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Niels Jens Sandhu, Ramilan Scialabba Warner & Christian Pliakoura Theuvsen

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¹*Niels Jens Sandhu, ²Ramilan Scialabba Warner & ³Christian Pliakoura Theuvsen

^{1, 2, 3}Copenhagen University

*Email of the corresponding author: nielssandhu@gmail.com

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Abstract

A farmer cooperative can serve one or more functions including but not limited to providing loans to farmers, supplying information pertinent to agricultural production, selling inputs necessary to agricultural production, bargaining on behalf of its members, providing transportation services, and marketing the farm products. The agricultural cooperatives are regarded as critical to the farmers in the enhancement of their production. Thus, the study sought to look at the impact of agricultural cooperatives on farmers' output in Denmark. The study was literature-based and the conclusions of the study was based on the findings from the previous studies. Based on the findings of the study, it was noted that agricultural cooperatives play a critical role in enhancing the output of the farmers. Agricultural cooperatives usually pool together inputs to maximize production and further promote capacity building of the farmers. It was noted that working together makes farmers improve their profits by getting into bigger markets, lowering costs and acquiring a higher negotiating power. Farmers are free to join and leave the cooperative, and there is no governmental intervention in managing the organization in Denmark. Farming and customer cooperatives have been widely known in Denmark. The study noted that small and medium-sized cooperatives, financial cooperatives, workers' cooperatives, and cooperatives for seniors have been rampant in Denmark. The study concluded that cooperatives play an important function in the agricultural sector of several nations. Agricultural cooperatives assist farmers to fix a collective action problem. With co-operatives, farmers may bring in traders and institutional buyers, and improve their bargaining power. The study recommended that agricultural cooperatives are required to provide more training on agricultural production and motivate members to actively join those training. The cooperatives need to strengthen and broaden markets to get better prices for their members.

Keywords: *Agricultural Cooperatives, Output, Denmark*

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1.0 Background of the Study

Agricultural cooperatives usually pool together inputs to maximize production and further promote capacity building of the farmers. A farmer cooperative can serve one or more functions including but not limited to providing loans to farmers, supplying information pertinent to agricultural production, selling inputs necessary to agricultural production, bargaining on behalf of its members, providing transportation services, and marketing the farm products. The agricultural cooperatives are regarded as critical to the farmers in the enhancement of their production. It was noted that working together makes farmers improve their profits by getting into bigger markets, lowering costs and acquiring a higher negotiating power. Cooperatives are people-centered ventures owned, managed and operated by and for their participants to try and attain their common economic, social, and cultural requirements and goals (Ji, Jia & Xu, 2018). Agricultural cooperatives usually pool together inputs and other farmer and rural-entrepreneur products to maximize production and do trading on behalf of their members. A cooperative is an autonomous association of individuals who come together willingly to fulfill their common economic, social, and cultural goals through a jointly-owned and democratically-regulated venture. Farmers are required to be organized since cooperatives are a suitable, member-owned, business organization as it provides the proper structure whereby participants manage both production and marketing activities. Agricultural cooperatives may be categorized into two groups: production and service cooperatives. According to Kalogiannidis (2020) agricultural cooperative are the one kind of business organization which addresses completely all the economic, democratic, and social dimensions of poverty decrease at the same time.

According to Fernando, Garnevska, Ramilan and Shadbolt (2021) cooperatives helps farmers take advantage of economies of scale by decreasing their expenses of obtaining inputs or acquiring services like storage and logistics. They also allow farmers to enhance product or services quality and lower risks. Cooperatives empower farmers to possess and regulate, on a democratic basis, business ventures for buying their products and services, and selling their items. Cooperatives assist in enhancing members returns by buying and selling in large scale and so improving prices (Getnet, Kefyalew & Berhanu, 2018). Because of their democratic culture and their economic positioning, cooperatives lead to considerably to social integration, job opportunities and reducing the poverty cases. Cooperatives are hence supporting local economic cycles and contribute in generating local job opportunities. Agricultural cooperatives assist farmers to fix a collective action problem. With co-operatives, farmers may bring in traders and institutional buyers, and improve their bargaining power.

Working together makes farmers improve on their profits by getting into bigger markets, lowering costs and acquiring a higher negotiating power (Candemir, Duvaleix & Latruffe, 2021). Additionally, they can share tools, obtain financial services (like loans), save time on marketing and gain access to training that helps them enhance the quantity and quality of their goods. The process of creating and maintaining a cooperative includes the way of developing and encouraging community spirit, identity and social organization as cooperatives play a progressively crucial function worldwide in decreasing the cases of poverty, assisting in job creation, economic growth and social advancement (Hadjielias, Christofi, Vrontis & Khan, 2022). As a way of changing communities which are hardly hit by poverty into vibrant economies, cooperatives come in and

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contribute to skill-advancement and education. They encourage gender equality and enhance the health and living standards of the whole involved community.

