



Research article

Social and solidarity economy and social inclusion of cooperatives in the Assin Fosu Municipality, Ghana

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ABSTRACT

The social and solidarity economy (SSE) model is an alternative strategy to the neoliberal hegemonic paradigm amid global economic and political uncertainties and its associated decline in living conditions, inequalities and social exclusion. In response to these inadequacies, the study explored how cooperatives in the Assin Fosu Municipality of Ghana promote social inclusion, focusing on farm-based cooperatives. Using a mixed-method approach, quantitative data were collected from 175 randomly sampled members of six farm-based cooperatives and triangulated with qualitative data from the executives of the cooperatives who were constituted into a focus group. Data were described using descriptive statistics and the associations and effects were tested with the chi-square and binary logistic regression tools. We found that cooperatives promote social inclusion by facilitating access to productive and financial resources with members of credit-based cooperatives experiencing high social inclusion. Members with smaller households had more social status because they could engage in more social and economic activities within their communities and groupings. We recommended access to credit and productive resources and long-term birth control measures as these factors are *sine qua non* for high social inclusion.

1. Introduction

After nearly two decades of adopting human-centred economic models incorporating poverty-focused and short-term policies, many Sub-Saharan African countries are witnessing dramatic political and social transformations. According to Ref. [1], these developments reflect the movement of national governments towards a "third generation" paradigm of public policy which incorporates a social and solidarity economy designed to address social concerns. However, though the social and solidarity economy (SSE) model and cooperative businesses that form its foundation are garnering global attention, it is still grossly understudied and poorly conceptualised [2]. For instance Ref. [3], laments that though the organisations that fall within this category are well-known, the concept is largely unfamiliar in most parts of Africa, despite attempts by the ILO to popularise it.

Seen as an alternative development strategy to propel development, the quest to popularise the concept has been due to the discontentment and deficiencies with the current hegemonic paradigm amid global economic and political uncertainties. Adopting neoliberal policies, especially in developing countries, has led to a rapid decline in living conditions, reduced state intervention in economic and social services, and deregulation of the financial and labour markets and trade and investment [4]. Neoliberalism's central tenet advocates the expansion of competitive market interactions into political and socioeconomic structures, redefining the roles of the state and the individual as a whole. Unlike the human-centred economic models, the Neoliberal policies, according to

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critics, are accountable for the significant increase in societal inequalities within nations where they have been implemented, and in both developed and developing countries, the dominant classes have emerged as the primary beneficiaries [5]. This has led to calls for collaborative initiatives that promote inclusiveness, achieve social change and local community well-being, as well as decrease poverty and social exclusion [6]. This call has been necessitated due to the recognition that individuals are more than just functional actors in a system of demand and supply for consumption and that economic ties may involve cooperative, communicative, and subjective relationships based on social reciprocity [7].

SSE has emerged as a new path to equitable and sustainable development, particularly at the microeconomic level, where many people are vulnerable and marginalised. Acknowledged to encompass a wide variety of organisations and businesses with clear social and often environmental goals, SSE seeks to address the systemic factors that contribute to poverty, social isolation, and unsustainable development brought on by market-centred growth strategies and unequal power relations [8]. Organisations operating under the SSE umbrella are distinguishable by their prioritisation of social and environmental goals over financial goals, engagement in cooperative and associational relationships and participatory management models, upholding the principles of cooperation, sharing, and caring, and are inclusive and anchored in the community. While social economy organisations conduct commercial operations, their primary goal is to advance societal goals rather than increase profits.

A principal component embedded in social and solidarity groups (SSGs) is social inclusion, which [9] found that it provides a platform where producers and farmers can establish cooperatives to enhance working conditions, obtain greater access to marketplaces, and develop income-generating activities. Theoretically, social inclusion is a policy intervention to ensure that people engage in socioeconomic and political life regardless of race, language, age, gender, culture, disability, social standing and ethnicity [10]. According to Ref. [11], incorporating the tenets of social inclusion, for instance, organising producers into cooperatives, particularly in rural communities, has aided in fair development, food security, and an enhancement in the standard of living. SSE also creates an enabling environment for the formation of cooperatives which tackle issues of unequal asset and revenue distribution [8], involvement in decision-making, paid jobs, and employment possibilities [12].

