



Aggregation Models and Small Farm Commercialization:

An Annotated Bibliography
of Relevant Literature



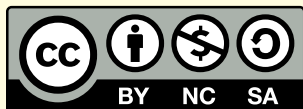
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Tata–Cornell Institute for Agriculture and Nutrition
375 Warren Hall, Cornell University, Ithaca, NY, 14853



Tata-Cornell Institute For Agriculture and Nutrition
375 Warren Hall, Cornell University, Ithaca, NY, 14853

Copy editing: Patricia Mason

Design and layout: Terry Marcus Design

Cover: A Nepalese farmer harvests tomatoes in Kathmandu. (*Photo by Dipendra Lamsal/Shutterstock*)

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Farmer workers harvest lettuce in northern China.
(Photo by chinahbzyg/Shutterstock)

Introduction

Smallholder aggregation models around the globe have the potential to contribute significantly to agricultural growth and productivity by facilitating improved access to credit, inputs, markets, and information. Aggregation models are institutional arrangements by which small and marginal farmers, disadvantaged by low economies of scale, form formal and informal groups to jointly access factor and output markets. These arrangements can be bottom-up initiatives that emerge within the community of smallholder farmers or top-down initiatives initiated by the government or a promoting organization. Since the 19th century, cooperatives, as aggregation models, have been influential in developing the agricultural sector across Europe. In the 20th century, developing countries also introduced cooperatives to replicate similar successes in the agricultural sector. However, these cooperatives had little success due to political interference, poor governance, lack of interest among farmers, and corruption within the organizations. In the past two decades, many developing countries have renewed their interest in aggregation models. Smallholder commercialization opportunities—triggered by changing demand for food, resulting from economic liberalization, urbanization, population growth, and economic development—are seen as the main impetus. Some developing countries have reformed their cooperative laws, whereas others have made provisions for newer aggregation

organizations to emerge, such as Farmer Producer Organizations (FPOs), Producer Companies, and Farmer Federations. Supporting the aggregation models of agricultural production for smallholder farmers has become critical, as 84 percent of the 2 billion farms are smaller than 2 hectares, farmed by the most economically vulnerable and food insecure. Consequently, understanding the net benefits of aggregation models of production across various contexts is vital for adequately implementing public policies and initiatives to promote aggregation models.

The Tata–Cornell Institute (TCI) published a scoping review of relevant literature in Food Policy in 2022, synthesizing studies of smallholder aggregation models and analyzing welfare gains, particularly those deriving from enabling commercialization. The review aimed to identify any research gaps in the existing literature, study the reemergence of farmer aggregation models, and contribute to the taxonomy of farmer aggregation models at the global level. The scoping review includes 244 studies, which span over 50 countries on five continents. Among the 244 studies, 87 studies were chosen for a more extensive analysis and included as annotated bibliographies. The TCI research team used annotated bibliographies to dive deeper into the existing literature and consolidate the relevant findings from each study. A total of 87 annotated bibliographies were included in the research.

The purpose of these annotated bibliographies was to identify research of high relevance in studying aggregation models, consolidate and highlight the main issues and relevant findings from each study, and take stock of the existing evidence of aggregation models enabling commercialization. For each paper, the annotated bibliography summarizes the authors' information, the research and its setting, the research question, methods utilized for carrying out the research, main findings, and the study's strengths and weaknesses. The annotated bibliography is descriptive and critical, outlining the authors' viewpoints and their relevance to the literature.¹

Methodology

For papers selected for the annotated bibliography, we used a three-step process. First, we identified relevant peer-reviewed publications on the impact of aggregation models on smallholders, using Boolean search operators to define the problem as "smallholder farm market access" and the intervention as identifiable "farmer aggregation models." We searched three databases—Web of Science, Scopus, and Google Scholar—for studies published in English or Spanish between 1980 and December 2021. One thousand twenty articles were identified, and the abstracts were screened. Second, we assessed the studies to see if aggregation models mentioned in the studies enabled market linkages or commercialization. Three hundred fifty-four articles were selected for full-text review. After the full-text review, 246 studies were selected for the scoping review. From the articles chosen for the scoping review, 87 studies were identified for annotation. For detailed information on the search and selection methodology, please refer to the article titled, "Aggregation models and small farm commercialization—A scoping review of the global literature."

Overview of the studies

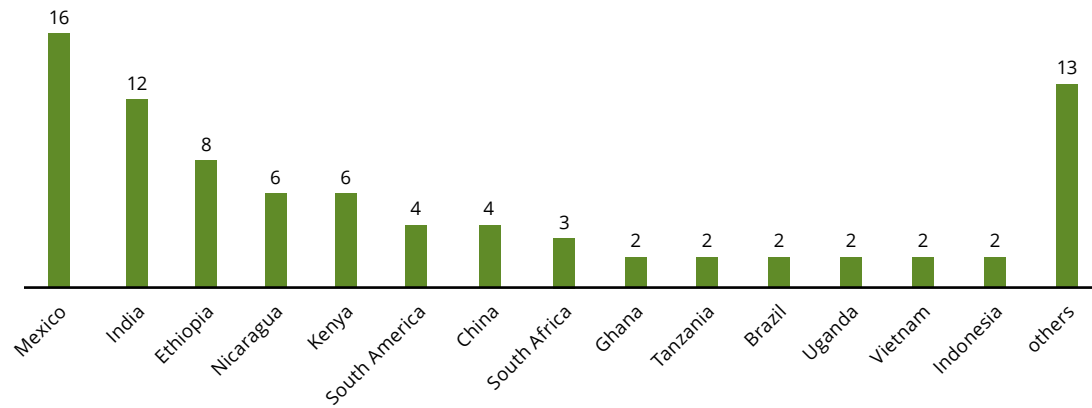
The geographical regions covered in the annotated bibliographies span multiple countries in Asia, Africa, Europe, North America, and South America. The most extensively covered countries include India, China, Mexico, Nicaragua, Tanzania, and Ethiopia. Some studies transcended national boundaries and covered larger regions, such as Latin America and sub-Saharan Africa.

The types of agricultural produce ranged from staple crops to fruits and vegetables, cash crops, and livestock. Some of the recurrent crops included coffee, fruits and vegetables, livestock, fisheries, and textile raw materials, such as cotton and wool. Studies also covered specialized agricultural produce, such as honey in Mexico, rambutan in Honduras, and avocados in Kenya.

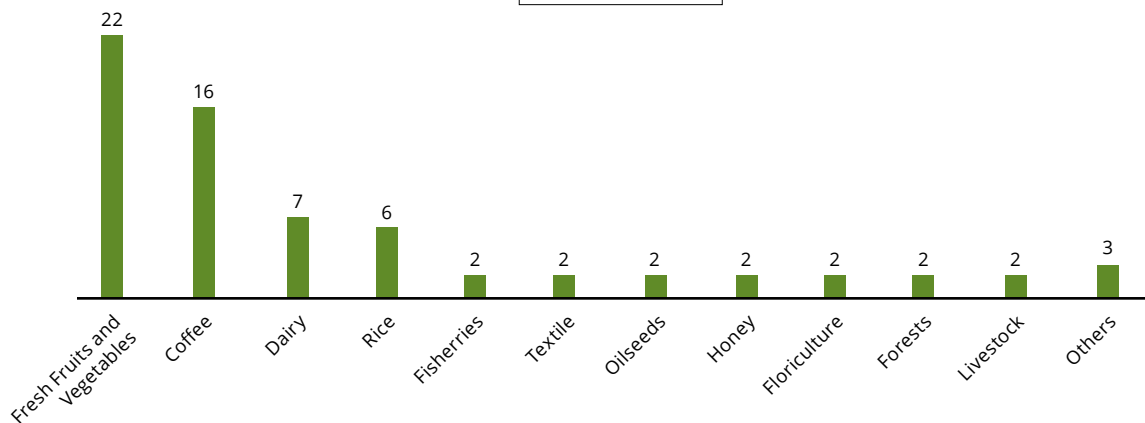
The aggregation models include Farmer Producer Organizations, Farmer Groups, Cooperatives, Agribusinesses, and Ejidos (Mexico). A wide range of journals were cited, with most of the papers analyzed having been published within the last 10 years. Some journals that had multiple studies attributed to them included Food Policy, World Development, Agribusiness, and International Food and Agribusiness Management Review, among others.

The annotated bibliographies identified various benefits of the smallholder aggregation models, including higher incomes, better market access, support for certification, female empowerment, higher crop yields, efficiency, and increased technology adoption. Some of the other advantages of smallholder aggregation models mentioned in the studies included increased adoption of technology, better network linkages,

GEOGRAPHICAL AREAS COVERED



CROPS



and value-added products. The annotated bibliographies allow the researchers to understand the question of smallholder aggregation models around the globe and be more informed on the topic. It also helps researchers overcome their own biases and views on the topic by depicting the state of the research. The study identifies missing links and areas where more information and research could prove helpful. The annotated bibliographies provide background knowledge for the scoping review.

A woman with her hair in a bun, wearing an orange shawl and a grey skirt, is kneeling in a field of lettuce plants. She is holding a bunch of lettuce in her hands. A red mesh bag is slung over her shoulder. The background is filled with lush green foliage and trees.

Studies

A woman picks lettuce on a farm in Ethiopia.
(Photo by AGLPhotography/Shutterstock)

Sub-Saharan Africa

GHANA

Abdul-Rahaman, A., and A. Awudu. 2018. "Do Farmer Groups Impact on Farm Yield and Efficiency of Smallholder Farmers? Evidence from Rice Farmers in Northern Ghana." *Food Policy* 81: 95–105. <https://doi.org/10.1016/j.foodpol.2018.10.007>

The authors are affiliated with the Department of Food Economics and Food Policy, University of Kiel, Germany.

The research objective was to analyze the role of farmer groups in sustained efforts to improve the farm yield and technical efficiency of smallholders and to examine the factors that influence smallholder participation in farmer groups. The study employed the propensity score matching (PSM) method to estimate a probit model using observable farm and household characteristics. They also estimated the stochastic production frontier (SPF) model with correction for selection bias. Survey data was collected from 412 smallholder rice farmers (45 percent were group members, and the remaining were nonmembers), covering five districts of northern Ghana, selected purposively for their geographic accessibility and the intensive rice production. The Ghana government, donor agencies, and large agribusiness companies collaboratively intensified efforts in revamping the rice value chain through initiating a number of agriculture and value chain development interventions that have facilitated the formation of farmer groups, an important step toward implementing the interventions to promote collective action and improve farmer welfare. The empirical results showed that farmer's age, access to credit and irrigation, extension visits, and distance to markets are the important, positive determinants of participation in farmer groups.

Findings revealed that group members obtain higher yield and technical efficiency (TE), compared to that of nonmembers. Furthermore, group members operate closer to their own production frontier than nonmembers, as revealed by the higher mean TE scores associated with the conventional SPF model (69 percent versus 64 percent), and the sample selection SPF model (74 percent versus 66 percent), respectively. Results also showed that participation in farmer groups contributed significantly to enhancing farm yield. The study recommended effective extension services and stakeholder collaborative efforts to establish and/or expand irrigation facilities in the study area to further enhance yield and efficiency.

Chauvin, N. D., G. Porto, and F. Mulangu. 2017. "To Be or Not to Be a Member of a Grassroots Institution: Evidence from a Social Network Analysis in Rural Areas of Ghana." In *Agricultural Supply Chains, Growth and Poverty in Sub-Saharan Africa: Market Structure, Farm Constraints and Grass-Root Institutions*, 175–92. Berlin: Springer-Verlag. https://doi.org/10.1007/978-3-662-53858-6_10

The authors Chauvin, Porto, and Mulangu are affiliated with the University of Applied Sciences, Switzerland; Universidad Nacional de La Plata, La Plata, Argentina; and the African Center for Economic Transformation, Accra, Ghana, respectively.

The article's aim was to study the challenges at the production, storage, and marketing stages in the value chain; and the network links of grassroots institutions (GRIs) and their economic and welfare impacts. The authors compared 75 member households to 75 nonmember households from 10 GRIs and 9 communities in Ghana. The data was collected over a period of 3 months in 2013, with a focus on households that produced maize. The internal and external links of GRIs were examined by considering their land links, labor links, credit links, input links, agricultural income, and wealth. The study may not have accounted for spillover effects and the sample size was small. Also, the cross-sectional nature of the data limited the understanding of trends of linkages across time.

The government of Ghana renewed its interest in GRI post-2006 when it began to view GRIs as means to reducing poverty and boosting economic growth. GRIs are established at the local level and form strong external linkages to government institutions. Thus, farmers mainly participate in GRIs to gain government support.

The farmers face various challenges on the crop production, processing, and marketing front. About 83 percent of the GRIs work toward tackling production-related market failures, 21 percent work toward processing related market failure, and 36 percent work toward providing subsidies on fertilizers. GRIs play a crucial role in developing network linkages. For this systematic review, we will discuss only a few selected links.

Some findings include the following. GRIs significantly helped in credit and input links (coefficient for input GRI was 0.39, input non-GRI was 0.31; credit GRI 0.2, and credit non-GRI was 0.04; significant at 5 and 10 percent levels). GRI membership increased the likelihood of access to credit and inputs by 16 percentage points. The members and nonmembers had similar land links, but nonmembers used external land networks to lend and borrow from outside the village. The GRI members tended to attract the poorest farmers; this is clear from the fact that GRI nonmembers earn more than members. This could be because the GRIs do not help farmers by addressing marketing problems. The members do benefit from GRIs external networks as they gain information on prices and market conditions.

TANZANIA

Aku, A., P. Mshenga, V. Afari-Sefa, and J. Ochieng. 2018. "Effect of Market Access Provided by Farmer Organizations on Smallholder Vegetable Farmer's Income in Tanzania." *Cogent Food & Agriculture* 4 (1): 1560596. <https://doi.org/10.1080/23311932.2018.1560596>

The authors Aku and Mshenga are affiliated with the Department of Agricultural Economics and Agribusiness Management, University of Egerton, Kenya; Afari-Sefa is affiliated with the World Vegetable Center, Benin; Ochieng is affiliated with the World Vegetable Center, Tanzania.

The research objective was to assess the rationale for farmer organizations in improving farmer's access to information and implications on incomes. The study was conducted in Babati district of Tanzania where

the Africa RISING project, funded by the United States Agency for International Development (USAID), established sustainable initiatives of integrating vegetables into maize-based systems for improved nutrition and income of smallholder farmers. The district was purposively selected for its agroecological conditions, which favor production of a diverse number of crops, including vegetables, and for the existence of initiatives to promote vegetable production for income and nutrition. Collective action, social capital theoretical frameworks, and propensity score matching (PSM) techniques were applied for the analysis of data collected from 250 farm households. The study found that farmers could easily access markets if they belonged to a farmer organization, although other factors, such as distance to the market, farm size, gender, and market information, also had a great influence on farmers' market access.

Income for vegetable farmers who belonged to a group was higher than those who did not belong to a group by US\$42.22. Farmers who had access to a market through farmer organizations had more income per season (US\$220.11) than those who did not belong to a group (US\$177.90). The findings illustrate that farmer organizations can benefit farmers by increasing the farmers' incomes and providing a good platform for the provision of farm inputs and marketing of produce, which can increase farmers' incomes. The authors recommend enabling policies that will strengthen the farmer organizations' capacity in sourcing, disseminating market information, and searching for produce markets.

Rao, E. J., N. Mtimet, E. Twine, I. Baltenweck, and A. Omore. 2019. "Farmers' Preference for Bundled Input-Output Markets and Implications for Adapted Dairy Hubs in Tanzania—A Choice Experiment." *Agribusiness* 35 (3), 358–73. <https://doi.org/10.1002/agr.21565>

The authors are researchers at the International Livestock Research Institute (ILRI), Kenya. The research objective was to investigate livestock keepers' preference for attributes of dairy business hubs (DBHs) to inform development and implementation of dairy hubs that meet the needs of livestock keepers in Tanzania. A DBH is a mechanism to upgrade the value chain by clustering dairy services around a milk buyer, under some form of contractual agreements, which enable farmers to access milk markets, as well as inputs and services. The study analyzed data from 461 cattle-keeping households in two districts that are characterized by both extensive, precommercial rural producers selling milk predominantly to rural consumers, and intensive commercially oriented rural producers selling milk to urban consumers, directly or via traders. Applying choice experimental methods, researchers found that if milk marketing had to be bundled with input and/or service provision, farmers would prefer arrangements that tied input provision or access to credit, rather than ones that tied services or extension. Willingness to pay (WTP) analysis showed that they are willing to forego TZS 52/ liter to have market-coordinating mechanisms that bundle supply of inputs rather than services and TZS 65/ liter to access bundle inputs supply rather than extension. Findings provided substantial opportunities for existing or emerging milk aggregation units (producer organizations, chilling plants, milk traders, etc.) to move beyond the traditional role of only bulking milk to build business around bundled input and/or service provision. The findings of this study are relevant for sub-Saharan African countries grappling with dairy development. The authors recommended that emerging dairy hubs in Tanzania should be supported to either establish in-house input provision arrangements or to enter into contracts with agro-input dealers.

ETHIOPIA

Alemu, A.E., and H. Azadi. 2018. "Fish Value Chain and Its Impact on Rural Households' Income: Lessons Learned from Northern Ethiopia." *Sustainability* 10 (10): 3759. <https://doi.org/10.3390/su10103759>

The author Alemu is affiliated with Mekelle University, Ethiopia; Azadi is affiliated with Ghent University, University of Antwerp, and the University of Hamburg.

The article examined the factors that determine households' participation in fisheries and the impact of participation on the livelihood and welfare of households in Ethiopia. The authors studied 313 households (62 members and 246 nonmember households), adopting a case study approach with counterfactuals. They compared four groups, namely, rural households practicing fishing, those not practicing fishing, members of cooperatives, and nonmembers. Government spending in Ethiopia has favored the development of dams, such as the Tekeze Dam, to encourage fishing cooperatives and boost employment opportunities. The Tekeze Dam led to the creation of artificial freshwater lakes that are favorable for developing fisheries in the region. With the intention of rural poverty alleviation, public spending has also focused on establishing and helping two cooperatives in securing fishing boats, fishnets, refrigerators, motorcycles, and office supplies, and in gaining access to training. Such support has helped cooperatives improve their productive capacity. Additionally, the capital for cooperative activities is generated by members, government support (Mekelle University), loans, and help from the Relief Society of Tigray (REST). The cooperatives have helped their members by creating employment opportunities, achieving food security, and income increases through employment in the cooperative and directly through fish sales. The average total household income of non-fishing families, fishery households, and members of fish cooperatives are, 7477.24 Birr, 11,026.44 Birr, and 11,122.06 Birr, respectively. There is a significant income increase through fisheries and cooperatives, as compared to non-fishing households. This may be because non-fishing households invest more in agricultural activities and do not diversify. The cooperatives sell the produce in open markets and on a contract basis to hotels and distributors. They also work on advocacy issues such as unregulated fisheries that may deplete future fish stocks. While male members of cooperatives engage in fishing, female members engage in processing and selling. Cooperatives help their members by providing equipment, storage and processing facilities, packaging, collective marketing, and distribution. The study highlighted that, of the total surveyed households, households with fisheries constituted 36.61 percent, of which 20 percent were cooperative fisheries, while 16.61 percent were individual fisheries. With the growing demand for fish, more households are diversifying to fishing. While the average household incomes of fishery households and member households are similar, the study revealed that the income inequality between member households is less than compared to private fishery households.

