Taylor and van Grieken, 2015). It is shown in empirical studies where smallholders and other agri-organizations show their trust toward the capability of extension services as institutional support toward their daily practices (Taylor and van Grieken, 2015).

Effective extension services involve adequate and timely access by farmers to relevant advice, with appropriate incentives to adopt the new technology or policies if it suits their socioeconomic and agro-ecological circumstances (Anderson and Feder, 2004). However, their role becomes more critical

in policy adoption such as sustainability practices where information is scarce, and smallholders depend on the public extension to further understand the matter.

Hence, the role of extension officers as an external agent is both valuable and crucial. It is well-documented that extension services are demonstrated as an integrator between traditional narratives possessed by the smallholders and modern scientific knowledge (Cafer and Rikoon, 2018; Pincus et al., 2018). Thus, the hypothesis is:

H5: There is a positive influence between extension services and smallholders' participation in the sustainable certification scheme.

Communication Discourse

Communication is the central element in dissemination of information as it increases smallholders' awareness and knowledge toward certain innovation (Rogers and Shoemaker, 1971). However, communication should be beyond the one-way approach and should involve constant interchange of information comprising questions and arguments. It applies either between smallholders and other smallholders or between smallholders and external agencies (i.e., extension services). The concept is interconnected with the concept of discourse, meant by sociologists as "a coherent set of more or less coherent understandings that shape the boundaries of thought, and thus of action" (Foucault, 2002). Discourse is also viewed as a particular way of using language and other symbolic forms that are able to shape relations (Dragoi et al., 2011). Hence, it is reasonable to suggest discourse as an important form of communication in this context. Nevertheless, the establishment of self-governance institution in sustainable certification such as RSPO is inspired by the discourse between the respective stakeholders (Morley, 2015; Lock et al., 2016).

In the context of smallholders and determinants to participate in sustainable certification, communication discourse is framed as an instrument to initiate smallholders' awareness and knowledge. In the traditional instructive communication, smallholders are informed or ordered to do something. However, communication discourse moves beyond the traditional practice by allowing smallholders to question or argue based on their knowledge/experience. Thus, having communication discourse as an influencing factor introduces the concept of communicative power where decisions made by the smallholders are based on rationality and the "force of better arguments" (Habermas, 1994; Flynn, 2004). It is documented where smallholders demonstrate better adaptability and comprehensibility on newly introduced innovation when they are allowed to actively participate and argue with the instructors. At the same time, the instructors actively respond with valuable feedback (Pincus et al., 2018).

Hence, it is important to consider communication discourse as the essential determinant which influences smallholders' participation in sustainable certification. Based on that, the developed hypothesis is:

H6: There is a positive influence between communication discourse and smallholders' participation in the sustainable certification scheme.

Based on the discussed literature and hypotheses, the developed model for this study is shown in **Figure 1**.

METHODOLOGY

Research Design and Instrument Development

This study employed a quantitative research design with a cross-sectional survey method as it aims to test hypotheses developed regarding determinants of smallholders' participation in sustainable certification. A closed-ended questionnaire was developed as an instrument to measure respondents' responses toward related constructs in this study. As shown in **Figure 1**, six independent variables act as potential determinants to the dependent variable—smallholders' participation in sustainable certification. Each variable was represented by several items in the questionnaire. The details and sources of the instrument are found in **Appendix A**. Questionnaire forms were used as an instrument to measure respondents' feedback. The survey was conducted at the end of 2018.