The increasing attention in SSE, which is founded on solidarity, association, and cooperation, has been championed, in particular, by cooperatives and mutual societies [13]. [14] observed that cooperatives, mutual assistance societies, and associations per their structure, exhibit common characteristics, including volunteer participation of members, presence of social and economic objectives and restricted profit distribution. Aside from propagating the economic aspirations of its members, these enterprises have been distinguished by their capacity to pursue the group's collective aims as well as the promotion of solidarity, equity, equality, and participation [15]. As such, individuals can accomplish tasks through cooperatives that would have been much more challenging to complete as independent makers, customers, or employees [14]. Aside from the capacity of cooperatives to speak for their members, they are able to make sound choices that are perceived as reflecting the concerns of the community [16]. Similarly, cooperatives can address issues such as exclusion and poverty that confront their members in addition to solving their social problems and contributing to the achievement of Sustainable Development Goals (Goals 1, 2, 3, 8, 10, and 11) with the overall aim of improving quality of life [17]. [18] have, however, issued a warning that sustainable development must strike a balance between social inclusion, economic distribution, and environmental conservation.

But do cooperatives ensure the inclusivity of their members? [19], for instance, claim that cooperatives have been considered inclusive enterprises due to their community embeddedness and the broad range of socioeconomic and political services they provide. However, for cooperatives to gain a strong market position, they have to combine a series of activities that potentially challenge their members' inclusion. Moreover, do cooperatives create equal opportunity for the inclusion of farmers, though their products may fall short of the quality requirements and are all groups, especially the disadvantaged, equally represented in decision-making? [19] found that most cooperatives have been unable to ensure complete inclusivity of their members. The fundamental claim, however, is that for cooperatives to ensure the inclusion of their members, aside from an enabling environment, the cooperatives require dedicated membership and group skills for governance and innovation [20].

In Ghana, the proliferation of cooperatives has been at the backdrop of the implementation of neoliberal policies reflected in the withdrawal of government incentives and subsidies, which rendered most social actors impotent to expand their businesses [16,21]. The development of cooperatives in Ghana has not been a happenstance as it was considered instrumental for agricultural and rural development right after independence. Over the years, it has experienced frequent and significant shifts under different governments [22]. The authors noted that at the onset, cooperatives were under state control, but later governments took a lax approach to their development, permitting the formation of other kinds of farmers' and rural self-help groups to be established to generate revenue. Despite the government's efforts to cushion these social actors, especially rural farmers, many have suffered negative externalities. As a result, they have joined cooperative organisations to lessen societal exclusion and improve their quality of life [23].

Although cooperatives in Ghana have had modest successes due to their struggle to overcome several obstacles, the social solidarity they provide has inherent worth and keeps institutions operational. Ironically, there is limited evidence of members' inclusivity in the cooperative economy despite Ghana's cooperative sector's tumultuous history of remarkable growth, vivid roles in development, and growing expectations that they implement strategies to combat exclusion. Similarly, research on SSE and member inclusion is also limited. Aside from adding to the growing literature on cooperatives, the paper explored how farm-based SSGs in the Assin Fosu Municipality of Ghana promote members' social inclusion, focusing on the determinants of social inclusion within the cooperative environment. In addition to the introduction, subsequent sections of the paper are devoted to the review of related literature, followed by the methodology that guided the study, results and discussion of field data as well as conclusions and policy implications and future directions of research.

2. Review of related literature

The achievement of the cooperative enterprise, according to Ref. [2], has prompted the creation of the “solidarity economy model,” which is considered a far superior model for humanity to thrive compared to the inequalities created by free market capitalism. The SSE, which is flanked by the private and public sectors, is anticipated to fill social wants and needs that cannot be met by the public sector owing to inadequate funding and low profitability in the private sector and is often recognised as the leftover component of the private and public economies [24]. Theoretically [3], positions the SSE between the prevalence of the market and the centrality of the state and how it exploits the weakness of the two contrasting perspectives.

SSE originated in the cooperative and labour movements of the nineteenth and twentieth centuries [25] and is the primary framework for cooperative research [14]. It describes economic interactions and market exchanges that put social and long-term environmental goals ahead of profit motives and are guided by the principles and practices of democracy, self-management, solidarity, and teamwork [26]. Utting further opined that it has increasingly been used to refer to companies and organisations that create products and services without government participation and in accordance with guidelines and standards that prioritise social advancement, cooperation, and solidarity. Providing a dynamic multidimensional framework, social and solidarity organisations are distinctive from public and private sector organisations due to the exhibition of unique features such as the members’ voluntary participation, the simultaneous pursuit of social and economic goals, democratic administration, constraints on profit distribution and member engagement in decision-making [14].