Reduction in income inequality among member households, and provision of diversification of livelihoods were found to be the two major welfare impacts of the fish cooperatives analyzed in this study. The latter was especially important because member households tend to have lesser agricultural assets, as compared to nonmembers. Participation in fish cooperatives is based on various factors. Proximity to markets, rural support, young household heads, large families with active family members, small land assets, and lower number of oxen, increase the likelihood of participation. The article is an interesting example of a well-functioning cooperative that markets a product that is not the only or primary product of the smallholders and addresses poverty alleviation.

Chagwiza, C., R. Muradian, and R. Ruben. 2016. "Cooperative Membership and Dairy Performance among Smallholders in Ethiopia." *Food Policy* 59: 165–73.
<https://doi.org/10.1016/j.foodpol.2016.01.008>

Chagwiza is affiliated with the Department of Agriculture and Animal Health in the University of South Africa, South Africa; Muradian is affiliated with the Universidade Federal Fluminense, Brazil; Ruben is affiliated with the Development Economics Group, Wageningen University, The Netherlands.

The authors adopted a case study approach with counterfactuals to examine the impact of cooperative membership on dairy-producing households in Ethiopia. They used propensity score matching (PSM) for reducing biases in the estimation of the treatment effect, but the study may still have endogeneity problems. Five cooperatives were randomly selected from the 24 primary cooperatives operating in the area, where 192 smallholders were cooperative members and 192 were nonmembers, selected from the same kebeles (the smallest administrative unit in Ethiopia). After the Derg regime, cooperatives became more autonomous. The new governments have promoted them as means to propel small farm commercialization. Cooperatives in the country have not only increased in number, but also strengthened in terms of membership size, capital, and diverse types.²

Cooperative membership does not significantly impact the price of the milk but helps smallholders in technology transformation. The insignificant impact on price could be because the cooperatives are in their early stages of development. Also, apart from income through sales, members benefit from the cooperatives, receiving annual dividends that are proportional to their patronage. More importantly, cooperatives play a pivotal role in poverty alleviation, as they benefit the poorest households through intensifying dairy commercialization. Cooperatives do so by acquiring high-yield cow breeds, providing access to vaccination services, and access to improved feed. They also provide bulking, transportation, and marketing services to its members. Most importantly, cooperatives help secure stable clients such as Shola Dairy Enterprise (a processing company in Addis Ababa). They also provide processing and marketing of milk products, such as cheese, yogurt, and butter. However, since the cooperatives are not offering competitive price advantages, their sustenance and expansion may be impeded over time.

Debela, M., S. Diriba, and H. Bekele. 2018. "Impact of Cooperatives Membership on Economy in Eastern Oromia: The Case of Haramaya Agricultural Farmers' Cooperative Union." *Annals of Public and Cooperative Economics* 89 (2): 361–76.

Debela and Diriba are affiliated with the Haramaya University, Ethiopia; Bekele is affiliated with Indiana University–Purdue University, United States.

The paper examines the impact of cooperative membership on the smallholders' income, productivity, marketed surplus, and savings in East Hararghe Zone of Haramaya District in Ethiopia. The study uses propensity score matching (PSM) estimates, bias correction matching (BCM), and Lewbel instrumental variable (IV) regression estimation. Using a multi-stage random sampling process, three kebeles (villages) from one district were chosen. From these villages, four cooperatives were selected, and 124 members were chosen from these cooperatives. With 176 randomly selected nonmembers, the total sample consists of 300 farming households. The selected farmers produce vegetables and khat (*Catha edulis*, a flowering plant).

The national government in Ethiopia has promoted cooperatives as part of poverty reduction strategies. Unlike cooperatives during the Derg regime, membership in current cooperatives is voluntary. The cooperatives help its members by supplying modern fertilizers, equipment, pesticides, and improved seeds. In 1993, Ethiopia introduced a policy, Agricultural Development Led Industrialization (ADLI). The aim was to increase small farm commercialization to boost productivity and to restructure the manufacturing sector.³ Promoting cooperatives was an important step in this regard.

The findings of the study show that the case cooperatives have helped in commercialization of small farms. Cooperative membership had a positive impact on per capita income ranging from 2,793 to 2,678 Birr. Similarly, its impact on productivity, marketed surplus, and savings, ranged from 63,230 Birr to 67,568 Birr, from 11,414 Birr to 12,725 Birr, and from 5,448 Birr to 5,730 Birr, respectively. The positive and significant impact of the cooperative membership is consistent in its nature across all the three matching methods.

Francesconi, G. N. 2009. "Linking Smallholders to Commodity Exchange: The Role of Agricultural Cooperatives in Ethiopia." In *Cooperation for Competition: Linking Ethiopian Farmers to Markets*, Vol. 5, 27–42. Wageningen, The Netherlands: Wageningen Academic Publishers.

The author is affiliated with Wageningen University, Wageningen, The Netherlands.

The study was the author's doctoral work at Wageningen University. It assessed how cooperatives help smallholders in commercialization of their produce. The dissertation focused on cooperatives that produce teff, maize, wheat, sesame, and coffee in rural Ethiopia. The author compared the degree of farm commercialization between members and nonmembers in important areas that produce agricultural commodities. Francesconi used Tobit regression, propensity score matching techniques and average treatment effect on the treated (ATT).

³ Ministry of Planning and Economic Development (MoPED). 1993. "An Economic Development Strategy for Ethiopia: A Comprehensive Guidance and Development Strategy for the Future." Addis Ababa, Ethiopia.



Farmers tend to their maize crops.
(Photo Riccardo Mayer/Shutterstock)

Data were collected in 2005, from 17 municipalities (woredas) in which the Ethiopian Commodity Exchange (ECX) is interested. To avoid errors arising from spillover effects, the authors chose nonmember farmers from villages that were similar to the villages with cooperatives. After the Derg regime, the new governments in 1994 renewed cooperatives to provide smallholders access to input and output markets. In 2002, the Federal Cooperative Agency (FCA) was established to ensure one cooperative in every kebele. By 2010, 70 percent of the kebeles in the country had achieved this goal.⁴ The author defines “farm commercialization” as the ratio between the value of ECX-commodities sold and the total value of ECX-commodities produced.

There is no significant difference between the degree of commercialization between members and nonmembers, except for farmers who were members of marketing cooperatives. The latter had a greater degree of commercialization, about 14–21 percentage points more than nonmembers. Since about 50 percent of the cooperatives do not provide marketing services, there is no significant difference between the degree of commercialization between members and nonmembers. Thus, the impact of marketing cooperatives gets overshadowed. Marketing cooperatives help in cost-saving and risk-sharing related to collective marketing.

Handino, T. D., M. D. Haese, F. Demise, and M. Tamirat. 2019. “De-commoditizing Ethiopian Coffees after the Establishment of the Ethiopian Commodity Exchange: An Empirical Investigation of Smallholder Coffee Producers in Ethiopia.” *International Food and Agribusiness Management Review* 22 (4): 499–518. <https://doi.org/10.22434/IFAMR2018.0047>

Handino and Tamirat are affiliated with the Department of Agricultural Economics, Jimma University, Jimma, Ethiopia; Haese is affiliated with the Department of Agricultural Economics, Ghent University, Ghent, Belgium; Demise is affiliated with the Department of Agricultural Economics, Assela University, Assela, Ethiopia.

The study investigated whether small scale coffee producers selling through certified cooperatives are better off than producers marketing through the Ethiopian Commodity Exchange (ECX) chain. The research population comes from Jimma and Keffa zones in southwestern Ethiopia, which were selected for their potential and for their long experience with coffee production. The study used the propensity scores to match the 292 household members in the certified and traceable cooperatives while 332 households were selected in the comparison group. Coffee cooperatives that serve as advocates for the producers offer alternative market outlets in a fully traceable and certified manner. In Ethiopia, coffee market certification is only provided for coffee cooperatives. ECX, established in 2008, was intended to function as an organized marketplace, in which buyers and sellers could meet to trade, while being assured of quality, quantity, payment, and delivery. The study found that cooperative producers engaged more in land conservation practices, tree planting, and organic fertilizer application (focusing on compost and mulching) than did the producers of the control group. Training and creating awareness among members of certified and traceable coffee cooperatives enables them to follow sustainable coffee production practices.

The average treatment effect of certification and traceability for wet coffee price was positive, suggesting a significantly higher price compared to the conventional channel, but this difference was not large enough to bring the member farmers a higher gross income from coffee. Given the evidence in this study and the fact that majority of the producers' income emanates from coffee, the authors emphasized the need for a sustainable way of enhancing coffee productivity that could revitalize the welfare of the coffee producers.

Mojo, D., C. Fischer, and T. Degefa. 2017. "The Determinants and Economic Impacts of Membership in Coffee Farmer Cooperatives: Recent Evidence from Rural Ethiopia." *Journal of Rural Studies* 50: 84–94. <https://doi.org/10.1016/j.jrurstud.2016.12.010>

The authors Mojo, Fischer, and Degefa are researchers at the Ethiopian Institute of Agricultural Research, Free University of Bozen/Bolzano in Italy, and the College of Development Studies in Addis Ababa University, respectively.

The researchers analyzed the economic impacts of cooperative membership at the household level in Ethiopia. The study focused on coffee farmers in the Oromia region, using case studies with counterfactuals that compared cooperatives with certifications systems with those that are uncertified. One cooperative with fair trade certification and one without any certification were chosen from each of the two chosen districts. The authors randomly selected a sample of 305 representative households consisting of members and nonmembers. The data for the study was collected over two months in 2014. Propensity score matching (PSM) and endogenous switching regression (ESR) models were used to reduce selection biases and to estimate treatment effects. The study deploys mixed methods, with qualitative data collected from group discussions contributing to the findings. The cooperatives that began after the Derg regime are based on Proclamation No. 147/1998, which is based on international cooperative principles. From the 60,000 registered primary cooperatives and 9 million members, coffee farmers are the most active of the cooperatives. The greater numbers of coffee cooperatives are due to the nature of coffee production, which involves high-risk investments and low returns. Additionally, due to the long supply chain of Ethiopian coffee, the farmers receive low farmgate prices. The cooperatives help in overcoming these hurdles. On the other hand, the government supports coffee cooperatives, as coffee accounts for more than 25 percent of foreign exchange.

The case study cooperatives provide services such as marketing, access to inputs like fertilizers, and use of a minimum threshold to achieve stable coffee prices. They also provide processing services, such as hulling or washing coffee beans. The cooperatives sell the processed coffee to cooperative unions, who directly sell to the international market, or to private exporters at the Ethiopian Commodity Exchange (ECX) market. The most prominent welfare impact of coffee cooperatives in Ethiopia is the stabilizing of coffee prices, which has had a spillover effect on nonmembers. The cooperatives have also helped villages access schools, health care,

and potable water. Since the cooperatives buy coffee beans from members and nonmembers at the same price, the members do not exclusively benefit from the membership. Similarly, other services are equally provided to members and nonmembers. Annual dividends, proportional to the members' sales, is the only advantage that members enjoy over nonmembers, but some farmers had not received dividends in many years or had received an insignificant amount at the time of the study. Lastly, due to bureaucratic and financial hurdles, the cooperatives delay in purchasing the beans from farmers. An untimely purchase can encourage members to sell elsewhere. Bureaucratic and financial constraints, as well as indifference in benefits for members and nonmembers, may pose a challenge to the coffee cooperatives in the long run.

Shumeta, Z., and M. D'Haese. 2016. "Do Coffee Cooperatives Benefit Farmers? An Exploration of Heterogeneous Impact of Coffee Cooperative Membership in Southwest Ethiopia." *International Food and Agribusiness Management Review* 19 (4): 37–52. <https://doi.org/10.22434/IFAMR2015.0110>

The authors are affiliated with Jimma University in Ethiopia and Ghent University in Belgium, respectively. The research objective was to explore both the overall and the heterogeneous impact of membership of coffee cooperatives in Ethiopia on farmers' performance. The study employs propensity score matching technique on data collected from coffee cooperatives in the Jimma and Kaffa zones of southwest Ethiopia, from 132 members and 124 nonmember coffee-producing households across 12 cooperative kebeles. Other than marketing coffee, cooperatives also process coffee and are involved in the sale of other crops, provide inputs, and conduct training sessions. These cooperatives are organized by kebeles or Peasant Associations, with each cooperative named after its location. Results from matching methods show no significant overall impact of cooperative membership on the selected performance indicators (total income, income from coffee, agricultural income without coffee, total coffee supply, yields of berries and dry coffee, prices received, and net margins obtained). The fierce price competition between cooperatives and traders wishing to purchase coffee from farmers leads private traders to adjust their price to what the cooperatives offer, and this in turn means producers get a better price for their product. The authors thus conclude that coffee cooperatives are used as a safety net by member farmers to avoid exploitation by traders in the region, despite the cooperatives having an insignificant direct impact on improving incomes. An analysis of the heterogeneity of these treatment effects show that cooperatives were beneficial for members whose household head is relatively older, educated, and has a larger coffee farm. The authors pressed for examining heterogeneous effects when assessing the impact of such institutional innovation in the agriculture sector.

Wassie, S. B., H. Kusakari, and S. Masahiro. 2019. "Inclusiveness and Effectiveness of Agricultural Cooperatives: Recent Evidence from Ethiopia." *International Journal of Social Economics* 46 (5): 614–30. <https://doi.org/10.1108/IJSE-07-2018-0340>

The lead author Wassie is affiliated with the Division of Food and Environmental Economics at Kobe University in Japan and the Department of Agricultural Economics at Bahir Dar University in Ethiopia. The co-authors Kusakari and Masahiro are researchers at the Division of Food and Environmental Economics at Kobe University and Ishikawa Prefectural University in Japan, respectively.

The article examines agricultural cooperatives in Oromia region in Ethiopia from the perspective of inclusiveness and effectiveness in cooperative performance and improving smallholder's household income. Using two-staged stratified sampling, 458 households were chosen from selected kebeles that had potential for wheat production. Of the 458 households, 219 were cooperative members. The data were collected in 2016 by the International Food Policy Research Institute (IFPRI). For studying inclusiveness and effectiveness, the authors used the logit model and the endogenous switching regression (ESR) model, respectively. ESR addresses biases stemming from observable and unobservable characteristics.

On average, the cooperative membership impacts members' yield, unit cost of fertilizer, and income. In the absence of membership, the current members would have seen a 5 percent decrease in their yield (1.37 quintal/hectare), 1.5 percent increase in fertilizer costs (22 Birr/quintal), and 34 percent decrease in marketed surplus. The members and nonmembers were similar when measured for NPS (nitrogen, phosphorus, and sulfur) fertilizer adoption, price, and marketed surplus. The benefits of cooperative membership were more profound when the authors looked at marketing cooperatives specifically. They increased yield by 16 percent and income gain by 32 percent. The benefits of marketed surplus due to membership in marketing cooperatives increased with larger assets, smaller family size, fewer extension agents, and more traders in the village. The latter increases competition in providing services to farmers. In the absence of cooperative membership, the current members would have seen a 13 percent decrease (1,804 Birr less) in their household income. For marketing cooperative members, the decrease would be sharper, because their income increases by 32 percent due to membership. However, possibly due to spillover effects, the members of marketing cooperatives and nonmembers get similar prices for their produce. The article is important as it highlights the effectiveness of marketing cooperatives, as compared with other cooperatives. Many studies analyze the impact of cooperatives in general. In this process, the comparative advantages of marketing cooperatives get obscured or averaged out with other cooperatives.

SOUTH AFRICA

Bitzer, V., and J. Bijman. 2014. "Old Oranges in New Boxes? Strategic Partnerships between Emerging Farmers and Agribusinesses in South Africa." *Journal of Southern African Studies* 40 (1): 167–83. <https://doi.org/10.1080/03057070.2014.877647>

The authors are affiliated with the Management Studies Group, Wageningen University, The Netherlands.

The research examines six strategic partnerships in the citrus sector—one of the key agricultural sectors in South Africa—to analyze to what extent the partnerships promote the commercialization of emerging farmers. The study site was Eastern Cape Province (second largest citrus-growing province in South Africa), with a particular emphasis on the Kat River Valley and the Sundays River Valley, where semi-structured interviews were conducted with key stakeholders (farmers, government, agribusiness managers, industry associations) from a total of six agribusinesses. Since the end of apartheid in 1994, a major policy objective has been commercialization of black, smallholder farmers, following the example of large-scale commercial farmers. Strategic partnerships have become important instruments for government to promote active involvement of the private sector in mainstream agriculture (for example, agribusinesses), first implemented in the early 2000s.

The study found that to ensure export-ready produce of farmers, agribusinesses introduced new citrus cultivars (production differentiation) to increase export rates, including varieties that are more favored by the markets or that extend the harvesting season. Further, standardized trainings and support enabled farmers, who were performing mostly low-skilled functions, to become versed in production issues, even though the goal of turning them into independent commercial farmers remains to be achieved. The study documented agribusinesses as an important step for farmers as way of improving market access but emphasized the need to analyze the transformative potential in addressing the country's unequal agrarian structures.

D'Haese, M., G. Van Huylenbroeck, and L. D'Haese. 2005. "Collective Action in a Complex Institutional Environment—A Case Study of Small-Scale Wool Growers in South Africa." *Outlook on Agriculture* 34 (1): 33–40. <https://doi.org/10.5367/0000000053295114>

D'Haese is affiliated with the Department of Social Sciences at Wageningen University, Wageningen, The Netherlands; Van Huylenbroeck and Luc D'Haese are affiliated with the Department of Agricultural Economics at Ghent University, Ghent, Belgium.

The article discusses how institutional innovation can help improve smallholders' incomes in developing countries. The authors studied wool grower associations in three villages: Luzie, Xume, and Mhlahlane, in Ghana, using counterfactuals. They used homogeneity analysis to compare members and nonmembers and to contrast farmers in villages with a shearing shed (Luzie and Xume) to those without a shed (Mhlahlane). The sample of 98 farmers had a mix of farmers with or without support for wool production, and farmers who were members or nonmembers of active or inactive wool growers' associations.