Population

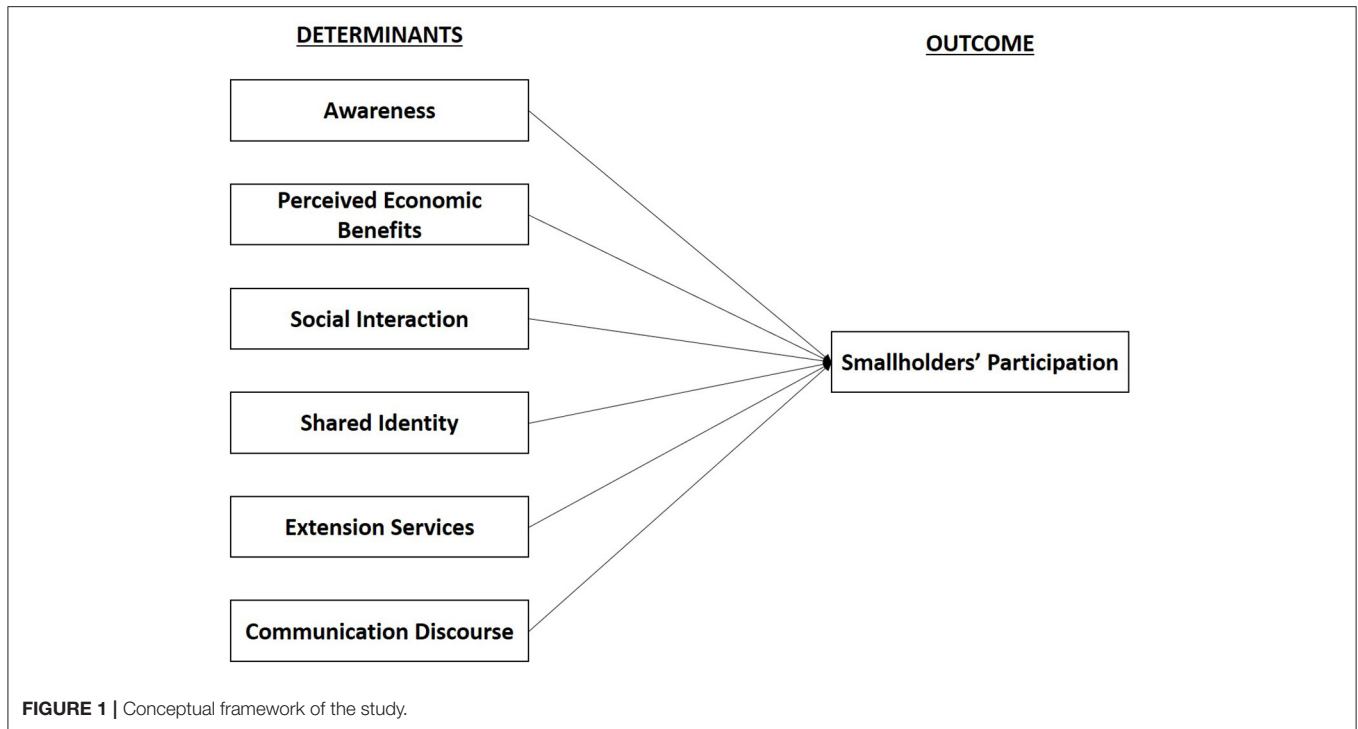
Oil palm smallholders in Malaysia are defined as planters with a planted area of <40 hectares. Smallholders commonly refer to landowners who are given the right to plant in the respective area (Kailany, 2011; Siduque, 2015).

However, there are two different types of smallholders which are independent and scribed smallholders. Scribed smallholders are managed by the schemes and commonly possess systematic organization with the presence of a well-developed management line (Sutton and Buang, 1995). Hence, the real challenges on sustainability scheme adoption are faced when dealing with independent smallholders, who cultivate oil palm without direct assistance from the government or any private organization (Siduque, 2015). Direct assistance in this context refers to support in management, development, and financial as received by their counterpart, the scribed smallholders. Therefore, without the support, smallholders manage the plantation by themselves including the decision-making in obtaining sustainable certification. This study sought to understand their behavioural decision and their intention to comply with the procedures.

Two sustainable schemes, which could be adopted by the independent smallholders participated in this study, are the MSPO and RSPO. MSPO certification is based on Sustainable Palm Oil Clusters (SPOC) where smallholders are grouped into different clusters according to their areas. Overall, the Malaysian Palm Oil Board (MPOB) is responsible for this procedure and assists smallholders to be certified.

Sampling

The method of sampling technique for this study is purposive sampling due to two reasons. Firstly, the sample needs to come from the smallholders who own sustainable certification for at least 1 year before the data collection date. This provides a strong assumption that these smallholders understand their *raison d'être* in participating in sustainable certification. Secondly,



the sampling technique allows the limited resources within this study (e.g., monetary and time cost to collect data) to be strategically positioned without compromising the obtained output. We obtained the list of respondents after consultation with local MPOB officers as they hold the information on the list of certified smallholders.

The minimum sample size for this study was determined based on minimum R-square, which is found in **Appendix B**. In this study, the model is illustrated by six arrows pointing at the latent variable (i.e., dependent variable) and aims to obtain a 5% significance level with a 0.10 minimum R^2 score; the minimum sample size needed is 156 samples (Hair et al., 2014, p. 21). This study used 200 respondents as it samples size which fulfils the minimum samples needed.