Unlike capitalism, SSE is a sharing economy with related practises, often a combination of market, community, and state practice, with the basic operational principles of redistribution, exchange, and reciprocity [27]. SSE adoption will help with attempts to realign economies towards more inclusive and sustainable patterns by increasing the likelihood of ending poverty, advancing employment opportunities and food security, advancing gender equality and access to healthcare, and promoting sustainable development. It offers alternatives to the prevalent, profit- and competition-driven neoliberal economic paradigm [28]. In recent times, SSE has evolved into an area of study and research that emphasises economic activities that consider social and environmental considerations. As a result, it is frequently run according to ideals and principles that prioritise social well-being, such as solidarity, cooperation and transparency [29]. [30] averred that SSE broadens the discourse beyond a one-dimensional, market-centred perspective of the economy by illuminating the variety of production, consumption, and distribution practices. Despite that, it is possible to observe SSE in action worldwide, frequently with phenomenal results regarding community development, provision of decent jobs, empowerment, and environmental preservation. The fundamental analytical elements of SSE can be integrated as a way to promote social inclusion, as a means of fostering local development, as an approach to opposing capitalism, and as a means of defying conventional economic models [7].

Confronted with the challenge of global unemployment and underemployment, SSE institutions in Africa have provided a significant source of employment [12]. Aside from promoting livelihoods and job creation, the cooperative movement directly supports most workers in sub-Saharan Africa who are members and non-members of cooperatives [31]. For example, agricultural cooperatives generate employment in industries including food production, marketing, lending, insurance, and transportation [32]. Cooperatives often offer more high-quality job opportunities to marginalised populations in rural regions, including women, youth and ethnic minorities. Similarly [33], argued that cooperatives help reduce poverty by highlighting employment stability for members and their families, offering competitive wages, promoting additional revenue through the share of profits, and distributing dividends [27]. has reaffirmed that partnership-building paves the path for achieving social inclusion, particularly for those marginalised in the traditional employment market. Integrating the “vulnerable” people into society by providing them with better jobs and social services has been the social economy organisation’s key responsibility ever since the SSE was first developed.

The rise of SSEs and the niche they have carved have been theorised by the Collective Action Theory [34], which postulates that the primary objective of founding cooperatives is to collaborate in order to fulfil the cooperatives’ goals. Cooperation to achieve shared advantage is an obvious answer when a group of people are likely to benefit from taking coordinated action(s), but the cost makes it difficult or impossible for any one person to take these action(s) alone. However, such collaboration must be regulated and fostered by rules as well as cognitive and normative frameworks [7]. highlight that solidarity is seen as a way to promote social cohesion and economic prosperity and subvert the capitalist competing order. The relevance of the theory is reflected when individuals with similar interests form cooperatives. The notion is that individuals from cooperatives can access certain assets or execute advantageous tasks by pooling resources. A collective good is created out of the mutual view of interest. For instance Ref. [35], observed that groups at work that share the objective of defending their interests as employees are founded on collective action. In this regard, work groups have shared aims of standards essential for combating poverty, improving income distribution, and spreading the profits of economic activities. However, the theory’s emphasis on the rationality of the individual calls into question the problem of free-ride and unwillingness to cooperate. The social capital theory addresses this apparent contradiction between individual members and the collective best interests.

Social capital describes the networks and conventions that allow individuals to work together. Accordingly, social connections may help people in a relationship grow and accumulate economic value for themselves. Societies or organisations are thought to use social capital as a resource while creating social cohesion. The central claim of social capital theory, according to Ref. [36], is that collectives give mutually agreed-upon rules, customs, and guidelines for interaction patterns to recurring activities, which in turn produce values. The access to and utilisation of such resources are ingrained in each actor in the group, according to Ref. [37], even though social capital has to do with resources inherent in social ties as opposed to the individual.

Extensive social networks, high levels of trust, and participation in group activities such as volunteering, charitable giving, or associational membership are indicators of social capital within a group. Similarly [38], asserts that trust, reciprocity, networking, and

connection that are ingrained in the organisation's operation methods allow members to receive resources from belonging to a group and association. These components reinforce one another in a positive feedback loop: for instance, trust boosts involvement, which, in turn, increases trust [39]. By demonstrating how social interactions among communities and institutions impact economic performance, social capital offers a mechanism to connect sociological and economic viewpoints and possibly give deeper and better explanations of economic development.