The association markets wool by signing formal contracts with brokers, and shearing and grading teams. They jointly shear, collect, and bulk the wool; and grade, package, and transport it. It helps to reduce the cost burdens on farmers. The association also reduces marketing costs by helping farmers gain access to information and gain collective bargaining power. Extension officers have been successful in promoting higher input/high-output systems in Luzie, where the wool growers' association was performing better, compared to villages where there was no support for wool production (Mhlahlane), or where the association was not doing well (Xume). Due to communal land tenure and communal grazing systems, member farmers have high input costs, but they also produced higher outputs. The members of the better performing wool growers' association rear Dohne-Merino sheep, which are costlier than rearing local breeds. Dohne-Merino sheep are not adapted to the environment and require extra feed, especially because communal grasslands have less fodder to offer due to overstocking, degradation, and seasonal change (winters). The better performing wool growers' association is located in Luzie. The member farmers from Luzie have larger landholdings and fetch higher prices per kg for their wool, as compared to farmers in Xume and Mhlahlane. Xume nonmembers fetch 0.89 R/kg, Xume members fetch 3.14 R/kg; Luzie nonmembers get 2.81 R/kg; Luzie members get 4.38 R/kg; Mhlahlane growers get 1.49 R/kg.

Members of the active wool grower association in Luzie and inactive association in Xume get higher prices than nonmembers. Also, growers with no support in Mhlahlane receive lower prices than growers who enjoy support from wool growers' associations.

Gadzikwa, L., M. C. Lyne, and S. L. Hendriks. 2006. "Collective Action in Smallholder Organic Farming: A Study of the Ezemvelo Farmers' Organization in KwaZulu-Natal." *South African Journal of Economics* 74 (2): 344–58. <https://doi.org/10.1111/j.1813-6982.2006.00070.x>

Gadzikwa and Lyne are affiliated with the Agricultural Economics Department in the University of KwaZulu-Natal; Hendriks is associated with the Food Security Department at the School of Agricultural Sciences and Agribusiness in University of KwaZulu-Natal. Both institutions are located in South Africa.

The study was funded by a research grant from the Ford Foundation. The paper examines the role of farmers' organizations as institutions for decreasing transaction and production costs, and for improving access to niche markets for smallholding farmers. The authors used a certified organic group, called Ezemvelo Farmers' Organisation (EFO), in KwaZulu-Natal province in South Africa. Using a multinomial logit regression model, the authors analyzed a sample of 200 farmers with 151 members and 49 nonmembers. Of the member farmers, 48 were fully certified EFO farmers and 103 were partially certified (in process of adopting organic production) by Ecocert/Afrisco. All nonmembers were residents of the same area. The authors used data collected in the cropping season of 2004–5 to measure farmers' perceptions of "net benefits of collective action" on a Likert scale.

Group certification is one of the means of linking smallholders to organic markets. In South Africa, certification agencies like Ecocert/Afrisco follow the guidelines drafted by the International Federation of Organic Agriculture Movement (IFOAM). For group certifications, both collective and individual organic production systems are acceptable. However, the produce has to be marketed collectively, which encourages farmers to organize themselves. The organization collects, packs, and markets fresh organic potatoes, sweet potatoes, and amadumbe grown individually by member farmers. They market the produce to a prominent retail chain and provide training services to their members, including knowledge on how to fence and protect their crops.

After receiving its organic certification from Ecocert/ Afrisco in 2003, the organization began supplying its produce to Woolworth's, using a certified organic packhouse (Assegai Organics). To ensure compliance with certification standards, the organization uses eight internal inspectors.

The findings of the study showed that age and gender did not impact continued membership status. Rather, the increase in net benefits from membership had a positive impact on it (marginal effect for nonmember: coef. = -0.375, significant at 1 percent; for partially certified members: -0.166, significant at 1 percent). According to fully certified members, the organization addressed their concerns regarding damage to crops by livestock and limitations due to lack of technical knowledge. The members, however, were not satisfied with the organization's work on "price uncertainty in conventional markets, a lack of affordable operating inputs, a lack of affordable transport, and a lack of communications infrastructure" (p. 356). The authors suggested that the organization's likelihood of sustenance depends on their ability to "secure fully subsidised information, transport, fencing, and certification services for its members, and if it improves the benefits of participating by synchronising harvest and delivery dates, negotiating price discounts for organic inputs, and by maintaining an office with telephone, fax and postal services" (p. 356-57). In short, the organization's ability to reduce transaction costs, provide administrative support, achieve greater price realization, and provide training and access to information will determine its survival in the long run.

CHAD

Corsi, S., L. V. Marchisio, and L. Orsi. 2017. "Connecting Smallholder Farmers to Local Markets: Drivers of Collective Action, Land Tenure and Food Security in East Chad." *Land Use Policy* 68: 39-47. <https://doi.org/10.1016/j.landusepol.2017.07.025>

The authors are affiliated with the Department of Economics, Management and Quantitative Methods in the University of Milan, Italy.

The article analyzes the factors affecting smallholder farmers' access to local markets in developing countries by adopting a multidimensional approach. Using an ordered logistic regression, the dependent variable "access to market" was examined through farmers' perceptions of improved market access. Farmers' perceptions were measured on a Likert-scale. The survey was conducted for 5 months in 2015, and the data set comprises 98 peanut and sesame farmers from 26 villages in the Sila region of Chad. All 98 farmers are members of farmers' associations. The study does not include counterfactuals in its sample.

The farmers benefit from membership in the association, as the latter provides a variety of services including training and technical assistance (soil preparation, seeding, plantation management, and harvesting), access to inputs (seeds, equipment), and access to services (crop protection, storage, and transportation). Farmers are satisfied with the support they receive in production activities but are dissatisfied with training in commercialization. The impact of training (coef. = -0.37, $p < 0.05$) has a negative perceived impact on market access, while attending association meetings (coef. = 0.628, $p < 0.05$) and access to storage (coef. = 0.497, $p < 0.05$) have positive and significant impacts on it. Access to equipment is considered inconsequential by farmers, in terms of gaining access to markets. The impact of the association's relationship with retailers (coef. = 0.521, $p < 0.05$) is positive and significant, too. However, many farmers did not think that they benefited from the association's relationship with other actors in the supply chain, such as processors. The authors argued that farmers do not fully realize how they benefit from the development of social capital through membership in the association. Since peanut (coef. = 0.143, $p < 0.001$) is a staple crop, the members perceive the impact of its production on market access to be significant and positive. However, the impact of sesame production (coef. = -134, $p > 0.05$) is insignificant and negative. Peanuts not only ensure food security, but they also have an important place in the Chadian diet in the form of peanut paste and peanut oil. Sesame, on the contrary, is primarily produced for international markets, because it is rarely used in Chad and only for food in ritual preparations.

KENYA

Fischer, E., and M. Qaim. 2012. "Linking Smallholders to Markets: Determinants and Impacts of Farmer Collective Action in Kenya." *World Development* 40 (6): 1255–68. <https://doi.org/10.1016/j.worlddev.2011.11.018>

The authors are affiliated with the Department of Agricultural Economics and Rural Development at Georg-August-University, Goettingen, Germany.

The article followed a case study approach, with counterfactual groups, to analyze the determinants of group membership and the impact of membership on smallholding farmers growing bananas in Kenya. Specifically, the authors studied the group membership's impact on technology adoption, collective marketing, and household income. The authors collected primary data through household surveys and structured interviews for two months in 2009. Although a staple, bananas have increasingly become a cash crop for smallholders, especially in regions where coffee and traditional crops have caused a decline in farmer incomes. Since 2003, there has been an emergence of banana-producing cooperatives in the central highlands of Kenya. The proliferation of supermarkets, stemming from urbanization and a growing middle class, has increased the demand for high-quality dessert bananas. Two international NGOs, Africa Harvest and TechnoServe, collaborated to encourage the formation of farmer groups to improve access to inputs and promote technology adoption.

The cooperatives helped the farmers in adopting tissue culture technology and improving plantation management to improve yields. They also provided extension services, improved access to information, and collective marketing. Since the study was conducted when the cooperatives were still new, many groups had not started collective marketing and were focused on technology adoption instead. Although improved technology had been adopted, there had been no significant increase in yield. The authors found that smallholders who were cooperative members had a significant increase in household income, provided they also marketed collectively. This is because group marketing fetched higher prices—"average price per kg of banana increased by 1.73 KShs. for those members who marketed collectively, which is an increase of 23%" (p. 1262). Hence, the degree of participation in group activities had a greater impact on farmers than group membership. Member farmers tended to increase the area under banana cultivation, thereby increasing the share of income from banana production. Both members and nonmembers increased the area under banana cultivation to increase their income. Since this is mainly due to the adoption of tissue culture technology, the adoption rate among members was higher ("between 72% and 73% compared to 14–20% among nonmembers," p. 1262). This paper explains the farm-level factors and the systemic reasons that have led to an increase in the number of cooperatives in banana production.

Kariuki, I. M., J.-P. Loy, and T. Herzfeld. 2012. "Farmgate Private Standards and Price Premium: Evidence from the GlobalGAP Scheme in Kenya's French Beans Marketing." *Agribusiness* 28 (1): 42–53. <https://doi.org/10.1002/agr.20286>

The authors, by order of authorship, are affiliated with the Department of Agricultural Economics and Business Management in Egerton University, Kenya; Department of Agricultural Economics, University of Kiel, Germany; and Agricultural Economics and Rural Policy Group, Wageningen University and Research Center, The Netherlands, respectively.

The paper assessed the impact of Global Good Agricultural Practices (GGAP) certification on price premiums for farmers. The authors used a sample of 249 French bean farmers from 24 villages in Kenya. Of 249 farmers, 100 were members of producer groups and 149 were nonmembers. The survey was conducted in 2006, over a period of 2 months. The member farmers in the survey belong to 6 producer groups, of which 2 do not have GGAP certification.



A cow with its calf.
(Photo by Maureen Valentine/TCI)

Complying to GGAP standards and obtaining certification is a cumbersome process for small-scale farmers. The related costs can range US\$6,000 to US\$8,000,⁵ whereas continuous compliance and renewal can cost US\$200 per month. However, producers can reduce compliance prices by 30 percent if they organize themselves, that is, form producer groups. The reduction in compliance cost occurs because the buyers provide inputs and technical help to the producers. Self-organization itself, however, comes at a cost—for example, the management of producer groups charge a fee for administrative and organizational services. The authors argued that GGAP certification is an incentive to offset the cost of organizing. This means that nonmembers may sell to various buyers and markets, but organized producers tend to supply to just one buyer. About 61 percent of the organized producers sell to one buyer, creating an oligopsonistic market.

The findings of the paper indicate that a percentage change in the number of member farmers in a village can increase the price by 6.2 percent. Buyers benefit from an increase in the number of farmers in one area, as it reduces their bulking and transportation costs. Also, price increases by 3.3 percent when there is a percentage increase in the number of buyers. Other factors that have a positive impact on price include directly selling to exporters without intermediaries (increase by 12.4 percent to 14.6 percent per 3 kg carton), selling to one buyer (by 8 percent), access to all-weather roads (12.2 percent), and entering into supply contracts (29 percent).

Meador, J. E., D. J. O'Brien, M. L. Cook, G. Grothe, L. Werner, D. Diang'a, and R. M. Savoie. 2016. "Building Sustainable Smallholder Cooperatives in Emerging Market Economies: Findings from a Five-Year Project in Kenya." *Sustainability* 8 (7): 656. <https://doi.org/10.3390/su8070656>

Meador is affiliated with the Rural Policy Centre in Scotland's Rural College, Edinburgh; O'Brien and Savoie are affiliated with the Department of Rural Sociology, University of Missouri, Columbia, United States; Cook is affiliated with the Department of Agricultural and Applied Economics, University of Missouri,

⁵ Jaffee, S. 2003. "From Challenge to Opportunity: Transforming Kenyan Fresh Vegetable Trade in the Context of Emerging Food Safety and Other Standards." Agriculture and Rural Development Working Paper 1, Agriculture and Rural Development Department, International Bank for Reconstruction and Development, Washington, DC.

Columbia, United States; Grothe and Werner are affiliated with Land O'Lakes International Development, Shoreview, Minnesota, United States; and Diang'a is affiliated with Land O'Lakes International Development, Nairobi, Kenya.

The authors studied how smallholder cooperatives could become sustainable and enter vertical value chains in liberalized economies of the postcolonial era. They compared two dairy cooperatives in Kenya, using data from baseline 2011, and end line 2015. In the 1990s, the Kenyan government brought institutional changes that led to expansion of large dairy processing facilities such as Brookside (a co-investor with Danone), New KCC (with ~71 percent share of the market, and Daima (a new company in the market). The emerging and expanding processing companies forced smallholder cooperatives to be inventive for their sustenance.

Of the two cooperatives, one is located in the milkshed of the Nairobi metropolitan area, while the other is a rural area cooperative. The two cooperatives collected milk from their members, pasteurized and packaged it. They wanted to enter the value chain by expanding their processing services to produce yogurt and milk with a long shelf life. Members' perceptions were that they benefited from cooperative membership, even at the baseline in 2011. Both cooperatives had to operate at low capacity due the burden of debt on them. The rural cooperative brought new management in place that led to an increase in utilization capacity of the plant from 20 percent in 2011 to 70 percent in 2015. They also increased their raw milk collection. The new management ensured that primaries paid a fixed price to all its members, improved the accounting system and the route for milk collection, and strengthened the communication between management and the cooperative board. The large metro area cooperative had relatively more competition. So, it provided incentives to its members, such as the feed mill and credit union. The gross farm dairy (GFD) income for rural cooperatives increased by 25.2 percent ($p < 0.01$) between 2011 and 2015. In 2015, the GFD income for members and nonmembers was US\$66.67 per month and US\$61.11 per month, respectively. However, the net farm dairy (NFD) income was US\$18.89 per month and US\$30.56 per month, respectively. Similarly, for the large metro area cooperative, GFD income for members and nonmembers were US\$108.07 and US\$97.95 per month, while NFD income was US\$35.92 per month and US\$40.65, respectively.

The authors concluded that the relatively lower farm incomes of members and their positive perception of cooperatives indicate that income is not the sole determinant of membership. The authors also recommended that, as a long-term strategy, international grantors should develop local leadership capacity instead of only supporting the acquisition of inputs.

Mwambi, M. M., J. Oduol, P. Mshenga, and M. Saidi. 2016. "Does Contract Farming Improve Smallholder Income? The Case of Avocado Farmers in Kenya." *Journal of Agribusiness in Developing and Emerging Economies* 6 (1): 2–20. <https://doi.org/10.1108/JADEE-05-2013-0019>

The authors Mwambi and Mshenga are affiliated with the Department of Agribusiness and Agricultural Economics, Egerton University, Nakuru, Kenya; Saidi is affiliated with the Department of Crop, Horticulture and Soil Science, Egerton University, Nakuru, Kenya; and Oduol is affiliated with Tree Products and Markets, World Agroforestry Centre, Nairobi Kenya.

The research objective is to examine the effect of contract farming (CF) on smallholder farmers' income, using a case study of avocado farmers in the Kandara district in Kenya. The study site was selected for its highest concentration of avocado and well-established avocado farmer groups. The study employed an instrumental variable model (Probit-2SLS) on data collected from 100 smallholder farmers. CF has been adopted to enhance backward and forward market linkages in horticultural production in sub-Saharan Africa, in general, and in Kenya, in particular. The avocado cluster in Kandara was formed to address challenges (lack of market information, limited access to inputs, limited access to resources, and/or weak incentives for upgrading, weak vertical and horizontal linkages within the value chain) facing smallholders' participation in lucrative markets for high-value fruit tree value chains.⁶ The type of model employed in avocado marketing in this

⁶ Snodgrass, D. and J. Sebstad. 2005. "Assessing the Impact of Kenya BDS and Horticulture Development Center Projects in the Tree Fruit Value Chain in Kenya." Baseline Research Report, microREPORT # 33. United States Agency for International Development (USAID), Washington, DC.

region is referred to as an intermediary model in which the Avocado Growers Association of Kenya (AGAK) acts as an intermediary between the farmer groups and the contractor (Vegpro Kenya Limited), organizing on behalf of the final buyer, starting with input supply, extension service, payment of the farmers, and transportation of the final product. Findings revealed that, although participants in CF reported higher incomes, the differences in the incomes of the two treatment groups were not significant, suggesting that the variation in the incomes cannot be attributed to the intervention. This study contributed to the growing debate on the effect of value chain upgrading strategies on smallholder farmers' welfare and emphasized that, where the negotiation does not directly involve the producers, unclear terms of the contract are likely to negate the benefits associated with contracting, possibly leading to insignificant welfare impacts.

Bebe, B. O., J. G. Mwangi, and N. Ozor. 2016. "Changes in Agri-business Outcomes among the Dairy Beneficiaries of Contracted Extension Service Delivery Model in Kenya." *Journal of Agricultural Extension* 20 (1): 53-65. <https://doi.org/10.4314/jae.v20i1.5>

The authors Bebe and Mwangi are affiliated with Egerton University, Kenya, and Ozor is affiliated with the African Technology Policy Studies Network (ATPS), Nairobi, Kenya.

The research aim is to examine whether the contracted extension service delivery model (CESDM) achieved its objectives of demonstrable changes in agri-business practices, productivity, and wealth creation among the beneficiaries in dairy value chains. CESDM was launched in 2010, by the Kenya Agricultural Productivity and Agribusiness Project (KAPAP), with the aim of enabling beneficiaries to create wealth from increased productivity, value addition, and market linkages. The study applied quasi-experimental design on a random sample of 2,547 households (intervention [n =1475] and control [n =1065]), selected from the project area. Results revealed that the implementation of CESDM resulted in a large increase in the proportion of beneficiaries accessing extension services from private service providers (input dealers, processors, etc.) and expressing higher satisfaction. Furthermore, compared to baseline and control samples, intervention households attained higher dairy productivity, by about 6 percent in milk production and 62 percent in gross margins per animal per year, suggesting that provision of demand-driven services enabled farmers to better access knowledge, skills, and technologies as well as remunerative market prices, which corroborated with the implementation of model. On aggregate, CESDM posted positive net benefits and multiplicative economic power, with the best performing dairy chains multiplying every shilling invested by factors of 4 to 46. Thus, in this article, the authors provided evidence that CESDM can be a viable and rewarding approach for delivering extension services to smallholder farmers but emphasized the need to strengthen farmer cooperative societies to sustain demand for contracted services.

UGANDA

Latynskiy, E., and T. Berger. 2016. "Networks of Rural Producer Organizations in Uganda: What Can Be Done to Make Them Work Better?" *World Development* 78: 572-86. <https://doi.org/10.1016/j.worlddev.2015.10.014>

The authors are affiliated with the University of Hohenheim, Stuttgart, Germany.