Data collected were then analysed by using the PLS-SEM method. The analyses include reliability and convergent and discriminant validity analysis to test the measurement model robustness. The structural model for this study was a test for path coefficient, predictive power, and significance as well as effect size. Analyses were conducted using SmartPLS 3. Written consent was given by all respondents for their voluntary participation in the study.

FINDINGS

Structural Model Analysis and Hypothesis Testing

The examination of the endogenous constructs' predictive power shows that Participation Behaviour, the primary outcome measure of the model, has a substantial R^2 value of 0.642. This shows that around 64% of smallholders' participation in

sustainable certification could be explained by the presented determinants in this study. The effect size for each construct was also measured through Cohen f^2 . The effect size indicates how substantial a direct effect is. Its values can be greater than or equal to zero (Henseler et al., 2016). A score of more than 0.35 shows a strong direct effect while a score between 0.15 and 0.35 shows a moderate effect (Henseler et al., 2016). The values of the path coefficient and effect size for each relationship between determinants, exogenous constructs, and the hypothesis testing are shown in **Table 1**. The final step of the structural model analysis considers the significance and relevance of the structural model relationships. Results from the bootstrapping procedure (200 cases, 5,000 samples, no sign changes option) reveal that four of the six structural relationships are significant ($p < 0.001$, $p < 0.05$, or $p < 0.10$).

DISCUSSION

Rational Choice as a Determinant

Two hypotheses, which are awareness (H1) and perceived economic benefits (H2), were developed to test the rational choice of the smallholders. Data show that H1 was rejected, whereas H2 was accepted. Although perceived economic benefits (H2) were shown to have an influence on smallholders' participation in sustainable certification, awareness level (H1) did not show significant influence on their behaviour. This finding is slightly different from previous studies that reported that both rational factors influenced farmers' participation. Ni et al. (2016) found that low awareness in the sustainability certification scheme is amongst the important factors which contribute to low participation (Ni et al., 2016). Other agricultural studies

TABLE 1 | Path coefficient, significant (*p*) value, and effect size (*f*²) value.

Hypothesis	Effect	Beta (path coefficient)	<i>p</i> -value	Cohen <i>f</i> ²	Hypothesis (supported/not supported)
Hypothesis 1	awareness -> smallholders' participation	0.099	0.421	0.005	Not supported
Hypothesis 2	Perc. econ. benefit -> smallholders' participation	0.160	0.019**	0.16	Supported
Hypothesis 3	Shared identity -> smallholders' participation	0.158	<0.001***	0.104	Supported
Hypothesis 4	Social interaction -> smallholders' participation	0.244	0.062*	0.044	Supported
Hypothesis 5	Extension services -> smallholders' participation	-0.055	0.532	0.002	Not supported
Hypothesis 6	Discourse -> smallholders' participation	0.341	<0.001***	0.260	Supported

p* <0.10, *p* <0.05, ****p* <0.001.

also suggested that awareness is amongst the vital factors in the diffusion of new technology or policy (Noguera-Méndez et al., 2016). This finding shed light to the need for testing the other factors outside the rational choice factors.

Hence, this is why extension services were engaged to increase awareness and, in this case, to increase the awareness of smallholders in the sustainable certification. Without denying the importance of having awareness as a prerequisite for interest in any new policies or innovation, our findings in this study demonstrate that having awareness alone does not significantly affect smallholders' participation. The inference is backed by other studies that are looking at the farmers' decision-making factors. For instance, in a study done by Thompson on sheepherders in Australia, she found that their decision-making to accept innovation depends on risk assessment toward accepting the new technology (Thompson, 2009). The farmers observed and gathered information on the new technology before making any decision. More importantly, the farmers also considered the projected cost and benefits they might gain. Thompson's findings were strengthened by a study done by Clouaire, where she conceptualized that the decision-making made by farmers was contributed to "cognitive process which interacts with information repositories" possessed by them (Martin-Clouaire, 2017, p. 538).