The synthesis of social capital to SSE among cooperatives relates to the societal importance of ties and the capacity of cooperative groupings to accomplish shared objectives [40]. It is also considered the critical significance of social networks and the impulses that develop for individuals to help one another. In this regard [41], supported the prior claim and emphasised that the rules of socio-economic engagements include trust, care for one's friends, adherence to the norms of one's community, and the ability to penalise those who violate the standards. In summary, the social capital theory demonstrates how members of social groups interact with one another founded on the ideas of connectivity, networking, reciprocity, and trust, which create charitable values for the members, in contrast to the collective action theory, which explains how people pool resources and efforts as cooperatives to achieve the goal of providing a public good.

3. Methodology

The mixed method study design was chosen to integrate qualitative and quantitative approaches for a comprehensive perspective of the cooperatives' SSE and inclusive economy in the Assin Fosu Municipality. A descriptive cross-sectional study design was used, which allowed for the systematic collection of data and presentation of many themes to provide a vivid image of the previous and current state of the SSE of cooperatives in the study area. The Assin Fosu Municipality was created from the former Assin North Municipal Assembly, divided into the Assin Fosu Municipal Assembly and the Assin North District Assembly. Agriculture and its allied sectors make up the majority of jobs in the municipality, with skilled agricultural, fisheries, and forestry workers making up 59.4 percent of those employed and agro-based industries (craft and related trades) accounting for 31 percent. The major crops grown in the municipality include food crops like maize, plantain, cassava, and rice and plantation crops like oil palm, cocoa, citrus, and rubber [42].

The study's population consisted of cooperative members in the Assin Fosu Municipality. The target group comprised members of the three major cooperatives—cocoa farmers, rice farmers, and oil palm processors. The selected cooperatives' target population was estimated to be 331 people. The study's respondents were chosen using a multistage sampling procedure. Simple random sampling approaches and proportional and purposive sampling techniques were employed. First, six major cocoa, rice, and oil palm cooperatives were purposively chosen. These were the Assin United Cocoa Farmers' Association Limited (AUCFA), Assin Akropong Cocoa Farmers and Marketing Society (AARGMS), Nyame Nyira Women Oil-palm Farmers Cooperatives and Marketing Society (NNWOFMS), Bro-foyedru Oil Processing Farmers and Marketing Society (BOPFMS), Assin Fosu Rice Growers and Marketing Society (AFRGMS), and Assin Akropong Cooperative Rice Growers and Marketing Society Limited (AACRGMS). The members from each cooperative were chosen using the proportionate random sampling method. The sample (180 respondents) was determined using the [43] formula for determining sample size based on an initial target of 331 members. Based on the sub-populations, a proportion was determined for each of the six groups (Table 1). The names of the members of each of the cooperatives were listed, and the Microsoft Excel random numbers' function was used to constitute the sample for each stratum. The strength of this probability sampling technique lies in the representativeness of the population and the generalisation of findings, according to Ref. [44]. The response rate was 97.2% (175 out of the 180 sampled cooperative members were reached).

Data were collected from the cooperative members using an interview schedule. Social inclusion was measured using a five-point interval scale. Seventeen items that were arrived at from an empirical review [8,12,10] were used to estimate social inclusion. The items generally centred on connections in the community, social investment, access to public services, trust, ability to perform a community-valued role, belonging to a social network within which one receives support, involvement in democratic decision-making, recognition efforts, voice, rights to act and claim, rights to be different, legal rights, rights to access social services among others [8,12,10]. All the items were given equal weights from which a social inclusion index was computed. In addition to the quantitative data, a focus group discussion was held with the leaders of cooperatives. Relevant research ethics, consent, deliberate interest, causing no damage, protection, secrecy, and privacy of the respondents' information were upheld. The data collection protocols and instruments were submitted to the Department of Integrated Development Studies and the School for Development Studies' Graduate Committees, University of Cape Coast, for ethical review and approval before the field data collection. The instrument for the quantitative data was

Table 1
Sample distribution by sub-groups within cooperatives.

Types of Cooperatives	Population	Sample
AACRGMS	69	38
AUCFA	81	44
AFRGMS	28	15
AARGMS	57	31
BOPFMS	46	25
NNWOFMS	50	27
Total	331	180

Source: Fieldwork (2021)

pre-tested at Breman Asikuma on February 2, 2021. The cooperatives in this town share similar characteristics with those of Assin Fosu in terms of the crops produced and marketed. The pre-testing provided opportunities for some of the items on the instrument to be rephrased. The interviews took, on average, 45 min to complete. With respect to the qualitative data, saturation was reached in about an hour with repeated information from the participants. The fieldwork spanned from December 13, 2021 to December 20, 2021. The quantitative data were coded and analysed using descriptive statistics, chi-square, and binary logistic regression tests and triangulated with themes and narratives from the qualitative data.