The article investigates the functioning and determinants of effectiveness of rural producer organizations (RPOs), in Uganda, toward improving their members' access to input and output markets. RPOs are mechanisms for reducing transaction costs and improving the market access of smallholder farmers. Methods used were a combination of participatory mapping, expert interviews, survey analysis, and public goods games. The authors acknowledged that the RPOs improve farmers' commercialization, but their services are underdeveloped. RPOs emerged in the country as a failure of state-affiliated cooperatives. Currently, RPOs in Uganda are autonomous entities, independent of the government and intended to function as self-sus-

taining profit-generating businesses, unlike the RPOs from the past, which aimed to secure the export commodity supply. The authors analyzed a 2010 survey, conducted by IFPRI, to determine interview targets. A total of 750 household members from 375 producer organizations were interviewed and surveyed. Additionally, net-maps and public goods games were used to assess different stakeholder groups and their willingness to contribute to a common pool of resources. Major hurdles identified between the farmers (PO members), city markets, and importers were quality assurance and accessibility. The authors confirmed that a vast majority of RPOs were established after 2000, and three-quarters of the RPOs received external support for their establishment. The responders stated that value addition and collective marketing were their primary objectives for being part of an RPO. Among the RPOs, a large majority, 86 percent, stated that value addition and collective marketing were their primary objectives. The study highlighted important success metrics: ease of access to capital, knowledge and capacity development, leadership development, information exchange and institutional transparency, and access to input resources. The study stressed the need to improve producer payments and access to inputs and finance.

Omondi, I., E. J. Rao, A. A. Karimov, and I. Baltenweck. 2017. "Processor Linkages and Farm Household Productivity: Evidence from Dairy Hubs in East Africa." *Agribusiness* 33 (4): 586–99. <https://doi.org/10.1002/agr.21492>

The authors Omondi, Rao, and Baltenweck are researchers at International Livestock Research Institute (ILRI), Nairobi, Kenya, and Karimov is affiliated with the International Maize and Wheat Improvement Center (CIMMYT), Ankara, Turkey.

The article provides evidence on the farm impacts of different types of linkages between smallholder dairy farmers and large processors, through dairy hubs in Uganda and Kenya. Hubs were set up by the East African Dairy Development (EADD) project in 2008, to help establish sustainable producer organizations (POs), through which farmers can access markets, production inputs, and dairy-related services. Two types of processor linkages were explored in the study, namely, the "pure processor linkage" whereby all the milk is sold to dairy processors, and "mixed linkage" approach, in which milk is sold to a mixed set of buyers, that is, local consumers/traders/processors. All dairy hubs were supported by EADD phase II in Kenya (8 in total), and a sample of the hubs (24 out of 33) in Uganda were included in a survey conducted between October and December 2014, covering 993 cattle-keeping farm households. Technical efficiencies of the farms were estimated from a single stage with a multi-input and multi-output Data Envelopment Analysis (DEA) framework. Results revealed no strong influence at farm levels that could be attributed to different forms of linkages with processors that dairy hubs adopt, that is, it did not translate (either positively or negatively) to farm-level productivity and input use differential. Forty-three percent and 35 percent of hub participants with "mixed linkage" approaches in Uganda and Kenya, respectively, have Technical efficiency (TE) scores of less than 25 percent, suggesting the need for increasing farmers' managerial skills and enhancing dairy farm management practices. Evidence presented in this study called for policy and strategic actions around better ways of supporting increased and efficient use of inputs at the farm level to improve farmer performance in input utilization.

MADAGASCAR

Okoye, B. C., A. Abass, B. Bachwenkizi, G. Asumugha, B. Alenkhe, R. Ranaivoson, R. Randrianarivelo, N. Rabemanantsoa, and I. Ralimanana. 2016. "Effect of Transaction Costs on Market Participation among Smallholder Cassava Farmers in Central Madagascar." *Cogent Economics and Finance* 4 (1): 1143597. <https://doi.org/10.1080/23322039.2016.1143597>

The researchers Okoye and Asumugha are affiliated with the National Root Crops Research Institute, Nigeria; Abass, Bachwenkizi, and Alenkhe are affiliated with the International Institute of Tropical Agriculture (IITA), Regional Hub for Eastern Africa, Dar es Salaam, Tanzania; Ranaivoson, Randrianarivelo, Rabemanantsoa, and Ralimanana are affiliated with the Centre National de Recherche Appliquée au Développement Rural (FOFIFA), Antananarivo, Madagascar.

The study by Okoye et al. raised policy issues that could help reduce transaction costs for cassava, an important staple food and cash crop in several tropical African countries, and specifically in Madagascar, where it also serves as a buffer crop during lean times. Africa is the world's largest producer of cassava, and smallholder cassava farming is a common practice in Madagascar. Two hundred forty cassava farmers were selected using a randomized sampling technique across six districts in Central Madagascar. A survey was used to build a three-tiered market participation model using Probit and Heckit selectivity methods. The results of the study validated previous work on transaction cost constraints in the cassava supply chain on smallholder farmers. The important findings included the direct relationship of the decision to participate in the market with the coefficients of performance of cooperative members, farmers being natives to the community, and the farming experiences of the surveyed farmers. In order to increase market participation and facilitate faster delivery of fresh farm produce, especially perishables like cassava, the authors recommended policy reforms that support the farmers through improved transportation, promotion of marketing organizations/cooperatives and the establishment of bulking centers. These reforms, according to the authors, can help improve yields from a meager 0.65 t/ha currently in Madagascar to 25–40 t/ha.

RWANDA

Verhofstadt, E., and M. Maertens. 2014. "Smallholder Cooperatives and Agricultural Performance in Rwanda: Do Organizational Differences Matter? *Agricultural Economics* 45 (S1): 39–52. <https://doi.org/10.1111/agec.12128>

The authors are researchers at the Division of Bioeconomics, Department of Earth and Environmental Sciences, KU Leuven, Belgium.

The authors used rural households in Rwanda as the unit of analysis for examining the effects of cooperative membership on agricultural performance. The authors measured impact using gross farm income, net farm income, and farm income per worker as outcome variables. The study was conducted in 2012, with a focus on smallholders involved in the production of maize and horticulture. Derived from a three-stage, stratified random sampling technique, 263 cooperative member households and 138 control households were selected. The study used a proxy variable method and propensity score matching methods, in which willingness to pay was used as a proxy measure. The National Land Policy (2004) and laws mandating cooperatives to register officially have been pivotal in the growing numbers of cooperatives in Rwanda. The former allowed consolidation of land and made state-owned marshlands available for cultivation by registered cooperatives. Between 2007 and 2010, the government also used cooperatives as means to distribute subsidized fertilizers.

Most cooperatives provide services, such as access to credit, agricultural equipment, and inputs. Maize cooperatives provide free or subsidized seeds and mineral fertilizers. All maize and 7 of the 11 horticultural cooperatives provide access to improved varieties of seeds, and 3 of 11 cooperatives provide mineral fertilizer. Both types of cooperatives have led to the adoption of modern inputs and intensified agriculture.

Cooperatives have encouraged farm commercialization with the share of agricultural produce sales increasing 10 to 16 percentage points. For maize and horticulture cooperative memberships, the share of produce sold increased by 14 and 7.6 percentage points, respectively. The value of inputs increased by 8,000 RWF and 3,600 RWF, respectively. Effects of membership in horticulture cooperatives are less profound than in maize cooperatives. Maize cooperative membership increases the probability of using improved seeds, mineral fertilizer, pesticides, and irrigation by 35, 39, 15, and 35 percentage points, respectively. Membership in horticulture cooperatives, in comparison, does not have any effect on use of improved inputs, gross farm revenue, and farm income. Irrespective of the two cooperative types, membership in cooperatives led to a 37-percent increase in gross farm income, 25-percent increase in net farm income, and 27-percent increase in farm income per worker. Specifically, membership in maize cooperatives increases farm income by 40 percent, farm income per worker by 35 percent, and gross farm revenue by 40 percent. Membership in horticulture cooperatives does not impact farm income and gross revenue. Comparing cooperatives within the same region, but with two different crops, can be useful in understanding why cooperatives emerge and how the challenges and the likelihood of success vary with crop type. However, this impact was not been adequately addressed in the paper.

MOZAMBIQUE

Bachke, M. E. 2019. "Do Farmers' Organizations Enhance the Welfare of Smallholders? Findings from the Mozambican National Agricultural Survey." *Food Policy* 89: 101792. <https://doi.org/10.1016/j.foodpol.2019.101792>

The author is a researcher in the School of Economics and Business at the Norwegian University of Life Sciences in Aas, Norway.

The study examines the impact of membership in farmers' organizations on the welfare of small landholding farmers. Farming households in Mozambique producing a variety of crops, including fruits, horticultural produce, and animal products, were included in the sample. The authors used propensity score matching and difference-in-difference estimators to address unobservable selection bias. The study used panel data from 2002 and 2005 at the household level created by the Ministry of Agriculture in Mozambique with the assistance of Michigan State University. The panel data was supplemented by a survey, conducted at the community level, on product prices, marketing, infrastructure, etc. From a larger sample of 3,480 households, a restricted sample of 1,998 households had agriculture as their main source of income. The study included members and nonmembers in the sample.

Since the mid-1990s, the government has been promoting farmers' organizations as a poverty reduction strategy. It has gathered support from public and private agencies, including international donors and promoting agencies, such as CARE, World Vision, Oxfam and CLUSA. At the national front, domestic NGOs such as UNAC2 have also contributed to the efforts. The study deployed marketed surplus, the value of agricultural production, and total income per household as outcome variables. The findings highlighted that membership in farmers' organizations led to an increase in marketed surplus by 25 percent and an increase in the value of agricultural production by 18 percent. Similarly, membership led to an increase in total household income by 15 percent and more than 20 percent for households with agriculture as their primary source of income.

MULTIPLE COUNTRIES IN SUB-SAHARAN AFRICA

Shiferaw, B., J. Hellin, and G. Muricho. 2011. "Improving Market Access and Agricultural Productivity Growth in Africa: What Role for Producer Organizations and Collective Action Institutions?" *Food Security* 3 (4): 475–89. <https://doi.org/10.1007/s12571-011-0153-0>

The authors Shiferaw and Muricho are affiliated with the International Maize and Wheat Improvement Center (CIMMYT), Nairobi, Kenya; Hellin is affiliated with CIMMYT in El Batán, Mexico.

Shiferaw et al. described arguments and propositions for improving market access, especially for small landholders in sub-Saharan Africa (SSA). The paper began with an introduction of the market access challenge driven by increasing purchasing power and emergence of supermarkets, leading to demand of higher value and processed food products, which, in turn, requires farmers to meet stringent food safety standards with increasingly long and sophisticated supply chains. The authors reviewed historical evidence on the existence of collective action/aggregation models since colonial times and how many failed attempts in SSA are attributable to political and leadership crises. The paper further revealed the extent of literature on producer organizations and critically analyzed various methods of forming/supporting a producer organization—noting that support is always needed in the establishment of a producer organization with poorly understood roles and timing of public and private investments. Their conclusion identified factors enhancing the success of collective action and producer organizations involving group characteristics, organizational rules and governance systems, type of produce, and lastly, the role of private and public players. The paper presented the ecosystems of collective action in SSA and highlighted the continued challenges faced by producer organizations, including inefficiency and lack of economic viability threatening their existence.

Studies



A woman walks through a field of mung beans in India. (Photo by Kiera Crowley/TCI)

Asia

INDIA

Agarwal, B. 2018. "Can Group Farms Outperform Individual Family Farms? Empirical Insights from India." *World Development* 108: 57–73. <https://doi.org/10.1016/j.worlddev.2018.03.010>

The author is a researcher at the Global Development Institute, University of Manchester, in the United Kingdom.

The author sought to answer the question "Can group farming enhance small farmer productivity and profitability?" using data from an experiment that started in the early 2000s in the Indian states of Kerala and Telangana. The experiment was an intervention activity by the states to form women-only groups that leased land to farm collectively and shared labor, the cost of inputs, and the returns. The author gathered detailed data from primary surveys in select districts in these two states and compared group farms that pooled resources and individual small family farms, in terms of productivity and profitability. Notably, groups in the state of Kerala outperformed individual farms in annual output/ha and net returns/farm, while in the state of Telangana, groups had mixed results.

Novel institutional design, state support, group heterogeneity, and commercial crops were found to be factors attributed to the success of Kerala's farmer groups. A few of the lessons learned are relevant for replication elsewhere in South Asia and beyond, with context-specific design adaptation for group farming infrastructure, especially in the developing country context.

Chandre Gowda, M. J., and M. H. Sreenath Dixit. 2018. "Women's Participation in Karnataka's FPOs." *Economic & Political Weekly* 53 (45): 20–22.

The authors are affiliated with the Indian Council of Agricultural Research, Bengaluru, India.

The paper reports a study that specifically focused on gendered participation in FPOs in Karnataka. Against the backdrop of increasing feminization of agriculture, the authors sought to contribute to the debates on trends in women's participation in FPOs. Although the sampling rationale is not discussed, the findings in their paper draw upon a sample of 50 FPOs spread across 13 districts of Karnataka. The greater majority (87 percent) of members in the sampled FPOs, however, are men.

The authors reported three crucial findings: (1) the proportion of women members are highest in FPOs with animal husbandry as a secondary activity. (This finding reflects TARINA's experience with small ruminant promotion.); (2) FPOs registered as societies are more likely to have women members than those registered as companies; and (3) women's membership is higher in FPOs with external funding. Discussions on the causal factors are speculative, but the descriptive findings are significant enough to warrant further consideration and research on gendered participation in FPOs.

Choudhary, D., M. S. Kunwar, and G. Rasul. 2015. "From Farmers to Entrepreneurs—Strengthening Malta Orange Value Chains through Institutional Development in Uttarakhand, India." *Mountain Research and Development* 35 (1): 4–15. <https://doi.org/10.1659/MRD-JOURNAL-D-14-00036.1>

Choudhary is affiliated with the International Crop Research Institute for the Semi-Arid Tropics in Kenya. Kunwar and Rasul are affiliated with the Himalayan Action Research Centre in India and the International Centre for Integrated Mountain Development in Nepal, respectively.

The study discusses an action research project in the Chamoli district of Uttarakhand in India. The authors described the findings of the project that focused on farmer resilience by furthering their position in the Malta orange value chain. The role of farmer interest groups in production, processing, and marketing was essential to the project. The participatory action research project was a joint effort between the International Centre for Integrated Mountain Development (ICIMOD) and a domestic NGO, the Himalayan Action Research Centre (HARC). Since Malta orange trees are mostly managed by women, nine women's farmer interest groups were formed during the project. The groups had 306 members in total. The baseline for the study was 2008, and the end line was 2010.

Value chain upgrading strategies were discussed with the farmers, and subsequently farmer interest groups with only female members were created. A federation was created that coordinated with the farmers and assumed upstream functions in the value chain. Additionally, a cooperative was constituted to provide value addition, branding, and marketing services. The cooperative also established and managed a processing facility with the help of the state government. They charged fees to farmer groups to lend them equipment and to allow use of the infrastructure. They also helped women's self-help groups (SHGs) in the region to develop business plans and get bank loans. The SHGs, as members of the cooperative, purchased oranges from farmer groups and processed them at the cooperative-owned facility. In exchange for a small fee, the SHGs also connected the farmers to the market and input services.

The farmers received training from the state Horticulture Department, other research centers in the state, the cooperative, and the private sector. The training covered a variety of skills, including "orchard management, bookkeeping, group dynamics, conflict management, savings and credit management, and collective marketing" (p. 8).

The formation of groups (coef. = 20.595, p value = 0.00), training (coef. = 21.052, p value = 0.00), and creating a processing facility (co-eff=3.332, v) has led to an increase in farmer's income. More specifically, the cooperative membership increased the average income of the farmers by three times (t-test statistic - 22.91; p value < 0.005). The value-addition activities have played an important role in this process. The cooperative and SHG members created a line of value-added products, namely, ready-to-serve juice, juice for storage, juice concentrate, marmalade, peel powder, and peel oil. They have expanded their product line to include products apart from oranges such as, ginger, garlic, chili, mango, tulsi (holy basil), Indian gooseberry. The SHGs process these new products to make pickles, juice concentrates and candies to reduce their seasonal dependence on oranges and ensure the cooperative's longevity.

Ganesh, V. 2016. "Farmer Producer Companies: A Response." *Economic & Political Weekly* 52 (40): 73–4. <https://www.epw.in/journal/2017/40/discussion/farmer-producer-companies.html>

The author is affiliated with the Department of Humanities and Social Sciences, Indian Institute of Technology, Madras, Chennai, India.

This article was a response to Tushar Shah's (2016) paper, in which the performance of Farmers Producer Companies (FPCs) led by nongovernmental organizations (NGOs) was critiqued for not having been based on design considerations.⁷ The author critiqued certain arguments in Shah (2016) by arguing the differences between dairy and crop-based agriculture, because Shah (2016) had used milk-producing companies as successful examples of better designed and managed institutions, compared to NGO-led FPCs concerned with agriculture. Greater risks in crop-based agriculture and fewer complexities in aggregation and transportation of milk, coupled with more and timely income of dairy farmers compared to predominantly crop-cultivating smallholders have been presented as reasons behind the apparent success of milk producing companies, as opposed to the design features argued by Shah (2016). Although the author appreciated Shah's (2016) argument about the importance of pre-decided business plans underscoring the success of farmers' collectives, the idea of dismissing the worth of FPCs, like the ones in Tamil Nadu visited by the author, that enabled smaller savings (relative to milk-producing companies) was not amenable to the author.

The author stated that, although the design of institutions is crucial to ensure their success, it is not the only factor or condition responsible for success. It is a necessary but not sufficient condition for the success of FPOs.

Gersch, I. 2018. Producer Organizations and Contract Farming: A Comparative Study of Smallholders' Market Strategies in South India. *Zeitschrift Für Wirtschaftsgeographie* 62 (1): 14–29. <https://doi.org/10.1515/zfw-2017-0026>

The author Inka Gersch is affiliated with the Institute of Geography, Universität Osnabrück, Germany.

The article used a company-driven contract farming (CF) model and member-based producer organization (PO) model to examine their impact on economic challenges of smallholding farmers. The article is a qualitative study of two cases involving farmers practicing floriculture in Tamil Nadu, India. The study was conducted for 2 months in 2013, examining marigold production through CF and jasmine production through PO. It used semi-standardized interviews. The sample consisted of members and managers in CF and PO models, and local flower traders. For CF, the author chose the marigold supply chain of AVT Natural Products (AVT), and for PO, she chose the Tamil Nadu Flower Growers Association (TNFGA). The latter is an established cooperative that has been functioning for over 20 years and is comprised of small and medium farmers, as defined by Agricultural Census India 2015. The total sample consists of 20 households: 1 marginal holding, 7 small holdings, 11 semi-medium holdings, and 1 medium holding. The average landholding size of CF farmers is 12.4 acres while it is 5.6 acres for PO farmers, ranging from 0.5 acres to 20 acres.