Farmers in Denmark are organized in a willingly basis in cooperatives that belong to the farmers. Farmers are free to join and leave the cooperative, and there is no governmental intervention in managing the organization of farmers in cooperatives and the daily running of the cooperatives (Wolz, 2020). Denmark cooperatives are anchored on 3 pillars: economic benefits, trust and democratic structure. A lot of the Denmark farmers opt to join cooperatives. Through the creation and promotion of cooperatives and other effectiveness enhancing forms of participation among producers, farmers may become more competitive by lowering their expenses and increasing their bargaining power in the food chain through bigger scales and better marketing of their farm produce. Morfi, Nilsson, Hakelius and Karantininis (2021) reported that 95% of the dairy production in Denmark is supplied through cooperatives. Also, the same applies in the pork and beef industry, where about 89% of the pig production in Denmark is slaughtered in cooperatives. The eggs industry has cooperatives that are more than a century old.

Several of issues encountered by farming cooperatives are; poor management, inadequate funding resources, lack of training, extension and education programmes, absence of communication and participation within the members, feudalistic qualities of society, uncertain and poor government policies on the growth of agricultural cooperatives, high fragmentation of land holdings, and poor linkages amongst the activities of the cooperatives like production, credit, marketing etc. To get rid of these challenges, few steps taken by the governments and cooperatives have been: re-evaluation and improvement of farm policies, human resource development through formal and informal training of participants, creation of commercial partnership and joint ventures with private organizations, creation of marketing and agro-processing, execution of self-reliance projects, diversification of agricultural products involving the development of export-oriented crops through contract farming, encouraging universal membership, and strengthening of lawful structure of cooperatives (Sevinç, 2021).

2.0 Literature Review

Sultana, Ahmed and Shiratake (2020) noted that agricultural cooperatives in Bangladesh have been established with the goal of enhancing agricultural productivity and farmers' earnings. The goals of the research are to recognize elements affecting farmers' decision on membership in agricultural cooperatives, and to evaluate the effect of being a member in the cooperatives on farmers' earnings from paddy, livestock and farm. Cross-sectional information from interviews of 351 farmers in Boro District. The probit model and propensity rating matching were used to attain the goals. The findings reveal that farmers that marketed their paddy and had been spoken to by extension employees from the government agency and non-governmental institutions are mostly likely to enter into the cooperatives while male-headed family farmers and farmers who have big off-farm revenue are less likely to enter in the cooperatives. In addition, the outcomes of propensity rating matching show that agricultural cooperative has no effect on paddy returns and paddy profits because of the fact that agricultural cooperatives do not give adequate training to their participants, and participants did not participate in those organized trainings. Additionally, the cooperatives have not given the participants good rates for their paddy. There are favorable influence on their

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livestock and farm earnings via boosting animals and other crop production when agricultural cooperatives give livestock and other crop training to their participants. Nonetheless, there is no influence on non-participants if they enter the cooperatives as they have greater off-farm earnings, less paddy land size and fewer laborers that are not positive to taking on other farming tasks.

Jimenez, Mina and Catelo (2020) performed research to analyze the impact of agricultural cooperatives societies on farmer's output and rural development in Pamilyang Filipino Farmers Agricultural Cooperative in Philippines. The population of the research was ten agricultural cooperative societies' members and twenty non-members of agricultural cooperatives society given an overall amount of 40 arbitrarily chosen from registered farmers in Philippines. The tool utilized for data gathering was a questionnaire that generated details according to five goals of the research. The tool was developed in a four-point rating scale of strongly agree, Agree, Disagree and strongly disagree. The tool was validated by two professionals. The reliability of the tool was developed utilizing test-- retest strategy that yielded reliability coefficient of 0.75. The study questions were examined making use of mean and standard deviation, while the hypothesis was tested by using the z-test statistics. Results of the research revealed that agricultural cooperatives improve farmers' earnings and productivity; improves the sales and marketing of agricultural goods, promotes rural change. The research suggested that government ought to motivate farmers to relate to agricultural cooperative societies in order to benefit from government subsidies.

A study by Moon and Lee (2020) argues that cooperatives in Danish agriculture represents both connection and strong changes from the start of the movement as the economic branch of a detailed social and political movement to the huge agro-industrial ventures of today, and that co-operativism still is a needed tool for both large scale production and for innovation within the agro-industrial market. After a short summary of the role of co-operative reasoning and organizing in the Danish context traditionally, the study provides an analytical overview of the present position of co-operative societies in Danish farming on the background of the structural modifications that have taken place in primary farming and agro-industry during the past generation and a half. The third section offers historic conditions and experiences of co-operativism that have paved the way for the characteristics of the present relationship between farming and co-operativism. Ultimately, problems to this connection are reviewed in the context of market trends within the developed sectors and new areas of agricultural activities making use of the example of organic production.