4. Results and discussion

The discussion in this section covers the background information of the respondents and how cooperatives ensure the inclusion of their members. Sex, age, educational level, and household size of respondents were the background variables that the study examined. These variables have been found to explain social inclusion [10]. With respect to sex, a little over half (50.09) of the 175 respondents were females, whilst the rest were males. In terms of marital status, the majority (77.1%) of the sampled cooperative members were married, while the other respondents were either divorced (8.0%), widowed (7.4%), single (6.3%) or separated (1.1%). A little over 18 percent had no formal education, while most (81.7%) members had at least a primary education. The youngest respondent was 25 years whilst the oldest was 85 years. The distribution of age approximated normality (skewness (Sk) = 0.357). The mean age was 50.29, with a standard deviation of 11.868 years. Regarding household size, the most significant household size was 12, while the smallest was one. The mean household size was 5.87 (standard deviation (Std) = 2.128, Sk = 0.04).

4.1. Cooperatives and social inclusion

We discuss the extent to which cooperatives ensure the social inclusion of their members using data from six cooperatives in the Assin Fosu Municipality. The discussion was informed by years of membership in cooperatives, the type of inputs, and training received by members. Membership in social and solidarity groups is an important aspect of promoting a more equitable and sustainable group [45]. The median years of membership were three with a quartile deviation of 0.5 (skewness = 3.735, mean = 4.36 years). Members of the AARGMS, AFCRGMS, AARGMS, and AUCFA had median years of membership of three years (Sk = 3.033, mean = 4.09 years), two years (Sk = 0.670, mean = 2.36 years), five years (Sk = 1.128, mean = 8.73 years), and three years (skewness = 0.937, mean = 3.45 years) with a quartile deviation (Qtd) values of 0.50, 0.50, 4.5 and 0.50 respectively (Table 2). However, the members of the BOPFMS and NNWOFM cooperative had mean years of membership of 3.32 (Sk = -0.345, Md = 3) and 3.33 (Sk of -0.348) and Std (0.627 and 0.620) respectively.

Inputs received were determined in relation to the extent to which cooperatives ensure social inclusion. Literature suggests that members of formed cooperatives benefit more than non-members [12]. Regarding inputs, 88 percent of the 175 respondents received either fertilisers or improved seeds from their cooperatives, while the rest received either agrochemicals or farm implements (Table 3). The preponderances of the data show that most of the members that benefited from agrochemicals/farm implements were members of BOPFMS (92%), AFCRGMS (71.4%), NNWOFMS (70.4%) and AARGMS (63.3%) while those that received fertiliser generally belonged to AARGMS (85.7%) and AUCFA (75.0%). The distribution of the cooperative type over the input received was examined using the chi-square test. The association was significant, with a χ^2 statistic of 55.679 and a corresponding p-value of 0.000. The significance of the association was confirmed by the Crammer's V (0.564) statistic as relatively strong.

Capacity building in the form of training for members in social and solidarity economies opens opportunities in terms of alternative economic models that are more equitable and sustainable, which, in turn, promote social inclusion, as noted by Ref. [46]. By training individuals in alternative livelihood models, they would be able to create economic systems that are more inclusive and equitable. It became evident that 64 percent of the sampled cooperative members were trained in farm/crop management practices, while the rest were primarily trained in fertiliser/improved seed usage in farming (Table 4). As evident in the table, the majority of those trained in the use of improved seeds and fertilisers were members of AARGMS (74.3%), AUCFA (63.3%), and AUCFA (52.3%) while those trained in farm management were generally members of NNWOFMS (100%), BOPFMS (96%), and AFCRGMS (85.7%). With a χ^2 of 56.493 with an associated p-value of 0.000, we found a statistically significant association between categories of cooperative and the type of training received. The Crammer's V (0.568) showed that this association was relatively strong.

In order to determine the extent to which cooperatives ensure social inclusion among members, the respondents used a five-point scale to rate their social inclusion on 17 items. The items generally centred on connections in the community, social investment, access

Table 2
Years of membership of cooperatives.

Types of Cooperatives	Mean	Md	Sk	Std	Qtd
AACRGMS	4.09	3.00	3.03	2.98	0.50
AUCFA	3.45	3.00	0.94	1.21	0.50
AARGMS	2.36	2.00	0.67	0.50	0.50
AARGMS	8.73	5.00	1.13	8.62	4.50
BOPFMS	3.32	3.00	-0.35	0.63	0.50
NNWOFMS	3.33	3.00	-0.35	0.62	0.50

Source: Fieldwork (2021)

Table 3
Distribution of cooperatives by input received by members.