The farmers face various challenges, such as price instability, intermediaries and their steep brokerage, cost of inputs, access to credit at low interest rates, access to credit on leased lands, lack of value addition to the produce, bulking of production, and access to storage and cooling infrastructure, etc.

The exploratory study showed that, although the PO had a positive effect on household income, the CF did not. On the other hand, CF had a positive impact on production and value chain efficiency, but PO did not. These findings demonstrate that the CF model leads to "value creation in the overall chain, but it does not raise the producer's value capture," while the reverse is true for the PO model (p. 1). The author claimed that the two models are "supplementary and not competitive strategies" (p. 1). The article is important because few studies have compared CF and PO models. However, due to very small sample size and lack of counterfactuals, the study may have high internal validity but low external validity.

⁷ Shah, T. 2016. "Farmer Producer Companies: Fermenting New Wine for New Bottles." *Economic & Political Weekly* 51 (8): 15–20. Review of this paper follows in this report.

Kumar, A., A. K. Mishra, S. Saroj, and P. K. Joshi. 2019. "Impact of Traditional Versus Modern Dairy Value Chains on Food Security: Evidence from India's Dairy Sector." *Food Policy* 83: 260–70. <https://doi.org/10.1016/j.foodpol.2019.01.010>

Kumar, Saroj, and Joshi are affiliated with the International Food Policy Research Institute, South Asia Office, India; Mishra is affiliated with Arizona State University, United States

The authors analyzed modern dairy value chains in India to assess their impact on smallholders' food security and net returns. They study used "net returns from dairying" to measure farm performance and food security, while monthly per capita household consumption expenditures (MPCEs) was used to measure food security (p. 261). Using a multinomial endogenous switching regression model, the authors studied a nationally representative sample of 14,276 at the farm level. The data was sourced from the National Sample Survey Organization for a survey conducted in 2012 and 2013. Using a stratified multistage design, first census villages were chosen (village wards in case of Kerala), and later, households were chosen for the sample.

The article examined three types of marketing outlets used by dairy farmers, namely, directly selling to households, local traders, cooperatives, or using a combination of two or more marketing channels. Dairy farmers who used mixed-marketing channels had higher annual net returns. Farmers who sold to local traders and cooperatives had net returns that were INR 24,397 more than those who used milk for personal consumption. The highest net return for single-marketing channels was INR 19,435 per year for dairy cooperatives, while the highest net return for multiple-marketing channels was INR 30,214 for directly selling to consumer households and dairy cooperatives. Farmers who produced milk for personal consumption could have benefited from a net return of INR 30,763 by selling their milk to dairy cooperatives. Selling milk to local traders and cooperatives results in a net increase of INR 41,189.

Participating in dairy cooperatives had a significantly positive impact on MPCEs as compared to not selling milk at all. If non-selling households decided to sell milk to dairy cooperatives, then they would have increased their MPCEs by INR 184 per month, whereas selling to all three marketing channels would have increased them by INR 620 per month. Similarly, selling to households and cooperatives would have increased their MPCEs by INR 553 per month, and selling to local traders and cooperatives would have increased them by INR 26 per month. Using average treatment effect on the treated (ATT) and average treatment effect on the untreated (ATU), farmers benefit from increased net return the most when they sell milk to dairy cooperatives and other marketing channels, in combination. Similarly, their MPCEs are highest when they sell milk to all three marketing channels.

Murray, E. V. 2008. "Producer Company Model—Current Status and Future Outlook: Opportunities for Bank Finance." *Financing Agriculture* 40: 18–26. https://afcindia.org.in/PDF/July_August08.pdf

Murray is a Faculty Member, Reserve Bank of India (RBI), CAB, Pune, India.

The paper focuses on financial issues related to FPOs, after a discussion of the distinguishing features of producer companies, as compared to cooperatives in India—a topic of regular discussion in most discussion papers concerning FPOs (Shah 2016; Singh 2008)⁸. Murray (2008) cited a number of case studies on FPOs from Kerala, Madhya Pradesh, and Gujarat. He also briefly discussed the functioning of a few artisanal FPOs, like MASUTA, Rangustra, and FabIndia. The author argued that, as most of the FPOs were in their primary stage (in 2008) with fewer financial needs, the banking sector had not faced much demand for finance. However, in future, the demand was expected to increase; the author cited one prominent reason as the growth of most producer companies to higher levels in the value chain, with most FPOs arising as new establishments and not evolving out of existing cooperatives. On the challenge of collateral-free banking finance, Murray (2008)

⁸ See Footnote #7 and review of Shah (2016) in this report. See, also, Singh, S. 2008. "Producer Companies as New Generation Cooperatives." *Economic & Political Weekly* 43 (20): 22–4 and review of Singh (2008) in this report.

suggested innovative approaches to finance like trust and reputation-based lending, as well as guarantees from the government, private sector, or donor agencies. The paper presents examples of innovative models of cooperation between FPOs, private sector, and banks, with notable examples of the FabIndia–ICICI–FPOs linkage and the NGO–Bank of Maharashtra–Shepherds in Satara.

Shah, T. 2016. "Farmer Producer Companies: Fermenting New Wine for New Bottles." *Economic & Political Weekly* 51 (8): 15–20. <https://www.jstor.org/stable/44004406>

Tushaar Shah is affiliated with the International Water Management Institute, Colombo, Sri Lanka.

Building on research experience with cooperatives, the paper offers a commentary on the lessons in design that producer companies can draw from, with regard to the failure of traditional cooperatives and the success of new generation cooperatives. The author argued that, although the producer companies have been formed with the purpose of allowing autonomy to producer groups (small and medium farmers) from bureaucratic interference (government and local elites) prevalent in the traditional cooperatives, they are still plagued by similar design issues of the latter. The core argument offered is that there has been more reliance on equity and normative principles, compared to the efficiency and design principles in organizational structure and functions. Drawing from the examples of new generation cooperatives, the author contended that the producer companies should aim for the three objectives of member centrality (significance to livelihood of members), patronage centrality (crucial to specific sector of business), and domain centrality (significance to the local economy) to succeed. Neither laws and policies, nor government support, enables successful member organizations; it is organizational design that ensures sustainability. To conclude, the author offered a step-by-step process regarding the design of sustainable producer companies (or member organizations): first, by creating and communicating a vision that rewards members socially and financially; second, by creating an organization to actualize the vision; third, by using success to institutionalize norms and rules of governance and operations; and finally, by striving to enhance the three centralities by ensuring increased incentives for members, performance pressure, and professional management.

Singh, S. 2008. "Producer Companies as New Generation Cooperatives." *Economic and Political Weekly* 43 (20): 22–4. <https://www.jstor.org/stable/40277684>

The paper begins with the evolution of producer companies (PCs) from traditional cooperatives. It describes the distinctive features of PCs, the opportunities, challenges, status in India in 2008, and, finally, the policy support PCs need. Considering PCs as cooperative business enterprises, Singh argued that, compared to traditional cooperatives, the PCs represent a number of opportunities in terms of freedom from government interference, parity between members, provision of participation of groups and associations, and possibilities of integration with retail chains. The author estimated good progress in terms of the spread of PCs in different parts of India. However, the challenges of less recognition and support from the government, licensing hassles in marketing, lack of provisions to mobilize private capital, and recommendations of the JJ Irani Commission Report,⁹ pertinent to altering the legal structure, had also been noted. Toward the development and spread of PCs, a number of recommendations for the government were mentioned. These included extending similar support as cooperatives, facilitating access to capital through banks and allied government agencies, licensing through agricultural marketing boards, income tax exemption, and grants for promotional organizations. The paper ended with a cautionary note regarding the evolving nature of PCs in India, and hence, the need for noninterference with its legal structure.

⁹ See "JJ Irani Committee Recommends Measures for Investor Protection." *Financial Express*, June 19, 2005. <https://www.financialexpress.com/archive/jj-irani-committee-recommends-measures-for-investor-protection/142853/>

Tata Trusts. 2020. A Comprehensive Study for Identification of Vibrant FPO Clusters For Effective Market Integration. Report, April 9. <https://www.tatatrusts.org/insights/survey-reports/a-comprehensive-study-for-identification-of-vibrant-fpo-clusters-for-effective-market-integration>

In 2018, Tata Trusts, in partnership with the agribusiness Arya, conducted a national study on Farmer Producer Organizations (FPOs) to investigate transactional gaps between FPOs and market players. The Trust plans to develop an agriculture center of excellence across the country, and the current study was Phase 1 of the “Centre of Excellence in Agriculture Development” (CEAD) program. Arya is an agribusiness firm that provides postharvest services across the agricultural value chain, including warehousing, warehouse receipt financing, rural storage discovery, collateral management, and market linkages. Arya’s clients include farmers, farmer producer organizations, financial institutions, and commodity traders. The company manages over 2.5 million tons of farm commodities across 1,400 warehouses in the country. The firm has recently raised over US\$6 million in a series B funding.

The study’s primary survey included 1,833 FPOs and 399 market players across the country. A list of 4,732 producer collectives was obtained from the Ministry of Corporate Affairs (MCA, as of 2017), and FPOs were assigned to clusters. For 12 states, each cluster had a minimum of 20 FPOs in a district, while for 7 other states, the requirement was diluted to 8 FPOs per district due to the relatively low presence of FPOs. A total of 49 FPO clusters and 45 agriculture value chains, across 52 districts in 18 states, were surveyed. The current report is supplemented by 49 cluster-level reports, featuring the profile of major crops and market players in the clusters.

FPO business activity was evaluated via reported business transactions, revenues, and GST registrations. Of the 1,800 FPOs surveyed, only 750 were found to be active. The FPOs studied represented 1.47 percent of the total gross cropped area of their geographies, contributing to 2.3 percent of the total production of Key Value Chains in these geographies. Other findings included participation of over 360,000 farmers among these 75 FPOs, with an average land holding of 1.02 ha per farmer and 491 as average number of members per FPO. More than 9 such clusters were found in which the aggregate FPO turnover was over INR 50 million (5 crores). The average FPO turnover declined from INR 2.3 million in 2016 to INR 2 million in 2017. The aggregate turnover ranged from the lowest of INR 4 Lakhs in Ranchi cluster to the highest of INR 20 Cr in Sangli cluster for the year 2017.

The study also categorized Market Players in the identified clusters and categorized them into 6 groups based on their interactions with FPOs. The categories included Out for Business Players, Channel Mix Seekers, Strategic Collaborators, Differentiation Seekers, Circularity Enablers, and Supply Chain Collaborators.

The study highlighted the urgency to provide farmers with access to competitive markets with adequate infrastructure, including cold chain logistics. Gaps impeding the market linkages have been identified for each of the FPO clusters, with recommendations for interventions in 9 priority clusters. These clusters include FPOs in the districts of Amravati, Nagpur, Tehri, Dahod, Chittoor, Kolar, Tumkur, Nashik, Mayurbhanj, and Kamrup.

Trebbin, A. 2014. “Linking Small Farmers to Modern Retail through Producer Organizations—Experiences with Producer Companies in India.” *Food Policy* 45: 35–44. <https://doi.org/10.1016/j.foodpol.2013.12.007>

The author Anika Trebbin is affiliated with the Department of Geography, Philipps-University Marburg, Germany.

Using the theoretical lens of value-chain governance, this paper investigated the FPOs in India with a focus on their status, opportunities, and constraints in terms of integration with modern retail chains. The author employed mixed methods in the study, covering 263 FPOs for basic quantitative data, 79 detailed surveys (of the 263), and 60 interviews with representatives of FPOs and officials of promoting institutions. These

were complemented by interviews with officials of retail chains and case studies of 8 FPOs. On the status of FPOs, the paper reported their presence throughout India, mainly in the western and southern states. It also mentioned a spurt in the formation of FPOs after 2010. Furthermore, the study reported a typology of FPOs based on the involvement of supporting institutions and the output of FPOs. It suggested that most FPOs, supported by NGOs, predominantly input businesses while those promoted by private players input marketing. Due to the growing influence of the modern retail business, especially in urban India and in the food segment, the paper reported opportunities for the expansion of FPOs in India, based on this linkage. However, the author also highlighted the low success rate of the existing links between FPOs and modern retail chains, citing a number of reasons, like low targeted support and lack of capacity with FPOs with respect to demands on the part of retailers. In conclusion, the paper reported a mix of promotional agencies to better serve the purpose of strengthening the FPO's ecosystem in India.

Trebbin, A., and M. Hassler. 2012. "Farmers' Producer Companies in India: A New Concept for Collective Action?" *Environment and Planning A* 44 (2): 411–27. <https://doi.org/10.1068/a44143>

The authors are affiliated with the Department of Geography at Philipps-University Marburg, Germany.

The research objective was to analyze the potential of the producer–company model as a bottom-up approach for smallholder participation in the agricultural sector of India. The study was based on a case study of a specific producer company in Maharashtra, Vasundhara Agri-Horti Producer Company Ltd. (VAPCOL), one of the largest in India which commenced its operations in 2008. With the amendment of the Companies Act 1956 in 2002, the Indian government introduced the concept of “producer companies,” which constituted an attempt to establish basic business principles within farming communities, to bring industry and agriculture closer together, and to boost rural development. Researchers found that VAPCOL, by selling bulk volumes to larger business partners at pre-agreed prices, proved advantageous for farmers by allowing for economic planning security and reducing dependency on short-term market changes, especially during times of peak harvest for perishable produce. Organization, value addition, and collective marketing, performed by VAPCOL, led to the introduction of vegetable cultivation in kitchen gardens, which not only improved the nutritional basis of the families who cultivated them but also allowed them to earn extra income through the sale of vegetables in local markets. The study concluded that producer companies empower smallholder farmers while giving them the opportunity to deal with contemporary market actors and to enter into high-value markets; and have the potential to become attractive trading partners for corporate buyers seeking to avoid the risks of production.

CHINA

Hoken, H., and Q. Su. 2018. "Measuring the Effect of Agricultural Cooperatives on Household Income: Case Study of a Rice-Producing Cooperative in China. *Agribusiness* 34 (4): 831–46. <https://doi.org/10.1002/agr.21554>

Hoken is affiliated with the School of International Studies, Kwansei Gakuin University, Hyogo, Japan; Su is affiliated with the College of Economics and Management, Nanjing Agricultural University, China.

The research objective is to explore the impacts of farmers' participation in a Farmer's professional cooperative (FPC), as measured by the average treatment effect on the treated (ATT) method using propensity score matching. The study was based on data collected from 378 farm households in 2011, from Jiangsu province's rice-producing cooperative in Hai'an County, established in 2008. The FPCs studied were established to complement the malfunction of extension services, as well as to overcome the underdevelopment of agricultural marketing services in rural China. Since the enactment of the Law of Farmers' Professional Cooperatives on July 1, 2007, the number of FPCs has skyrocketed. The study found that FPCs provided participants with specific varieties of inputs to allow the participants to grow brand-named rice at discounted prices; offered free technical advice for member farmers and provided advance payments to facilitate rice production. Empirical

results revealed higher price margins (2.22 vs. 2.09 yuan/kg) and production yields (552 vs. 528 kg/mu) by participants compared to nonparticipants. The average net rice income of participants was 12.3 percent higher, and the price received per kg by participants (2.91 vs. 2.77) was also higher than that of nonparticipants.

The article concluded that participation in agricultural cooperatives is more beneficial to relatively small farmers, because easy access to the cooperative enables small farmers to reduce the transaction costs, thus enhancing their economic welfare.

Huang, Z., V. Vyas, and Q. Liang. 2015. "Farmer Organizations in China and India." *China Agricultural Economic Review* 7 (4): 601–15. <https://doi.org/10.1108/CAER-02-2015-0013>

Huang and Liang are affiliated with the China Academy for Rural Development, School of Management, Zhejiang University, China; Vyas is affiliated with the Institute of Development Studies, Jaipur, India.

The paper compared different forms of farmers' organizations that have arisen in India and China, with reference to the changing dynamics of the agricultural sector in the global context. The authors provided an overview of changes throughout the agricultural sector, from producer farmers to service providers, while promoting institutions in contemporary times in both countries. In case of China, the authors mentioned the changes that have taken place since the 1980s, which have given rise to farmer-specialized cooperatives, land-shareholder cooperatives, and cooperative unions, as a change from government-led previous models of farmers' associations. In India, the rise of farmers' cooperatives, farmer producer companies, and contract farming has been mentioned as a similar response to changes throughout the agricultural ecosystem in India and at the global level.

The authors cited progress on performance in horizontal and vertical integration, in both India and China, but also warned of the long way ahead in connecting these developments to small and marginal farmers. Specifically, with respect to farmer producer companies in India, the authors reported them as being more popular for commercial crops. They also noted the challenges faced because of less support from financial institutions and government vis-à-vis traditional cooperatives.

Li, L., H. Guo, J. Bijman, and N. Heerink. 2018. "The Influence of Uncertainty on the Choice of Business Relationships: The Case of Vegetable Farmers in China." *Agribusiness* 34 (3): 597–615. <https://doi.org/10.1002/agr.21540>

Li and Guo are affiliated with the China Academy for Rural Development, Zhejiang University, Zhejiang, China; Bijman is affiliated with the Management Studies Group, and Heerink with the Development Economics Group, both at Wageningen University, Wageningen, the Netherlands.

The research question aimed to provide insights into the role of uncertainty in the choice of business relationships made by Chinese vegetable farmers involved in four types of business relationships, namely, market exchange, cooperative membership without marketing transaction, cooperative membership with marketing transaction, and contract farming. The study utilized data from 420 vegetable farmers in Hebei and Zhejiang provinces, employing purposive sampling. Hebei province is a main vegetable production region while Zhejiang's agricultural sector specializes in high-value products. The introduction of contract farming in the early 1980s and the implementation of the "Law on Farmer Specialized Cooperatives," in 2007, helped link farmers to markets in an effective way. Multinomial logit regression showed that as production uncertainty increased, farmers preferred contract farming and both cooperative membership with and without marketing transaction over market exchange. As behavioral uncertainty increased, farmers are less likely to be involved in contract farming.



Farmers work on a rice field in Dali, China.
(Photo by Hung Chung Chih/Shutterstock)

The authors concluded that the estimated marginal effects suggest that the effect of behavioral uncertainty on the choice of business relationship is larger than the effect of production uncertainty. Members who sell their vegetables through a cooperative usually face lower price fluctuations, as compared to farmers who sell to private traders. Furthermore, cooperatives assure the sale of all vegetables produced by their members, which provides for a high sale guarantee. The article provides a comprehensive understanding of how uncertainty influences farmers' business relationships, and thus, the need to effectively deal with these uncertainties.