Vargas-Canales, Palacios-Rangel, García-Cruz, Camacho-Vera, Sánchez-Torres and Simón-Calderón (2022) conducted study to examine the effect of agricultural cooperatives on maize farmers' technological effectiveness in Mexico was assessed. The cooperatives were split right into two teams: a collective marketing team for farmers and an equal non-marketing team which did not offer a marketing service, even though other features continued to be the exact same. Making use of the propensity score matching process and stochastic production frontier modeling, cooperatives' essential functions which possibly enhance farmers' technological effectiveness may be recognized. The outcomes suggest that membership of either team is favorably associated to yield. Moreover, cooperatives that were not involved in marketing attained greater technological effectiveness than non-members. This recommends that policy makers need to encourage cooperatives to concentrate on activities which do not consist of direct marketing to improve technological effectiveness in maize production in Mexico.

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The study by Shiratake (2020) noted that a farmer cooperative can serve one or more functions including but not limited to providing loans to farmers, supplying information pertinent to agricultural production, selling inputs necessary to agricultural production, bargaining on behalf of its members, providing transportation services, and marketing the farm products. Based on the findings of the study, it was noted that agricultural cooperatives play a critical role in enhancing the output of the farmers. Agricultural cooperatives usually pool together inputs to maximize production and further promote capacity building of the farmers. It was noted that working together makes farmers improve their profits by getting into bigger markets, lowering costs and acquiring a higher negotiating power. The study noted that small and medium-sized cooperatives, financial cooperatives, workers' cooperatives, and cooperatives for seniors have been rampant

According to Wang, Cheng, Lee, Sun and Chang (2019) there is need for tidy vegetables which has recently increased, most farmers slowly rely on vegetable farming to improve revenue; as a result, agricultural cooperative organized farmers group to facilitate them access to technical training and boost compliance with the Chinese Good Agricultural Practices requirements. The goal of the study is to assess the influences of the engagement on farmer's revenue in addition to the significant aspects that impact the engagement in cooperatives by the vegetable farmers in China. The research made use of primary data accumulated from vegetable farmers in China. The research made use of propensity score matching to prevent first selection bias. The distinctions between members and non-members will be regulated by matching each membership individual to a nonmember according to similar visible attributes by summing up the conditional probability of a participant given pretreatment features. The research shows that engagement in cooperatives is substantially influenced by ethnic background, age of family, labor entailing vegetable production and extension service access. The findings of the research likewise confirm that farming cooperatives have favorable impacts on member farmers to boost revenue and which members usually have greater revenue than non-members. The technique cannot dismiss the opportunity of selection bias because of unobserved distinctions in between members and even a suitable comparison team. The research contributes to a better understanding concerning effects of cooperatives on farmers' revenue in establishing and arising economies. Furthermore, study additionally upgrades knowledge relating to the effectiveness of agricultural cooperatives in China, and overviews policymakers in assisting the cooperatives in expanding the market and other necessary changes.

A study by Sandhu, Scialabba, Warner, Behzadnejad, Keohane, Houston and Fujiwara (2020) embarked on to check out the impact of cooperative on farmers' productivity in Minnesota, United States. The research utilized a descriptive and inferential statistics to evaluate information which was gotten from 282 respondents. Results showed that prior to joining cooperatives that farmers do have access to improved seedlings and fertilizer while they do not have appropriate accessibility to loans, upcoming markets, and extension services. After joining there was an increment in their access to loans, enhanced seedlings, fertilizer and arising markets, however there was restricted accessibility to extension services. T-test findings reveal that there is a considerable disparity on the mean difference in between services received by participants prior to and after joining to farmers' cooperative. Regression outcomes reveal that farmer's membership of cooperative has a considerable and favorable impact on the farmer's productivity. According to the results for of the

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research, below suggestions were made: The Minnesota State government need to urge study, development and extension of sufficient extension services to cooperative farmers through the Ministry in charge of cooperatives in the state. The extension education of the farmers will certainly assist them understand upcoming markets. Non cooperative farmers need to be motivated to belong to cooperatives to allow them have accessibility to different farming services. The government need also supply sufficient financing for farmers' co-operative societies to obtain all the required human and material inputs to make sure efficiency in its performance. The administration of farmers' cooperative societies have to make sure that the members of the societies are effectively enlightened via cooperative education so as to embrace the favorable contributions which the tasks of the cooperative would certainly make use them and likewise the government must apply a sound farming extension policy since it is essential to attain success in transferring knowledge to farmers.