Hence, it is no surprise that the smallholders' rational choice does not entirely rely on awareness. Instead, they also evaluate the benefits they can gain and risks they might face before making any decision. This situation supports our second hypothesis where the perceived economic benefits have influence on the smallholders' participation in any scheme. Previous studies related to oil palm smallholders do support this argument. Multiple researchers found that perceived economic benefits were amongst the crucial factors which attracted smallholders' participation in sustainable certification (Hidayat et al., 2015; Markne, 2016; Rietberg and Slingerland, 2016). Smallholders believed that they would obtain more profits through participating in sustainable certification. They believe that by following certain guidelines in the certification, it will improve their plant management and eventually will increase their yield (Hidayat et al., 2015, p. 294). This situation explains our findings by showing that awareness, although important in rational choice, does not predict smallholders' participation in sustainable certification. On the other hand, the perceived economic benefits are an important determinant that justifies

rational choice as an explanatory factor on the participation amongst smallholders.

Social Interaction, Shared Identity, and Extension Services

In this study, there are three developed hypotheses to test the three respective constructs as determinants, with two of them associated with social structure and the third associated with the external environment. Findings show that both constructs in social structure have significant influence on smallholders' participation in sustainable certification, while the extension services do not have a significant influence as a determinant. The findings further emphasize that social capital is an important element for policy dissemination within the smallholders' community. It comes as no surprise as smallholders work closely with other smallholders and depend on each other for communication, exchange of information, and assistance. In comparison with their counterparts especially in the South American region where dozens of hectares of a farm are operated by a single person, plantations in Malaysia are rather small in scale. Oil palm smallholders normally manage <4 hectares of plantation, with several studies recording that the average size of a plantation is around that size (Martin et al., 2015; Siduque et al., 2015; Ni et al., 2016). Hence, for better management, the smallholders need to interact and coordinate frequently. Social interaction has also been proven in several studies to show the capability to expand the network structure of a person and reduce structural holes (Burt, 2001; Lazega et al., 2012). It is through this factor that information can be widely disseminated, and smallholders can either increase their knowledge or strengthen their belief which, in the end, translated to their participation in sustainable certification.

It is not only social interaction that proves to be an important construct as a determinant but also shared identity, which shows a significant influence on the smallholders' participation. As smallholders in Malaysia are shown to be close-knit with each other, their social structure is strongly affected by their shared identity. Identity has always been an important element in sociological study. Scholars emphasized on the role of identity that could shape and affect human decision (Jenkins, 2014). In a qualitative study done on groups of oil palm smallholders in Pahang, Malaysia, Zufri Mamat et al. (2014) showed that the adoption of modernisation amongst group members occurred collectively in the community. The community decided to

embrace modernization and at the same time retained their traditional norms. This shift in cognitive perspective on identity amongst the society members proved to be structural. The influence of identity, in this case, is similar to this study. It is shown that identity is a core element in the cognitive decision of a member of a society. Thus, in the case of sustainable certification, having to embrace the new policy does not entirely depend on the rational choice of a single person. Living in a community develops a sense of shared identity in which when one decides to participate in sustainable certification, it is influenced by his or her grasp of the shared community identity as shown in the finding of this study.

Moreover, when testing the extension services construct, it revealed no significant influence on smallholders' participation in sustainable certification. An explanation for this result may be due to the number of service providers and their capacity to serve the targeted farmers. Despite the findings, it does not mean that extension officers are not important in agriculture study. Multiple studies have recorded how extension officers help to disseminate information and contribute to innovation diffusion or better management practices in agriculture (Valente and Davis, 1999; Muhammad et al., 2013; Taylor and van Grieken, 2015). This study aims to explain the extension services for sustainable certification which are done by both NGO, such as Wild Asia, and the government agency, such as MPOB (Kushairi Din, 2017). Under MPOB, extension officers recognized as "Pegawai TUNAS" or TUNAS officers are given the responsibility to educate smallholders on sustainability and the process to obtain sustainable certification.

However, there is a major problem with the huge difference in ratio between the number of extension officers and the number of smallholders that need to be served. The recommended suitable ratios by World Bank for extension officers and farmers vary between 1:200 for smaller areas and 1:500 for larger areas (Benor et al., 1984). In Malaysia, the government indicates that there is supposed to be one "Pegawai TUNAS" (TUNAS officer) for 600 independent smallholders in Malaysia (Ugak Kumbong, 2014). However, due to the intention to obtain sustainable certifications for all smallholders in a short amount of time, one officer ("Pegawai TUNAS") has to serve around 1,000 to 3,000 smallholders by himself or herself. This situation leads to the inability of the extension officers to educate all of the smallholders, as shown by a study done by Awang et al. (2016). Hence, this situation explains the findings where the extension officers showed no significant influence on the smallholders' participation in sustainable certification.