Liu, Y., W. Ma, A. Renwick, and X. Fu. 2019. "The Role of Agricultural Cooperatives in Serving as a Marketing Channel: Evidence from Low-Income Regions of Sichuan Province in China." *International Food and Agribusiness Management Review* 22 (2): 265–82.
<https://doi.org/10.22434/IFAMR2018.0058>

Liu and Fu are affiliated with the College of Management, Sichuan Agricultural University, China; Ma and Renwick are affiliated with the Department of Global Value Chains and Trade, Faculty of Agribusiness and Commerce, Lincoln University, Christchurch, New Zealand.

The research study investigated the factors that affect members' decisions to use agricultural cooperatives as a marketing channel and analyzed how the marketing channel use affects farm income and household income. This study employed both a propensity score matching (PSM) model and an inverse probability weighting estimator with regression adjustment model (IPWRA) for empirical analysis, based on survey data collected in April–May 2017, from 39 agricultural cooperatives in Sichuan province, spanning 515 farm households. The province was selected to include low-income regions, with the existence of agricultural cooperatives specializing in rice production and marketing. After the central government enacted the Law of the Farmer's Professional Cooperatives in 2007, the Government, at regional levels in China, promulgated a range of

policies (for example, the “Temporary strategy of assessment and monitoring of national demonstration of farmer professional cooperatives”) to encourage the sustainable development of such agricultural cooperatives. The doubly robust IWPRAs results showed that the causal effects of using agricultural cooperatives as a marketing channel increased farm income by 10.35 percent and household income by 3 percent, on average.

The estimates for the income effects of sales intensity showed that a higher proportion of agricultural products selling through cooperatives increases farm income and household income significantly. The empirical results also revealed that risk attitude, farm size, machine ownership, sales ability, demonstration level of cooperatives, and knowledge about the cooperative’s business conditions are important factors that affect members’ decision to use agricultural cooperatives as a marketing channel, and thus, highlight the importance and necessity of promoting agricultural cooperatives as a marketing channel.

Ma, W., and A. Abdulai. 2017. “The Economic Impacts of Agricultural Cooperatives on Smallholder Farmers in Rural China.” *Agribusiness* 33 (4): 537–51. <https://doi.org/10.1002/agr.21522>

Ma is affiliated with the Department of Global Value Chains and Trade, Faculty of Agribusiness and Commerce, Lincoln University, Christchurch, New Zealand; Abdulai is affiliated with the Department of Food Economics and Consumption Studies, University of Kiel, Germany.

The article provides a comprehensive understanding of the economic effects of agricultural cooperatives by empirically analyzing the impact of cooperative membership on output price, gross income, farm profit, and return on investment (ROI). The study was based on primary data collected from Gansu, Shaanxi, and Shandong provinces in China, covering 481 apple farmers, with 43 percent of them being formal members of agricultural cooperatives. Provinces were selected purposely since they account for more than half of the country’s total apple orchards, followed by a random selection of agricultural cooperatives that specialize in apple production and marketing. Employing a treatment effects model to address potential selection bias, empirical results showed that cooperative membership translated into an increase of 42.14 percent in apple price, 14.77 percent in gross income, 19.64 percent in farm profit, and 71.56 percent in ROI, respectively (marginal effects). Furthermore, the causal effect of cooperative membership increased apple prices by 8.82 percent, gross income by 1.83 percent, farm profit by 2.18 percent, and ROI by 14 percent, on average, respectively. The analysis provided empirical evidence for the vital role of agricultural cooperatives in enhancing the agricultural economic performance of smallholder farmers, thus emphasizing the need for development of cooperatives to promote sustainable agricultural development in rural areas.

The results revealed that farm size and asset ownership, such as power sprayer and computer, and social network, are vital determinants of cooperative membership.

NEPAL

Mishra, A. K., A. Kumar, P. K. Joshi, and A. D’Souza. 2018. “Cooperatives, Contract Farming, and Farm Size: The Case of Tomato Producers in Nepal.” *Agribusiness* 34 (4): 865–86. <https://doi.org/10.1002/agr.21563>

The authors Mishra and D’Souza are affiliated with Arizona State University, and Kumar and Joshi are affiliated with the International Food Policy Research Institute (IFPRI) South Asia in India.

This study investigates the impact of contract farming (CF) through cooperatives for tomatoes on the employment of hired workers and outcome variables (profits and yield) of smallholder tomato farmers in Nepal. The study site includes the hill districts of Palpa and Dhading and the Terai district of Chitwan, selected due to the high prevalence of CF in these districts. A total of 602 tomato farmers were surveyed, a group comprised of 261 contract farmers and 341 noncontract farmers, and analyzed using nearest neighbor matching (NNM)

and kernel-based matching (KBM) estimators. Farmers under CF sell their produce to cooperatives, who in turn sell it to contractors. Results showed that yields of CF smallholder tomato farms are higher than yields of noncontract farms by about 27 percent, receiving 73 percent higher profits compared to independent tomato producers. Furthermore, contracted tomato farms employed, on average, about 5 percent less labor and had lower total costs per hectare (NRs. 286,026/ha) than independent tomato producers. Results showed that expansion of vegetable production, especially in tomato, through CF schemes improved profits and productivity, and thereby contributed to food security. The authors concluded that the roles of cooperatives, through CF, can increase access of small producers to new technology, information, and business services in rural areas to contribute to yield growth and specialization of smallholder agriculture, thereby increasing profits and incomes, and ensuring food security.

VIETNAM

Pham, T. T., L. Theuvsen, and V. Otter. 2019. "Determinants of Smallholder Farmers' Marketing Channel Choice: Evidence from the Vietnamese Rice Sector." *Asian Economic Journal* 33 (3): 281–300. <https://doi.org/10.1111/asej.12187>

The authors are affiliated with the Department of Agricultural Economics and Rural Development, University of Goettingen, Germany.

The research objective was to explore the determinants influencing specialty rice (SR) farmers' choice of marketing channels and its influence on farmers' performance. The study utilized a multinomial logit regression model to analyze data collected from two provinces in the Red River Delta (RRD) region, the second largest rice-producing and marketing region in Vietnam, covering 280 rice farmers. Vietnam saw the emergence of a new marketing channel, SR farmer associations (MFA), in the early 2000s, with the support of government institutions, international organizations and nongovernment organizations. MFAs buy SR directly from rice farmers, organize several processing steps, and deliver to end consumers either through supermarkets, restaurants, or shop retailers. Study findings revealed that farmers participating in the traditional marketing channel faced longer distances to the next central market and received lower prices than farmers participating in an MFA. Farmers involved in an MFA own more production-related assets, such as carts, harvesting machines, and storage facilities. Empirical results showed that members received a significantly higher price for their marketed surplus (US\$0.039 per kg more on average) than their counterparts. Furthermore, collective marketing helps farmers increase the average price received per kg of rice by US\$0.028. Given the evidence in this study, the authors urged local authorities to encourage SR production and marketing by improving rural infrastructure, providing better marketing information for rice farmers, enhancing the rural education system, focusing more on credit policy, and enhancing the capacity of farmer associations in rural areas.

Schoell, K., A. Markemann, B. Megersa, R. Birner, and A. V. Zarate. 2016. "Impact of Projects Initiating Group Marketing of Smallholder Farmers—A Case Study of Pig Producer Marketing Groups in Vietnam." *Journal of Co-Operative Organization and Management* 4 (1): 31–41. <https://doi.org/10.1016/j.jcom.2016.03.002>

The principal author of the study Schoell and co-authors Markemann and Zarate are affiliated with the Institute of Animal Production in the Tropics and Subtropics at the University of Hohenheim, Stuttgart, Germany. Mergersa is affiliated with the School of Veterinary Medicine at Hawassa University, Ethiopia. Birner is affiliated with the Institute of Agricultural Economics and Social Sciences in the Tropics and Subtropics at the University of Hohenheim.

The paper compared the success of different farmer groups to those of individual farmers using the case studies of pig-producing cooperatives in Vietnam. The authors defined success on the basis of livelihood

improvement by linking small-scale pig producers to markets. They studied three types of farmer groups: Common Interest Groups (CIGs), Cooperative Groups (CGs), and Cooperatives. Over a four-month study in 2013, the authors collected data from three regions in Vietnam and in the capital of Hanoi, with a case study and a counterfactual for each sub-location within these regions. They used propensity score matching and difference in differences methods in their analysis. By 1994, old state-owned cooperatives were defunct, and family farms had started to gain prominence due to newly passed land reforms and liberalization. The new developments gave rise to informal farmer groups and ultimately led to the Cooperative Law (1997, amended in 2012). The presence of international promoting organizations have helped establish farmer groups in Vietnam. Some of the organizations include the Australian Agency for International Development (AusAID), International Fund for Agricultural Development (IFAD), the World Bank Group (WB), OxFam, the Catholic Relief Service (CRS), and SNV, the Netherlands Development Organisation.

While most members continue to market individually or directly, the cooperatives have helped members to access existing markets or to link to new ones. The case of cooperatives helping smallholders access niche markets has been by focusing on exotic pigs and traditionally raised pigs. Farmers in Cao Bang (CB) and Lao Cai (LC) were involved in the traditional production of “black village pigs,” with the potential of fetching higher prices.¹⁰ Through promoting agencies, the cooperatives helped the members by providing services, such as training and technology adoption. In general, members saw incomes increase as compared to non-members. Between 2009 and 2012, the members of CB, LC, and Ha Tinh (HT) saw an average income increase of ~\$US337, ~\$US1,059, and \$US26, respectively. The smaller increase in HT could be attributed possibly to the rearing of exotic pigs produced by bigger farms in the same area. The income increase has allowed the farmers to build new houses; purchase vehicles and new agricultural land and fertilizers; buy schoolbooks; and repay debts. The surplus income has led to reinvestment in agriculture or improved quality of life.

INDONESIA

Sedana, G., and N. D. Astawa 2016. “Panca Datu Partnership in Support of Inclusive Business for Coffee Development: The Case of Ngada District, Province of Nusa Tenggara Timur, Indonesia.” *Asian Journal of Agriculture and Development* 13 (2). <https://doi.org/10.22004/ag.econ.258966>

The authors, Sedana and Astawa, are researchers from Dwijendra University and Undiknas University in Bali, Indonesia, respectively.

The article is a descriptive case study that captures the implementation of Australia–Indonesia Partnership–Promoting Rural Income through Support for Markets in Agriculture (AIP–PRISMA) in the coffee sector. The article describes the implementation of the project and the roles of the actors involved in the process. The authors studied five coffee cooperatives and various other actors involved in the business model. These included the coffee exporter, local government bank, Indonesian Coffee and Cocoa Research Institute (ICCRI), and VECO–Indonesia (an international nongovernmental organization [NGO]). The business model has worked toward increasing productivity and producing good quality coffee. Farmers in Indonesia face productivity issues due to a lack of access to information and lack of training on good agricultural practices. Since most farmers rely on the traditional dry system (sun drying) for processing coffee, it leads to poor quality coffee that fetches lower prices and does not meet exporters’ standards.

Through the AIP–PRISMA project, the cooperatives have provided training to members to increase productivity, production, and improve the coffee bean quality by focusing on postharvest techniques and internal quality control. They collectively market the coffee and have helped members access inputs, such as coffee parchments of good quality that help meet the exporters’ quality standards. Cooperatives use ICCRI-trained extension workers for securing quality inputs and encouraging good practices. To expand their influence, the cooperatives have opened coffee processing units (CPUs) in many villages. Between 2014 and 2015, the number of CPUs increased from 30 to 78. Although the article serves as a documentation of the program, it did not offer a critical analysis of the project. The authors did not study the project’s impact or compare households benefiting from the program to those who were not participating in it.

¹⁰ Phuong, N. V., D. T. M. Hanh, T. H. Cuong, A. Markemann, A. Valle Zárate, and M. Mergenthaler, M. 2014. “Impact of Quality Attributes and Marketing Factors on Prices for Indigenous Pork in Vietnam to Promote Sustainable Utilization of Local Genetic Resources. *Livestock Research for Rural Development* 26 (7). <http://www.lrrd.org/lrrd26/7/phuo26126.html>

Sjauw-Koen-Fa, A. R., V. Blok, and O. Omta. 2017. "Exploring the Applicability of a Sustainable Smallholder Sourcing Model in the Black Soybean Case in Java." *International Food and Agribusiness Management Review* 20 (5): 709–28. <https://doi.org/10.22434/IFAMR2016.0171>

The authors are affiliated with the School of Social Sciences at Wageningen University, Netherlands.

The research objective was to explore the applicability of a sustainable smallholder sourcing model to learn about the partnership model for supplier development and the buying and the upgrading sourcing process.¹¹ To this end, the authors studied the black soybean supply chain in Java, developed by Unilever Indonesia to meet the growing demand for sweet soy sauce in 2002. This was followed by partnership with the University of Gaja Mada (seed-supplier), and in 2007, about 5,000 farmers from 8 cooperatives were participating in the planting of black soybean (a key ingredient for sweet soy sauce), covering an area of about 1,200 hectares in Java, contributing 10–20 percent of the black soybean demand in the period. Cooperatives set up under this program played a central role in lowering financing cost and risks for smallholders by offering buying commitments, price guarantees, and down payments before planting. The article focused on the period 2008–2013 (upscaling phase of the program) and involved multi-stakeholder workshops with company executives, field managers, assistants, seed suppliers, farmers, government extension agents, traders, etc., and semi-structured interviews and field observations to cooperatives. The impact of the applied black soybean upgrading program on smallholder livelihood was measured in terms of performance indicators (yield, supply, return–cost ratio). The authors found that, between 2007 and 2013, the number of smallholders participating in the program rose from 5,000 to 8,300. The yield increase was reported from 360 to 700 kg per hectare in the same period while return–cost ratio per unit was 1.8. Supply of total soybean demand rose from 20 percent to 60 percent between 2007 and 2013. The authors illustrated how multinational enterprises can include smallholders in a sustainable and more equitable way in high-value adding supply chains and recommended (re-)designing (conventional) sustainable smallholder sourcing strategies.

CAMBODIA

Sokchea, A., and R. J. Culas. 2015. "Impact of Contract Farming with Farmer Organizations on Farmers' Income: A Case Study of Reasmey Stung Sen Agricultural Development Cooperative in Cambodia." *Australasian Agribusiness Review* 23: 1–11. <https://ageconsearch.umn.edu/record/262469/?ln=en>

The authors are researchers at the School of Agricultural and Wine Sciences, Charles Sturt University, Orange NSW, Australia.

The study aimed to provide empirical evidence on the impact of contract farming with farmer organizations on farmers' income based on a case study of the Reasmey Stung Sen Agricultural Development Cooperative (RSSADC) in central Cambodia. Field surveys were carried out in Kampong Thom province in August 2010, with semi-structured interviews with 39 contract farmers that had contractual relationships with RSSADC and 36 non-contract farmers from the same villages, which were analyzed using a treatment effects model. RSSADC was established as an autonomous farmer organization in 2003, with initial support from the government-funded Integrated Pest Management Program and later supported by the Community-based Rural Development Project. The cooperative is involved in purchasing and marketing organic rice while coordinating contracts with its members, purchasing rice from them, and selling it to the market. The price of contracted rice is set 15 percent higher than the current provincial market price of non-organic rice and covers the transportation cost of produce for contract farmers. Results indicated that the net agricultural income of farmers increased by 1,703,500 Riels (US\$425.88), as of 2010, when farmers accepted contract farming, that is, contract farmers earned 84.07 percent more income than non-contract farmers. The study concluded that contract farming with farmer organizations helps farmers to obtain high returns by increasing product quality and targeting market niches, as evidenced by the econometric and qualitative analysis.

¹¹ Sjauw-Koen-Fa, A. R., V. Blok, and S.W.F. Omta. 2016. "Critical Success Factors for Smallholder Inclusion in High Value-Adding Supply Chains by Food and Agribusiness Multinational Enterprises." *International Food and Agribusiness Management Review* 19 (1): 83–112.

Studies



A farmer works on a field of blue agave in Jalisco, Mexico. (Photo by javarman/Shutterstock)

Latin America

NICARAGUA

Bacon, C. M. 2015. "Food Sovereignty, Food Security and Fair Trade: The Case of an Influential Nicaraguan Smallholder Cooperative." *Third World Quarterly* 36 (3): 469–88. <https://doi.org/10.1080/01436597.2015.1002991>

The author is affiliated with the Department of Environmental Studies and Sciences, Santa Clara University, CA, United States.

The paper analyzed the relationship between food security, food sovereignty, and trade using qualitative research on a prominent cooperative in Nicaragua. The paper utilized an embedded single case study method and used the fair trade system as its unit of analysis and its interaction with a primary-level cooperative and the relevant farmers. The paper elaborated on the definitions of food sovereignty and food security and the areas where they overlap. The paper is unique in the sense that it tried to understand the empirical and conceptual linkages between food sovereignty, trade, and food security through the lens of a cooperative, a methodology which had not been employed in the past. Fair trade was initially seen as a means of empowerment for the local farmers, but over time, it has adopted a more corporate model that offers less power to the smallholders. Food sovereignty movements (FSMs) regard food sovereignty as a means of achieving food security through securing rights for the local farmers and eliminating hunger. The cooperative in Nicaragua that was studied in the paper was PRODECOOP (The Promoter of Cooperative Development in the Segovias). The data collection methods included focus groups, participatory workshops, and participant observation during field days dedicated to farmers. The cooperative has helped develop alternative trade partners around the world for the local farmers and helped negotiate better prices for both importers and roasters. The cooperative integrated concepts from food sovereignty, food security, and fair trade into its organization, and included these as part of its operations. The cooperation also helped coffee farmers to earn higher returns for their produce, compared to the open markets.

The paper discussed six main lessons learned from the study. The first one was the integration by cooperative staff and farmers of food sovereignty, food security, and fair trade in their organizational and livelihood goals. Second, it was not always true that greater autonomy was followed by improved food security outcomes. This was observed with the members of the cooperative who were engaged in agrarian reforms and gender equity initiatives but were still affected by seasonal hunger. Third, cooperatives, regional smallholder networks, and alternative trade organizations shared many similar goals with FSMs, and there are potential areas of collaboration in smallholder empowerment, food access, and conservation. Fourth, the role played by local institutions to advance the goals of all three projects cannot be downplayed. The cooperatives, especially in the case of PRODECOOP, helped achieve food sovereignty, food security, and increased avenues of trade, giving a platform for the smallholders to raise their voice in the domain of food, agricultural, and environment policy debates. The fifth lesson learned was the important role of the state in the promotion of the establishment of a cooperative, as was observed in Nicaragua's case, which introduced agrarian reforms in the 1980s that led to the formation of a cooperative like PRODECOOP. The final lesson learned was the need for an assessment of different governance structures, organizational models, and ethical values before forming strategic alliances between different organizations working toward food sovereignty and fair trade initiatives.