Type of Cooperative	Agrochemical/Farm Implements No. (%)	Fertilisers/Improved Seeds No. (%)	Total No. (%)
AARGMS	5 (14.3)	30 (85.7)	35 (100)
AUCFA	11 (25.0)	33 (75.0)	44 (100)
AFCRGMS	10 (71.4)	4 (28.6)	14 (100)
AARGMS	19 (63.3)	11 (36.7)	30 (100)
BOPFMS	23 (92.0)	8 (29.6)	27 (100)
NNWOFMS	19 (70.4)	8 (29.6)	27 (100)
Total	87 (49.71)	88 (50.29)	175 (100)

Source: Fieldwork (2021)

Table 4
Cooperatives by training received by members.

Type of Cooperative	Use of Improved Seeds/Fertilisers No. (%)	Farm Management No. (%)	Total No. (%)
AARGMS	26 (74.3)	9 (25.7)	35 (100)
AUCFA	23 (52.3)	21 (47.7)	44 (100)
AFCRGMS	2 (14.3)	12 (85.7)	14 (100)
AARGMS	19 (63.3)	11 (36.7)	30 (100)
BOPFMS	1 (4.0)	24 (96.0)	25 (100)
NNWOFMS	0 (0.0)	27 (100)	27 (100)
Total	63 (36.0)	122 (64.0)	175 (100)

Source: Fieldwork (2021)

to public services, trust, ability to perform a community-valued role, and belonging to a social network within which one receives support. The rest were involvement in democratic decision-making, recognition efforts, voice, rights to act and claim, rights to be different, legal rights and the right to access social services [8,12,10]. All the items were given equal weight, after which a social inclusion index was computed for each respondent by averaging the total inclusion score. The median inclusion index was 1.8235 (Sk = 0.659, mean = 1.917) with a Qtd of 0.44 (Table 5). The disaggregated data also followed a similar distribution pattern, except the principles of the association challenging traditional economic development on a larger scale (mean = 2.94, Std = 1.5, Md = 3, Sk = -0.18).

Social inclusion scores less than the median inclusion index were described as low social inclusion, and those greater than or equal to the median social inclusion were categorised as high social inclusion. The classified social inclusion data were associated with the type of cooperative. The data, as captured in Table 5, show that the majority of the low social included members were from AARGMS (83.3%), NNWOFMS (77.8%), AFCRGMS (71.4%) and BOPFMS (60.0%) whilst the majority of the high social included members belonged to AARGMS (82.9%) and AUCFA (79.5%). The significance of the association was determined using the chi-square test. As the data suggest, the type of cooperative is significantly associated with the degree of social inclusion ($\chi^2 = 55.681$, p-value = 0.000). The association was deemed to be relatively strong (Cramer's V = 0.584).

The analysis was stretched to cover the determination of the likelihood of being socially included using a binary logistic regression.

Table 5
Components of social inclusion.

	Mean	Md	Sk	Std.	Qtd.
The goal of the association is to serve members and community	1.86	1	0.961	1.08	0.5
The activities of the association are autonomous of the state	1.70	1	1.50	1.01	0.5
The association ensures democratic decision-making processes	1.78	1	1.51	1.17	0.5
The activities are based on values of involvement, equality and shared obligation	1.81	1	1.14	1.13	0.5
The association is unlimited to realising current and temporary results.	1.65	1	1.34	0.94	0.5
The principles of the association are rooted within the concept of coexistence.	1.85	2	-1.0	0.812	0.5
The principles of the association challenge traditional economic development on a larger scale	2.94	3	-0.18	1.5	1.5
Focuses on solving social problems of the community through social protection	2.02	2	1.20	1.04	0.5
There is an exchange of argument of knowledge and experience regarding social economy operation	2.25	2	0.873	0.99	0.5
Maintains a connection with networks of similar cooperatives	1.67	1	1.73	0.89	0.5
Adheres to the philosophy of SSE	1.67	1	1.36	0.924	0.5
Addresses development problems faced by people as well as the community	1.82	2	-1.3	0.99	0.5
Ensures that members' efforts are noticed, recognised, and have their own voices.	1.59	1	1.65	0.904	0.5
The concerns and needs of members are considered by the association's policy structure	2.01	2	0.820	0.974	0.5
Ability to engage socially in all facets of life	1.82	2	-1.2	0.983	0.5
Ensures that the human rights of members are upheld	2.13	2	0.720	0.947	1
Ensures that members are well-resourced to contribute to the operations of the association	2.02	2	0.986	1.03	1