Communication Discourse

The last construct investigated in this study is communication discourse. Findings from this study show that discourse has a significant influence on smallholders' participation in sustainable certification. Discourse in this study is operationally defined as a form of communication where an actor continuously engages in communication with another actor. Findings from this study echoed the results from other studies, in which they showed smallholders or small farmers sought information, contested ideas brought to them, and preferred the improved version of extension services rather than the conservative instructional

approach (Baloch and Thapa, 2018; Cafer and Rikoon, 2018). It is also in line with the idea of discourse presented by Habermas in the theory of communicative action and the theory of deliberative democracy where discourse should be the force of better argument (Habermas, 1996). Sustainability and sustainable certification are new things for most of the smallholders (Ni et al., 2016). Smallholders cannot be forced to quickly adapt to the new ideas, and they also cannot be expected to accept any new policy without tabling their argument. The idea of communication discourse is fundamental in the establishment of RSPO. Stakeholders are expected to come up with prepared rules of conduct through deliberative dialogue. Hence, it is not surprising for the findings to show that the participation in sustainable certification amongst the smallholders is influenced by their interest in communication discourse. The findings also reflected that oil palm smallholders are serious in matters related to their plantation and have moved beyond the conservative approach of accepting any innovation or policy presented to them.

CONCLUSION

The thesis of this study is to investigate the determinants of smallholders' participation in sustainable certification. The study itself is motivated by the lack of study on oil palm smallholders' motivation or factors in adopting sustainable certification despite the current interests by various agencies from both the state and self-regulation organizations to get smallholders certified (The Star, 2017; RSPO, 2018). Limited empirical findings in the literature and common assumption that smallholders were constrained by their lack of financial capability and knowledge which hinder their participation were amongst the fundamental reasons for this study to be conducted. Model development for this study is to ensure to move beyond positioning the smallholder as an actor where his or her decision is affected by rational factors such as cost and benefit. Instead, smallholders are positioned as a set of actors who are connected and dependent on each other for information and making decisions.

The findings reveal that RCT is an important framework in explaining smallholders' participation in sustainable certification. However, the findings also indicate that awareness alone does not translate their participation. Instead, it depends on the smallholders' perceived gain from economic benefits. On the other hand, social structure proves to be essential where both developed constructs (i.e., shared identity and social interaction ties) show a significant influence on smallholders' participation. Furthermore, the extension services as a construct show no significant influence, while communication discourse shows a significant influence on smallholders' participation behaviour.

The outcomes from this study contribute to both theoretical literature and practical application in the oil palm study. First, findings from the study expand the debates on smallholders' decision-making as being related to sustainability. It strengthens the argument that smallholders' participation does not entirely depend on rational choice but that their decision is also influenced by the social structure and communication discourse. The significant influence of communication discourse and non-significant influence of extension services show that smallholders

particularly in oil palm can no longer be considered as a simple entity where their actions could be easily shaped by larger organizations including the state. Smallholders seek clarifications and are not afraid to engage in discourse. As the study shows that the social structure has significant influence on smallholders' participation, certification scheme owners such as RSPO and MSPO could strategically outline their dissemination programs. Any dissemination program should value smallholders' social structure. Thus, there is a dire need to employ it as an important instrument in whatsoever respective program.

Indeed, this study is an exploratory one and comprises of several limitations. Lacking several details, this study does not go deep; thus, it is unable to understand why smallholders move beyond the rational choice in deciding to participate in sustainable certification. Hence, it is suggested for future study to conduct qualitative procedures and in-depth interviews to further understand the smallholders' participation behaviour. It is noticeable that there are other elements not included in this study. Elements such as leadership and psychological factors could be contributing to smallholders' decision to participate in sustainable certification. Thus, it is suggested for future study to expand the current presented model and include other elements and also investigate the possibility of existence of mediation or moderation.

In conclusion, sustainability is crucial for important and widely produced commodities such as palm oil. As smallholders are important stakeholders in the oil-palm plantation, more studies to understand their behaviour and perspectives on sustainability should be conducted.

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DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

AA developed the theoretical framework and conducted the data collection and analysis. SM contributed in project supervision and data analysis. SHH and SRH wrote the report findings and article revisions. All authors contributed to the final version of the manuscript.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fsufs.2021.638296/full#supplementary-material>

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