Bacon, C. M., W. A. Sundstrom, I. T. Stewart, and D. Beezer. 2017. "Vulnerability to Cumulative Hazards: Coping with the Coffee Leaf Rust Outbreak, Drought, and Food Insecurity in Nicaragua." *World Development* 93: 136–52. <https://doi.org/10.1016/j.worlddev.2016.12.025>

The co-authors Bacon, Stewart, and Beezer are affiliated with the Department of Environmental Studies and Sciences, and Sundstrom is affiliated with the Department of Economics, all at Santa Clara University, California, United States.

The study analyzed the correlation between food security, as measured by seasonal hunger among smallholder coffee farmers in Nicaragua, and their farm characteristics, organizational affiliation, and postharvest risk-mitigating strategies. The authors used an interdisciplinary approach and case study to measure farmers' vulnerability to environmental hazards. In particular, the study looked at farmer responses to environmental hazards when the farmers are affiliated with institutions that focus on product diversification (Farmer to Farmer) and coffee export (Fair Trade). The data collected consisted of a survey of 368 households conducted between July and August 2014, in 51 communities, as well as hydro-climatic data of the region of study. The hydro-climatic data included the database CHIRPS (Climate Hazards Group InfraRed Precipitation with Station) and identifiers of drought periods and hurricanes.

Farmers with larger farms, off-farm employment, for which produce was more than half of their food produced, and who had fruit trees, were less likely to have lean months. Agroforestry practices may contribute to having more fruit trees. However, the authors did not find evidence of institutional affiliation and seasonal hunger. While farmer-to-farmer affiliated households suffered a larger impact from the 2009 drought, Fair Trade-affiliated households suffered larger harvest losses due to rust. No differences were found after including control variables. Crop diversification did not correlate with shorter periods of seasonal hunger. The study found evidence of path dependence in the adoption of hazard coping mechanisms among households. Once households suffered a natural disaster or crop loss, they were more likely to continue with the coping mechanism after facing new hazards. No correlation was found between institutional affiliation and hazard coping mechanisms.

Beuchelt, T. D., and M. Zeller. 2013. "The Role of Cooperative Business Models for the Success of Smallholder Coffee Certification in Nicaragua: A Comparison of Conventional, Organic and Organic-Fairtrade Certified Cooperatives." *Renewable Agriculture and Food Systems* 28 (3): 195–211. <https://doi.org/10.1017/S1742170512000087>

Beuchelt is affiliated with the International Maize and Wheat Improvement Center (CIMMYT), Mexico; Zeller is affiliated with the Department of Agricultural Economics and Social Sciences in the Tropics and Subtropics, University of Hohenheim, Stuttgart, Germany.

The paper studied the differences between conventional and certified coffee cooperatives in Nicaragua and their impact on farmer's incomes. The paper conducted a SWOT analysis of seven conventional, organic and Organic-Fairtrade certified cooperatives. Interestingly, the study showed no clear impact of certification on gross margins of cooperatives, but instead found factors, like yield levels, business models and upgrading strategies, as being more important. In light of greater competition, farmer organizations and cooperatives are under constant pressure to improve their performance and marketability through participation in certification schemes, such as Organic or Fairtrade, which allows them access to high-value coffee markets. The data for the study was collected using over 100 qualitative, in-depth interviews with 7 cooperatives in Nicaragua, along with a two-stage, random household survey with 327 coffee producers of the cooperatives. The gross margin earned by the cooperatives was considered as an output of interest.

The results of the study revealed no association between the cooperative's certification strategy and the gross margin of its members. The gross margin of the cooperatives seems to be more dependent on factors such as the amount of coffee-related services offered to the producers. The study also found that the solution to the

low incomes of smallholder farmers was not necessarily the obtaining of certification, but certification could help act as a buffer in cases where coffee prices were low. In order to help increase the income of smallholders, there is a need to focus on institutional changes apart from the production aspects. Certification can only be successful if the cooperative has a good business model, has more strengths than weaknesses, and has supplementary upgradation strategies.

Donovan, J., N. Poole, K. Poe, and I. Herrera-Arauz. 2018. "Ambition Meets Reality: Lessons from the Taro Boom in Nicaragua." *Journal of Agribusiness in Developing and Emerging Economies* 8 (1): 77–98. <https://doi.org/10.1108/JADEE-02-2017-0023>

Donovan is affiliated with the International Centre for Research in AgroForestry, Lima, Peru; Pool is affiliated with SOAS, London, United Kingdom, and Poe and Herrera-Arauz are consultants in Managua and Matagalpa, Nicaragua, respectively.

The research objective was to examine the rise and fall of the taro export value chain (from Nicaragua to the United States) to provide more effective value chain development (VCD) alternatives with smallholders. Around 2005, high demand for taro in the United States and the existence of taro in swamplands in Nicaragua posed an opportunity for Nicaragua-based NGOs to identify a market opportunity for smallholders to supply the US market with smallholder-grown taro from Nicaragua. This study is based on survey data collected from a collective enterprise, its members and suppliers, and the international NGO and downstream buyers. Fifty-seven percent of households interviewed in 2010 were again surveyed in 2016. Collective enterprises, in this case formal cooperatives, negotiated sales with buyers, engaged with NGOs, provided extension services, facilitated access to credit, and offered input subsidies. International NGOs financed infrastructure for taro export (processing plants), while the organizational and capacity building was managed by the collectives. Results revealed that the contribution of taro to household income was significant and averaged US\$1,714. Interestingly, average incomes for small farms were roughly 35 percent larger than incomes from households with medium holdings, reflecting their greater income dependence on taro production. Ultimately, the taro chain only lasted a few years, a consequence of both external factors (emergence of Mexico as a major supplier to the United States) and internal factors (insufficient capacity to engage over time in the highly competitive and demanding fresh horticulture trade).

In conclusion, the authors stressed the need for a greater awareness of adaptive capacity within marketing systems that involve smallholders, a more critical look at the underlying assumptions of interventions for building the value chains, and the need for alternative planning scenarios, better risk mitigation, and adaptation strategies.

Elder, S. D. 2019. "The Impact of Supermarket Supply Chain Governance on Smallholder Farmer Cooperatives: The Case of Walmart in Nicaragua." *Agriculture and Human Values* 36 (2): 213–24. <https://doi.org/10.1007/s10460-019-09911-8>

The author is associated with the Institute for Resources, Environment, and Sustainability at the University of British Columbia, Vancouver, BC, Canada.

The paper examined the relationships between cooperatives and supermarket supply chains. The article used mixed methods with an inductive approach for qualitative research and regression analysis for quantitative study. The survey included 110 households in Nicaragua that were producing vegetables for Walmart and a domestic supermarket chain called La Colonia. Multiple actors were interviewed, including executives, government authorities, NGO representatives, cooperative leaders, and farmers. In all, 51 semi-structured interviews were conducted over a period of 9 months in 2013.

Four cooperatives were chosen that were selling their products to the two supermarkets. These cooperatives are autonomous bodies. Almost all farmer sales to La Colonia were through cooperatives. While the strength of farmers selling to La Colonia increased, the numbers selling to Walmart declined. More than half of the farmers that quit supplying to Walmart were affiliated with cooperatives before quitting. Between 2006 and 2013, about 85 percent of the farmers who had at least once supplied to Walmart via their cooperatives had switched to wholesalers instead. In farmers' perceptions, Walmart's dwindling numbers can be attributed to better prices in wholesale markets, farmers' choice to move out of vegetable production, cooperatives' limitations in providing services, and exasperation with Walmart due to rejection of products. Farmers who quit selling to La Colonia were not a cooperative members. The cooperatives associated with La Colonia received loans from the chain to buy delivery trucks and cold storage. Walmart, on the other hand, used its delivery trucks to pick up farmer produce on their way back to stores after deliveries. La Colonia established communication channels by conducting regular meetings with cooperatives to discuss sowing plans every 3 months. They have built trust and confidence by entering into annual contracts with the cooperatives, having negotiable terms, lower rejection rates, and providing loans to the cooperatives. In the arrangement with La Colonia, rejected produce is stored with the cooperatives, allowing the farmers to sell it to wholesalers.

On the other hand, Walmart gains access to individual farmers through cooperatives. Accessing individual farmers directly reduces their costs. Walmart lags behind La Colonia, as its contracts are non-negotiable, has high rates of rejection, offers low prices for the produce, and does not extend financial help. Farmers view Walmart's contracts as unstable or uncertain. Moreover, instead of annual contracts, Walmart engages in 90-day contracts or single-harvest contracts. Unlike La Colonia, Walmart does not regularly meet the farmers to discuss sowing plans; rather, the corporate giant expects the farmers to strictly adhere to the planting and harvesting schedule provided by them. Noncompliance with this demand can mean that Walmart will not purchase the products. The contracts do not carry Walmart's standard specifications and tend to change with the supply of products in the market.

The article is a rich descriptive study that contributes to the understanding of the role of supermarket chains in improving smallholder livelihoods. While supermarket chains can help cooperatives in increasing farm commercialization, it does not assure direct benefits to smallholders unless strong and trusting relationships are forged between supermarkets and cooperatives. Most importantly, removing cooperatives from the supply chain will result in loss of bargaining power for the smallholders, low realization of prices, and lack of alternatives to sell rejected produce.

Michelson, H., T. Reardon, and F. Perez. 2012. "Small Farmers and Big Retail: Trade-offs of Supplying Supermarkets in Nicaragua." *World Development* 40 (2): 342–54. <https://doi.org/10.1016/j.worlddev.2011.07.013>

The paper was unique in its study of the impact of cooperatives supplying supermarkets in Nicaragua and the larger context of Central America. It showed the rationale behind small-scale farmers entering contracts with large retail chains like Walmart, as well as other domestic retail chains. Some of the findings of the paper are quite interesting, as it showed that the prices offered by the domestic retail chains were comparable to the traditional markets; however, the prices paid by Walmart were significantly lower. The Walmart contracts offered more stability against price volatility, though. It was feared that the farmers might be paying too much premium for the risk aversion, however.

The paper analyzed the payoff and the payoff variability of supermarkets, compared to traditional markets, by utilizing time series data of prices paid by these entities to farmers in the form of small farmer cooperatives. The data for this study were collected from two primary sources that included transcribed records from three farmer cooperatives in Nicaragua regarding prices paid to them by supermarkets, as well as traditional market weekly price data from the Nicaraguan Ministry of Agriculture and Forestry. The output variable measured was the per kilogram farmgate prices to compare the traditional and supermarket channels.

The two supermarkets analyzed are a local supermarket chain, La Colonia, which owned 10 stores in the country, and the international supermarket chain, Walmart Central America, which had 55 stores. La Colonia relied on a network of traditional wholesalers and numerous small farmers for sourcing with minimal storage facilities. On the other hand, Walmart procured products by sourcing them in the rural areas, instead of depending on farmers to transport their produce.

The results of the study revealed that the domestic supermarket La Colonia offered farmers prices that are comparable to the traditional markets in terms of mean price and price variability. On the other hand, Walmart offered farmers lower prices but with little volatility, and the farmers seemed to prefer the insurance contracts compared to the traditional market. Despite the fact that the supermarket sector in Nicaragua was young, better understanding between smallholders and supermarkets could help to understand some of the constraints of the traditional agricultural sector and help to improve them. The paper depicted that, even despite offering them lower prices, Walmart contracts were preferred by farmers due to the insurance against price volatility offered by the supermarket retail giant.

MEXICO

Bowen, S., and P. R. Gerritsen. 2007. "Reverse Leasing and Power Dynamics among Blue Agave Farmers in Western Mexico." *Agriculture and Human Values* 24 (4): 473–88. <https://doi.org/10.1007/s10460-007-9088-7>

Bowen is affiliated with the Departments of Rural Sociology and Sociology, University of Wisconsin-Madison, Wisconsin, United States, and Gerritsen is affiliated with the Manantlán Institute for Ecology and Biodiversity Conservation, South Coast University Centre, University of Guadalajara, Autlán, Jalisco, Mexico.

The study looked at the effects of “reverse leasing arrangements” between large agave processors and small agave producers. The authors conducted a field research consisting of semi-structured interviews between March and June 2004, in southern Jalisco, the main producer of agave and tequila in Mexico. Data was collected from two localities in the municipality of Autlán de Navarro. In total, 82 farmers were interviewed, 51 and 31 at each location, respectively, comprising about 30 percent of total agave producers in these localities.

Reverse leasing arrangements are a type of contract in which smallholders rent their land to contracting companies. Contracting companies provide capital and agricultural inputs and know-how, and the smallholders may provide labor. Reverse leasing arrangements offer an important advantage to tequila companies: the arrangement allows the tequila company to control the production process and quality of the agave, assuring a more reliable and stable supply of agave. This type of arrangement allows companies to grow agave in new areas where people lack agave production know-how. The authors mentioned that one problem of reverse leasing arrangements in the value chain of tequila is that smallholder agave farmers are excluded from the value chain, making it more difficult to sell their agave to processors. About 57 percent of all agave production in the state of Jalisco is produced under reverse leasing arrangements. Agave producers in the region created an association of agave producers to have more leverage in the selling price and in purchasing inputs, and to facilitate the search for buyers. The association also provides technical expertise to growers about agave production, becoming the main source of production information for farmers.

The authors concluded that the benefits of the small producers of agave derived from creating an association of producers to improve their market access and negotiation capacity are not clear. The authors also mentioned that even large agave producer associations have had difficulties influencing the selling price of agave or the agave processors’ willingness to buy agave from independent farmers, not part of a reverse leasing arrangement.

Cohen, J. H. 1998. "Craft Production and the Challenge of the Global Market: An Artisans' Cooperative in Oaxaca, Mexico." *Human Organization* 57 (1): 74–82. <https://doi.org/10.17730/humo.57.1.g3m5038h835r77lm>

The author is affiliated with Texas A&M University, United States.

This study looked at the actions of a group of weavers from the community of Santa Ana in response to their market structure, dominated by intermediaries and shop owners from the community of Teotitlan, both communities located in the state of Oaxaca, Mexico. The author stated that there is an uneven business relationship between weavers and intermediaries/shop owners. The intermediaries control the export market for weaved products, and also, have access to tourist demand for their products. In response to this uneven relationship, the weavers of Santa Ana created a weaving cooperative with the help of the government, which provided funding and training. The purpose of the cooperative was to gain access to the export market and to bring foreign buyers to the community. Generally, the foreign buyers are brought by bus or tour companies. This study took part in 1992–3, and 1996, and consisted of an unspecified number of unstructured interviews with weavers from Santa Ana.

The author mentioned that the weavers from Santa Ana tried unsuccessfully to break the monopoly of the intermediaries, because the weavers lacked market knowledge and managerial skills needed to run a business, as well as capital for production. The cooperative, formed with government support in 1987, consisted of about 100 weavers. As a cooperative, the weavers had access to government credit that they could not have had as individual weavers. However, the author noted that government loans were not distributed evenly among its members, nor was the objective of the cooperative, which was to gain access to the export market, achieved successfully. Although the cooperative established ties with a gallery in the United States in 1990, which resulted in higher prices for the products, by 1995, the cooperative membership was very low. An important factor of the failure of the cooperative was mistrust among its members. The study stated that the cooperative of weavers of Santa Ana were unable to gain direct access to foreign markets from the intermediaries of Teotitlan. The author concluded that the cooperatives should find a way to fit into the larger economic processes and markets.

Luna, F., and P. N. Wilson. 2015. "An Economic Exploration of Smallholder Value Chains: Coffee Transactions in Chiapas, Mexico." *International Food and Agribusiness Management Review* 18 (3). <https://www.ifama.org/resources/Documents/v18i3/Luna-Wilson.pdf>

Luna is affiliated with The Sonoran Institute, and Wilson is affiliated with the Department of Agricultural and Resource Economics at the University of Arizona, both located in Tucson, Arizona, United States.

This paper studied and analyzed three different types of coffee trading regimes in Chiapas, Mexico, and compared the farmer well-being associated with each of them. The paper utilized a mixed methods approach, using both qualitative and quantitative data collected through household surveys, participant observation, and semi-structured interviews. The three trading regimes studied were a fair trade cooperative (FT), a vertically integrative cooperative (VI), and Non-Affiliated Coffee Growers (NA).

The fair trade cooperative (FT), CESMACH, is a group of 478 farmers that exclusively grow the Arabica variety of coffee. It obtained fair trade certification in 2002, and as of today, has 20 import partners in the United States, Europe, and Japan that buy its organic, shade-grown, high quality coffee. The vertically integrative cooperative (VI), Café Justo, came into being with the goal of capturing the entire value addition in their supply chain. The members of the cooperative maintain control of their coffee from the farms all the way along the supply chain until it is sold at the retail level in the United States. The members of the cooperative not only own the coffee farms but also the roasting factory that roasts, grinds, processes, and packages the coffee for buyers in the United States. The cooperative is also engaged in coffee tourism, where delegations from the United States

travel to the small community of Salvador Urbina to learn more about the coffee production processes. The third trading regime studied was the non-affiliated coffee growers who sell the coffee directly to the middlemen, or the coyotes. This regime represents the most conventional method of selling coffee in the area and was largely adopted by independent smallholder coffee growers.

The different trading regimes have their own advantages and disadvantages. FT and VI coffee growers get higher prices for their produce, due to the greater outreach of the cooperatives, and can more readily access government services, such as subsidies, education, and health care. Furthermore, they have access to better machinery, benefit from social and commercial networking, and are encouraged to indulge in organic production. However, one of the disadvantages for both FT and VI members is the payment of the revenue to coffee growers affiliated with the cooperatives in installments. FT growers enjoyed greater access to credit, whereas VI growers complained about a lack of access to credit. The benefit of the non-affiliated coffee growers (NA) is the immediate cash payment, which they receive for their produce, as well as the availability of credit for them. However, they are offered lower prices by the coyotes, do not have any market control, and have no proof of their sales.

OLS regression and weighted farm gate coffee price (WP) were used as measures to quantitatively compare the three trading regimes. It was found that the FT model was economically more preferred to the VI approach, which in turn produced more favorable outcomes than the traditional non-affiliated (NA) model. Some of the factors that led to these results include the larger trading partners, with a focus on specialty coffee in the case of the FT model, larger scale of operations as observed in FT and VI approaches, and the superior organization structure of the FT and VI trading regimes.

Pat Fernández, L. A., H. P. Romero Durán, F. Anguebes-Franceschi, and J. M. Pat Fernández. 2020. "Eficiencia económica y organización de la cadena productiva de miel en Campeche, México." *Agricultura Sociedad y Desarrollo* 17 (1): 71–90. <https://doi.org/10.22231/asyd.v17i1.1323>

The author Fernandez is affiliated with El Colegio de la Frontera Sur, Unidad Campeche, Campeche, Mexico; Romero Durán and Anguebes-Franceschi are affiliated with Universidad Autónoma del Carmen, Campeche, Mexico.