Source: Field data (2021)

The dependent variable was dichotomous, comprising low social inclusion (coded as zero) and high social inclusion (coded as one). The explanatory variables included marital status, accessibility to formal education, sex, age of respondents, household size, primary occupation, membership years, category of cooperative, access to farm/crop training, and agrochemicals/farm inputs. A preliminary analysis was done to ensure that the assumptions of multi-collinearity, tolerance and normality were met [47]. It has been noted that if the predictors' tolerance value (TV) is less than 0.01, there is a multi-collinearity or possible singularity. The TV of the predictors varied from 0.366 to 0.937, whilst the variance inflation factor values were between 1.082 and 2.73, which were within acceptable limits for a binary logistic regression analysis. The model performed better than ($\chi^2 = 87.719$, $df = 17$, $P\text{-value} = 0.000$) the null assumption that no factor significantly correlated with low/high social inclusion among members of the cooperatives. Besides, between 39.4 and 52.6 percent of the changes in the likelihood that respondents will be classified into the high social inclusion category were attributed to the predictors. Details of the analysis are presented in Table 6.

As the Social Capital theory explains, social inclusion builds on networks among cooperative members and promotes group goals. As noted by Ref. [8], social inclusion is a medium through which people participate in the public arena, thereby improving the capacity, opportunity, and respect of members based on their character. The data, as captured in Table 6, depict that marital status, education, household size, years of membership and being a member of cocoa-based cooperatives significantly explain the likelihood of a respondent being socially included. The data further show that the odds of a divorcee having high social inclusion were 0.055 times lower than for a widowed ($B = -2.904$, $p\text{-value} = 0.011$). It became evident during the FGD that because cooperatives operate on human relations, periodic relationship counselling is given to members, and the divorced usually take advantage of such services.

With respect to education, respondents who have accessed formal education were 0.244 times less likely to experience high social inclusion than those with no access to formal education ($B = -1.412$, $p\text{-value} = 0.037$). The explanation from the FGD with the executives was that even though the cooperatives were open to any farmer, those who had acquired higher formal education did not actively engage in their group's activities due to their engagements in white-coloured employment. Regarding years of membership, those who had been members for many years were 0.787 times less likely to be highly socially included than those with fewer membership years ($B = -0.239$, $p\text{-value} = 0.017$), which contradicts [48] findings of a direct relationship between membership period and life satisfaction among members of cooperatives in Bolivia.

Aside from education, the data further show that members with larger household sizes were 0.752 less likely to be socially included than their counterparts with smaller family sizes ($B = -0.285$, $p\text{-value} = 0.047$). As opined by Ref. [29], the relevance of small family sizes is envisioned in a high quality of life resulting from good health, high educational attainment of children, enhanced social status and ability to benefit from good nutrition. These benefits of small family sizes were echoed by the executives of the cooperatives, highlighting the high inclination of such members to contribute to the cooperative's activities as well as social, cultural, religious, political and economic activities because they have the luxury of time as compared with members with large household sizes that are likely to suffer from high family expenditure, poor health, poor childcare, low-income status which ultimately affect their social inclusion.

With respect to the type of cooperative and social inclusion, cocoa-based cooperatives were between 48.876 and 65.105 times more likely to have high social inclusion ($3.899 \leq B \leq 4.176$, $p\text{-value} = 0.000$) than rice and oil palm-based cooperatives. Similar findings were reported by Ref. [40] that being a member of cooperatives correlated directly with the feeling of social inclusion among members in Southwest Nigeria. However [40], did not consider the role of different cooperatives in explaining social inclusion. In our case, cocoa-based cooperatives experienced high social inclusion due to their established structure for the cocoa industry as well as the high returns on investment, which enabled cocoa farmers to have financial resources and extensive network size. Data from the FGD show that the two cocoa-based cooperatives had a well-structured internal credit arrangement, which helps provide credit facilities to their

Table 6
Binary logistics regression of factors that affect social inclusion.