Pliakoura, Beligiannis and Kontogeorgos (2021) performed study to check out the influence of agricultural cooperative membership on outcome cost, gross earnings, farm revenue, and return on investment (ROI) using a current family study information of 550 rice manufacturers in India. It was noted that agricultural cooperatives play a critical role in enhancing the output of the farmers. Agricultural cooperatives usually pool together inputs to maximize production and further promote capacity building of the farmers. It was noted that working together makes farmers improve their profits by getting into bigger markets, lowering costs and acquiring a higher negotiating power. We used a treatment effects version to account for potential selection bias which arises from the fact that cooperative participants and non-participants are methodically different in terms of both noticeable and unnoticeable aspects. Our evaluation exposes that cooperative membership has a favorable and substantially considerable effect on rice price, gross earnings, farm revenue, and ROI. Additionally, we discover that the biggest revenue impact of cooperative membership does not lead to the highest ROI impact of the membership, exposing distinctions in farm revenue and earnings of investment.

Beber, Theuvsen and Otter (2018) argued that Brazilian South and Southeast areas produced more than 49% of the Brazilian farming production in 2010. The Brazilian government has carried out numerous policies to boost farm income on these areas like plans towards improvement of cooperatives production management. These directly impacts farmers in these areas considered that about 30% of them were participants of cooperatives. In the study, we approximate the impact of this membership on farms profitability, output products as well as input needs. To compute these effects, we approximate a quadratic normalized restricted revenue function using the Brazilian Agricultural Census of 2010 for the South and Southeast areas of Brazil. Preliminary findings recommend a favorable impact of cooperative membership on earnings of around US\$ 5.0 million annually. A favorable effect of membership on output products and on input need was discovered. Agricultural cooperatives assist farmers to fix a collective action problem. With cooperatives, farmers may bring in traders and institutional buyers, and improve their bargaining power.

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3.0 Research Findings

Agricultural cooperatives usually pool together inputs and other farmer and rural-entrepreneur products to maximize production and do trading on behalf of their members. Cooperatives play a major role in Denmark's economy and they are present all over the country. They form the essential of the rural economy via their presence in farming, fisheries, and forestry industries. From rural to city, farmer to consumer, and young to elderly, cooperatives touch all section of Denmark society. Generally, farming and customer cooperatives have been widely known in Denmark. These days, small and medium-sized venture cooperatives, financial cooperatives, workers' cooperatives, and cooperatives for the senior have begun prospering in the country. Cooperatives in Denmark are in all areas, including healthcare, insurance coverage, education, food, ecology, transport, electronics, housing and research and development.

Cooperatives empower farmers to possess and regulate, on a democratic basis, business ventures for buying their products and services, and selling their items. Cooperatives assist in enhancing members returns by buying and selling in large scale and so improving prices. The role of agricultural cooperatives is to assist farmers improve their returns and earnings by pooling their resources to sustain collective service stipulations and economic empowerment. Cooperative growth in most nations has actually revealed that farmers who are successfully organized can benefit from aggregated connections to markets and services, from accessing central services that may assist them get higher returns as well as higher earnings, and from speaking with the same voice to articulate their demands. Internationally, nations with the biggest share of cooperatives in marketed outputs additionally have high average yields for staple crops.

4.0 Conclusion and Recommendations

The study concluded that cooperatives play an important function in the agricultural sector of several nations. A farmer cooperative can serve one or more functions including but not limited to providing loans to farmers, supplying information pertinent to agricultural production, selling inputs necessary to agricultural production, bargaining on behalf of its members, providing transportation services, and marketing the farm products. Based on the findings of the study, it was noted that agricultural cooperatives play a critical role in enhancing the output of the farmers. Agricultural cooperatives usually pool together inputs to maximize production and further promote capacity building of the farmers. It was noted that working together makes farmers improve their profits by getting into bigger markets, lowering costs and acquiring a higher negotiating power. The study noted that small and medium-sized cooperatives, financial cooperatives, workers' cooperatives, and cooperatives for seniors have been rampant in Denmark. Agricultural cooperatives improve farmers' earnings and productivity; improve the sales and marketing of agricultural goods, and promote rural change. Non-cooperative farmers need to be motivated to belong to cooperatives to allow them to have access to different farming services.

The study recommended that agricultural cooperatives are required to provide more training on agricultural production and motivate members to actively join those training. The cooperatives need to strengthen and broaden markets to get better prices for their members. Moreover, the cooperatives ought to concentrate mostly on farmers who have no or reduced off-farm revenue and motivate farmers to commercialize themselves in agricultural activities to acquire higher gains

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from agricultural cooperatives. In addition, agricultural cooperatives are required to provide more training on agricultural production and motivate members to participate in those training. Furthermore, cooperatives need to strengthen and broaden markets to get good prices for their members. In addition, the funding of the cooperatives needs to be raised to maintain their management system and to be able to compete with other traders. Relevant organizations must offer capacity-building training or research tours to management boards, and administration committees need to be frequently monitored and advised by technical officers from the government or NGOs.

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