B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I. for EXP(B)		
						Lower	Upper	
Females	0.959	0.536	3.207	1	0.073	2.610	0.913	7.458
Age	0.038	0.024	2.495	1	0.114	1.039	0.991	1.090
Marital status 1 (Divorced)	-2.904*	1.137	6.521	1	0.011	0.055	0.006	0.509
Marital status 2 (Married)	0.237	0.877	0.073	1	0.787	1.267	0.227	7.070
Marital status 3 (Separated)	-1.093	1.847	0.350	1	0.554	0.335	0.009	12.526
Marital status 4 (Single)	-0.233	1.161	0.040	1	0.841	0.792	0.081	7.713
Formal education status	-1.412*	0.675	4.368	1	0.037	0.244	0.065	0.916
Size of household	-0.285*	0.144	3.934	1	0.047	0.752	0.568	0.997
Membership of cooperative (In years)	-0.239*	0.100	5.673	1	0.017	0.787	0.647	0.959
Primary occupation (farming)	-0.397	0.716	0.307	1	0.580	0.672	0.165	2.738
AARGMS	4.176*	1.017	16.852	1	0.000	65.105	8.866	478.104
AFCRGMS	1.120	0.888	1.590	1	0.207	3.064	0.538	17.464
AARGMS	0.993	0.893	1.236	1	0.266	2.699	0.469	15.534
AUCFA	3.889*	0.956	16.556	1	0.000	48.876	7.507	318.208
BOPFMS	1.207	0.829	2.120	1	0.145	3.343	0.658	16.974
Access to agronomical training	0.780	0.796	0.959	1	0.327	2.182	0.458	10.392
Access to farm inputs	0.899	0.670	1.800	1	0.180	2.457	0.661	9.135

Source: Fieldwork (2021)

members on flexible terms. The cooperatives did this by tying the quantum of credit given to their members directly to the bags of cocoa produced. This served as a source of motivation for members to adopt appropriate agronomical practices to increase production in order to qualify for higher amounts of credit. The credit facilities were generally used to set up non-farm business activities that resulted in increased incomes, which cushioned members against livelihood shocks. With improved incomes, members were resourced to fully participate in religious, social, cultural, economic, and civil activities whilst maintaining connections with actors in their network.

5. Conclusions and policy implications

This section presents the conclusions drawn from the findings of the study and the policy implications. From the study findings, it can be concluded that cooperatives promote social inclusion by enabling access to productive and financial resources. Social inclusion of cooperative members is enhanced with access to financial resources as members of credit-based cooperatives experience high social inclusion compared to those who do not receive credit. In addition, small household sizes determine high social inclusion as cooperative members with fewer household sizes have the leverage to contribute to the socioeconomic activities of their groups and their communities. Also, members with no access to formal education and those with fewer membership years have a higher likelihood of social inclusion.

In terms of policy implications of the findings, any policy that aims at promoting social inclusion of social and solidarity groups must take into consideration access to financial and productive resources and, at the same, concentrate on measures to reduce household size as these factors are *sine qua non* to high social inclusion. It is, however, important to note that policies that aim at reducing household sizes through orthodox birth control measures alone are likely to be thwarted by cultural and religious factors and may require adequate education and a variety of approaches to accommodate different religious and cultural interests. The implications of the findings remain with how access to finance, formal education, availability of time, and low household expenditure associated with small household sizes contribute to the social status of individuals, which affects their inclusion in social activities. Local communities that desire to form cooperatives must make access to finance one of their prime motives due to its influence on increasing one's social status and ensuring social inclusion. Organisations interested in promoting social inclusion through the formation of social and solidarity groups must take into consideration access to financial resources and the pursuance of higher education due to their potency to foster social inclusion. Such organisations can learn from the *modus operandi* of cooperative credit unions of academic institutions in Ghana and agricultural marketing cooperatives in Egypt, Ethiopia, and Tanzania.

5.1. Future directions of research

The study was limited by the exclusive reliance on subjective data to measure social inclusion, as respondents rated their inclusion based on how they perceived their social life and the activities of their cooperatives. Also, the study was delimited by how social solidarity groups promote social inclusion and could not push beyond the frontiers of how social inclusion translates into sustainable livelihoods, poverty reduction and well-being. We therefore identified these gaps for future studies.

Ethical considerations

Unless otherwise indicated in the manuscript for which sources have been adequately provided, no part of this paper has been published elsewhere. All the authors made significant contributions towards the production of the paper. Besides the authors' contributions, the rights of the participants of the study concerning ethical considerations of research were upheld.

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Data availability

This paper was written from a thesis submitted to the University of Cape Coast. The authors of the paper are prepared to make the data available when requested.

CRedit authorship contribution statement

Comfort Boadu: Formal analysis, Data curation, Conceptualization. **Frederick Koomson:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis. **Richard Oppong Ntiri:** Writing – review & editing, Writing – original draft.

Declaration of competing interest

The authors hereby declare no known competing interest, be it personal or financial dealings, that could have affected the outcome of the paper.

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