The authors discuss the economic efficiency of small-scale beekeepers and the functioning of the honey value chain in Campeche, Mexico. Honey is an important agricultural product for Mexico, as the country is the eighth largest producer and the fifth largest exporter of the commodity.

The study showed that the conventional honey chain is more efficient, although it tends to favor the larger cooperatives and private trading companies as a result of economies of scale. The conventional channels are geared toward export markets and include value chains that are short and direct and establish a vertical alliance between the various actors of the value chain. Small-scale honey producers can become more competitive by differentiating their products and establishing agreements with newer players in this value chain. The government can also play an important part in encouraging small-scale producers through technological, commercial and institutional support.

Cooperatives play an important role in helping the government offer support and subsidies to beekeepers by acting as an intermediary. The cooperatives also give beekeepers a democratic platform upon which to organize themselves. Additionally, they help small beekeepers to bring their production on par with international standards.



A farmer harvests coffee beans in Puebla, Mexico.
(Photo by Joseph Sorrentino/Shutterstock)

Folch, A., and J. Planas. 2019. Cooperation, Fair Trade, and the Development of Organic Coffee Growing in Chiapas (1980–2015). *Sustainability (Switzerland)* 11 (2): 357. <https://doi.org/10.3390/su11020357>

The authors are affiliated with the Department of Economic History, Institutions, Policy and World Economy, University of Barcelona, Spain.

The article explains the importance of coffee in Mexico and how one specific state became the largest organic coffee producer in the region. The state of Chiapas in Mexico is the largest coffee-producing region (area under coffee cultivation) and has the largest number of coffee producers in the country. A significant portion of this production is organic coffee that has emerged as a viable alternative for small producers who were not able to make profits from conventional coffee production. The farmers in the state exploit a mean area of 1.8 ha only, with landholding ranging from 0.5 to 5 ha in 98 percent of the cases. It started in the 1970s during the phase of peasant mobilization, when the agricultural model of the Green Revolution went into crisis. This survey/article claimed to be the first of its kind in the region, wherein the authors analyzed the process of cooperative formation due to the Green Revolution crisis that further spilled down to the 1980s and 1990s, followed by a phase of massive cooperative registration during the early 2000s. The paper articulates very well the cooperative formation process that started because of an institutional and economic crisis, and capitalized on models of commercialization through fair trade channels.

The authors described the formation of a federation of cooperatives created to lobby the administration to obtain access to credit, which served as an agency promoting fair trade coffee production and helped farmers receive the required training, as well as do capacity building toward international grade, organic coffee production.

Getz, C. 2008. "Social Capital, Organic Agriculture, and Sustainable Livelihood Security: Rethinking Agrarian Change in Mexico." *Rural Sociology* 73 (4): 555–79. <https://doi.org/10.1526/003601108786471521>

The author is affiliated with the Department of Environmental Science Policy and Management, University of California, Berkeley, United States.

The author studied the relationship between extra local market linkages and local level, social capital to sustainable livelihood outcomes in agrarian communities on the Baja Peninsula in Mexico. The smallholder farmers of these communities belonged to ejidos, a communal agricultural institution that produced organic vegetables for the export market. Before the farmers were producing for the export market, they were livestock producers. In 1986, a California company organized ejido members to create a collective to produce organic vegetables. The promoting organization supplied the technical know-how and purchased their production. Eventually, the members of the collective separated themselves from the ejido institution and created a new legal entity with the California company. Within the new legal entity (del Cabo), the author studied two communities with different degrees of social capital. The author interviewed more than 40 farmers in the two communities. Extension agents and ejido leaders were also interviewed.

Indicators of social capital included frequency and type of meetings within the community, the extent to which people knew and interacted with their neighbors, the number of and level of participation of persons in social organizations, and the size of informal networks in the community.

The author found that market linkages can have a negative or positive effect, depending on preexisting social capital affecting the direction of development outcomes. That is, starting with positive social capital, a community would benefit more from extra local market linkages than a negative social capital community. Social capital in the communities was intricately connected to their history of state-sponsored or market agriculture, the formation of ejido, and access to natural resources.

The author concluded that the linkage of social capital in the agrarian communities and extra local markets is complex and dynamic. Historical legacy of populist reforms, like government supported agricultural programs and social and political institutions, affect the development path of these agrarian communities.

Gómez González, I. 2016. "A Honey-Sealed Alliance: Mayan Beekeepers In The Yucatan Peninsula versus Transgenic Soybeans In Mexico's Last Tropical Forest." *Journal of Agrarian Change* 16 (4): 728-36. <https://doi.org/10.1111/joac.12160>

The author is affiliated with the Department of Rural Development, Universidad Autónoma Metropolitana-Xochimilco, Mexico.

The author presented this article as a success story of a bee collective that fought for the rights of the farmers and entrepreneurs and helped protect the honey farmers in the state of Yucatán in Mexico. Honey constitutes an important export for Mexico, with the country being the fourth largest exporter of the commodity in the world. However, there has been a push by the Mexican government to plant transgenic soybeans in the state, which results in honey having the presence of transgenic pollen in it. Major export markets for Mexican honey, such as the European Union, are placing stringent labeling requirements for identifying such "contaminated" honey, whereas most of the importers demand transgenic-free honey. In light of these international market mechanisms, the paper depicted the mobilization of the local beekeepers, activists, and entrepreneurs in Mexico, who resisted this push by the Mexican government to adopt more transgenic soybean varieties through increased awareness, scientific reasoning, and lawsuits. The mobilization, in the form of a collective, has helped protect the interests of these beekeepers and has resulted in tangible results, such as the invalidation of the state authorization promoting the cultivation of transgenic soybeans.

The author concluded that the collective has helped secure the rights of the local farmers who are from an Indigenous community. The collective has used various mechanisms to promote the interests of the local farmers in Yucatán, which includes public debates against certain government initiatives, proposals for greater social participation, demanding accountability for public actions, and filing lawsuits against certain government actions.

Litka, S. 2013. "The Maya of Cobá: Managing Tourism in a Local Ejido." *Annals of Tourism Research* 43: 350–69. <https://doi.org/10.1016/j.annals.2013.07.002>

The author is affiliated with the Department of Sociology, Anthropology, and Social Work, University of Dayton, Ohio, United States.

The paper studied the tourism industry in the small Mexican town of Cobá in the southern Mexican state of Quintana Roo and shows how it has been impacted by the ejido values that relate to communally held land. The ejido is based on communal relations and kinship, and leads to a greater sense of ownership for those engaged in the tourism sector in the area. It presents an interesting case of holding on to traditional culture and way of life, and trying to make it compatible with the modern economic ways.

The study methods employed in this paper utilized results from nine months of fieldwork in 2009, which led to a collection of ethnographic data. The study was focused on 30 participants in Cobá, and involved daily participant observations, semi-structured interviews, and recordings of the conversations held at home and at work oriented toward the tourism sector.

Mexico has seen a phenomenal increase in its tourism sector, which has led to a number of traditional societies and Indigenous societies opening to modern tourists. Ejidatarios, the recipients of the ejido grants, do not own the land but have the right to work on it, and pass this right on to their children. The town of Cobá is based around 132 ejidatarios and their families and has a population of around 1,300. However, the town has nearly 70,000 tourists visit it annually, so that tourism serves as the largest economic activity in the area.

The existence of the ejido system has benefited the local population in certain ways while allowing them to engage in the tourism sector. It has allowed the local population to benefit from tourism without the need of the local population to move out in search of employment. The local community maintains political and economic control over their daily affairs and operates through social cooperation rather than individual needs. The ejido system also mitigates individual losses by distributing certain funds between the ejidatarios. Unlike other places where tourism often leads to privatization, common property through ejido leads to a better sense of agency, improved natural resource management, and more effective conflict resolution. At the same, tourism brings with it larger incentives to sell property and a greater emphasis on the individual rather than communal, which makes some locals fear that Cobá will also follow the trajectory of other tourist towns, where the ejidos are now almost nonexistent. In the case of Cobá, the ejido still remains a means of assuming power and control over the tourism industry for the locals and allows them to assert a certain degree of local agency in their profession.

López-Feldman, A., and J. E. Wilen. 2008. "Poverty and Spatial Dimensions of Non-Timber Forest Extraction." *Environment and Development Economics* 13 (5): 621–42. <https://doi.org/10.1017/S1355770X08004518>

Lopez-Feldman is affiliated with the School of Economics, University of Guanajuato, Mexico; Wilen is affiliated with the Department of Agricultural and Resource Economics, University of California, Davis, United States.

The paper develops a model for non-timber forest products (NTFP) extraction, focusing on spatial and labor market dimensions and comparing community-managed and unmanaged resources in the rain forest of Chiapas, Mexico. The NTFP studied was a type of palm called xate. Xate palm leaves are exported to the floral industry. The data were collected through surveys over two time periods. The outcome variables were resource health and income. The objective of the study was to examine whether NTFP extraction contributes to poverty alleviation, and its effect on resource management. In this model, NTFP extraction takes place in day trips where individuals decide on the effort, or time, put into NTFP extraction. This effort would depend

on the opportunity cost of the individual. A one-way trip to extract xate takes about three hours. The effects of community-managed versus unmanaged natural resources are also discussed.

The authors concluded that NTFP extraction is mostly done by households with low opportunity costs of time and fewer income-generating activities. Limiting extraction may not be a sufficient tool for optimal management of xate. Under a managed resource regime, the productivity of NTFP extraction is higher than the opportunity costs of the individual, while in an unmanaged resource regime, the productivity of NTFP extraction is always equal to the opportunity cost of the individual. In an unmanaged resource regime, an increase in the price of the extracted product would not help decrease poverty in the community. Managed resources, through exclusion and coordination, may contribute positively to reducing poverty in the community.

Agostini, M. R., C. C. Bitencourt, and L. M. Vieira. 2020. "Social Innovation in Mexican Coffee Production: Filling 'Institutional Voids.'" *International Review of Applied Economics* 34 (5): 607–25. <https://doi.org/10.1080/02692171.2019.1638351>

Agostini is affiliated with the Department of Rural Management, Federal Institute of Education, Science and Technology from Rio Grande do Sul, Sertao, Brazil; Bitencourt is affiliated with Unisinos Business School, Unisinos University, Porto Alegre, Brazil; and Vieira is affiliated with EAESP (School of Business Administration), Getulio Vargas Foundation, Sao Paulo, Brazil.

The authors started by arguing that, from a long-term perspective, it is still not clear how social innovation contributes to filling institutional voids. The paper tried to determine which institutional factors have influenced social innovation and how a coffee production initiative has transformed the reality in which it operates. The researchers analyzed a joint initiative of social enterprises that coordinates an organic coffee value chain in southern Mexico, a region in which extreme poverty affects 75 percent of the population. This case study involved 13 semi-structured interviews, with key actors and participant observation in situ, complemented by secondary data, in an interpretative perspective that adopted a qualitative and exploratory approach. The main results indicated that social innovation fills institutional voids by creating a "self-revolving system of activity expansion." The system helps to scale social innovation based on the collaboration of different actors and the integration of the coffee production chain that promotes the social and economic development of the community by establishing a more productive relationship between small local producers, adding value to the coffee, encouraging social and economic empowerment in the cooperative and organizing local economic activities.

Naylor L. 2017. Auditing the Subjects of Fair Trade: Coffee, Development, and Surveillance in Highland Chiapas. *Environment and Planning D: Society and Space* 35 (5): 816–35. <https://journals.sagepub.com/doi/10.1177/0263775817694031>

The author is a researcher from University of Delaware, United States.

The author studies the effect of the enforcement of fair trade certification standards on coffee producers' welfare. The coffee producers of the study belong to a coffee cooperative called Maya Vinic, an Indigenous, self-declared autonomous community from the Mexican state in the highlands of Chiapas. The Maya Vinic cooperative has over 500 members in 52 communities. Triggered by the Zapatista uprising of 1994, many Indigenous groups self-declared autonomy from the State, in favor of a system governed by their Indigenous traditions. These Indigenous communities have been economically marginalized and have suffered violence. Maya Vinic's members were survivors of a 1999 massacre (Acteal Massacre). Maya Vinic leaders built trade relationships with coffee roasters in the United States, and in 2001, became Fairtrade International (FLO) certified. FLO certification requires following certain production practices, community development projects, and surveillance. The surveillance consists of an annual audit, for which Maya Vinic must pay.

The fieldwork was conducted between 2010 and 2013. The author found that the goals of the FLO certification were not always aligned to those of Maya Vinic. It is difficult for Maya Vinic to deploy community development projects due to the heterogeneity of its members. Development projects are financed by the price premium of FLO certification, and what constitutes a development project may not be the priority of the cooperative, creating friction between the cooperative, its members, and the FLO.

Nigh, R. 1997. "Organic Agriculture and Globalization. A Maya Associative Corporation in Chiapas, Mexico." *Human Organization* 56 (4): 427–36. <https://doi.org/10.17730/humo.56.4.w761q3q1h4h8m247>

The author is affiliated with the Centro de Investigaciones y Estudios Superiores en Antropología Social de Sureste, in Chiapas, México.

The study analyzed the development of the strategy of an Indigenous organic coffee cooperative in Chiapas in achieving various goals. Some of these goals include improving soil quality and access to high-value markets. The material of this study followed the method of participant observation, conducted in 1995, and of previous studies on the cooperative, and on the Indigenous communities. The cooperative was created in 1980, with the help of the local Catholic parish, through the Church's social assistance program, the pastoral society. The cooperative operates in 34 regions, but membership is not restricted to ethnic backgrounds.

Several organizations contribute to the creation and expansion of business networks of the cooperative. The Catholic Church, alternative commerce networks, international organic certifiers, and marketing organizations played an important role in the initial years of the cooperative. Some important connections to European buyers were facilitated by the Catholic Church. Eventually, the cooperative got in contact with the Native American Free Trade Agreement (NAFTA) and other international corporations to expand its market. The study mentioned that the cooperative maintained important relationships with the Mexican government, which also provided support.

The coffee cooperative, created by Indigenous Mam Indians, has over 1,000 small-scale growers affiliated with it. The cooperative successfully found a strategy to compete in the global markets, using their cultural identity as a competitive advantage. In less than 10 years, the cooperative became one of the top global exporters of gourmet organic coffee. The cooperative diversified its operations to include food processing and ecotourism. This cooperative is an example of a successful cooperative, established by Indigenous people in a poor community in Mexico. The organizational structure followed traditional Indigenous democratic characteristics and that of modern corporations.

Pérez-Sánchez, E., and J. F. Muir. 2003. "Fishermen Perception on Resources Management and Aquaculture Development in the Mecoacan Estuary, Tabasco, Mexico. *Ocean & Coastal Management* 46 (6–7): 681–700. [https://doi.org/10.1016/S0964-5691\(03\)00041-3](https://doi.org/10.1016/S0964-5691(03)00041-3)

Pérez-Sánchez is affiliated with the Institute of Aquaculture Programme, Postgraduate Programme, Universidad Juárez Autónoma de Tabasco, Mexico; and Muir is affiliated with the Institute of Aquaculture, University of Stirling, Scotland.

This study analyzed the perception of the fishing communities of the Mecoan estuary on coastal resources management to measure the community's awareness of the potential benefits and impacts of coastal aquaculture. The Mecoan estuary is in the southern state of Tabasco, where oil production is a major source of income, as well as agriculture. Because of the diversity of resources in this region, conflicts among different users of resources have arisen. The property and use rights in this estuary have not been established for users. However, production in the estuary depends on four fishing cooperatives.

Data were collected through a survey of 154 randomly selected fishermen from the four cooperatives, as well as from independent fishermen, fisheries officers, and fisheries extensionists. The survey contained questions that captured individual attitudes toward resource management and aquaculture initiatives.

The authors found that collective aggregation of aquaculture, as an alternative to fishing, has impacted negatively the Mecoa fisheries and has not produced positive benefits to local communities. Fishermen felt that the change in organizational structure (from fishing to aquaculture) provided income-generating alternatives to fishing. In general, most individuals agreed that restructuring of the cooperative organization is required, and that integration of aquaculture with fishery and agricultural activities is possible. Most individuals also agreed that communities should participate in resource management. Independent fishermen had the lowest level of agreement on the positive effects of aquaculture among their communities, compared to cooperative members that generally agreed on the positive benefits to their communities. Most fishermen in the area agreed that aquaculture could improve their marketing opportunities, without being dependent on middlemen. Previous aquaculture programs have led to higher conflicts among resource users, but they also increased risk-spreading strategies for small fishermen.

The authors concluded that social heterogeneity and intra-village conflicts and inequality may prevent collective action in coastal management. Participation of all stakeholders and a low bureaucracy in the decision-making process may be needed for a successful coastal management plan.

Romo Bacco, C. E., A. G. Valdivia Flores, R. G. Carranza Trinidad, J. Cámara Córdova, M. P. Zavala Arias, E. Flores Ancira, and J. A. Espinosa García. 2014. Gaps in Economic Profitability among Small-Scale Dairy Farms in the Mexican Highland Plateau. *Revista mexicana de ciencias pecuarias* 5 (3): 273-90. <http://www.scielo.org.mx/pdf/rmcp/v5n3/v5n3a3.pdf>

Romo Bacco, Valdivia Flores, Zavala Arias, and Flores Ancira are affiliated with the Universidad Autónoma de Aguascalientes, México; Carranza Trinidad is affiliated with Instituto Nacional de Estadística y Geografía, México; Cámara Córdova is affiliated with Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Agropecuarias, México; and Espinosa García is affiliated with Instituto Nacional de Investigaciones Forestales y Agropecuarias, Centro Nacional de Investigación Disciplinaria en Fisiología y Mejoramiento Animal, México.

The study analyzed the factors that contribute to differences in income and productivity among dairy producers in the highland plateau of the state of Aguascalientes, Mexico. The authors interviewed 89 dairy producers in 2011, who were registered in a technical training and assistance program of the Department of Agriculture of Mexico (SAGARPA). The interviews included data on production practices, costs, revenue, own-consumption, family labor, and whether the producers were organized in a group or were isolated from the rest of the producers. In the state where the study was conducted, there were 2,966 production units, of which 91 percent were classified as family farms. The authors sampled farms with fewer than 50 cows under production. A list consisting of 375 farms was created that met the selection criteria; then, the sample of 89 farms was randomly selected from the list. The interviewers asked about information from the last four months of the survey and visually verified the assets and farm infrastructure. The analysis was done using linear regression. Two dependent variables were used in the model: net cost-benefit ratio, and value-added.

The study found, among other results, that farmers who were part of an organization of producers had better economic performance than those farms that remained isolated. The authors suggested that policies to close the productivity gap should promote technical assistance on production and improve trading strategies among all farms. Farmers who were members of a producer organization had better access to inputs and more options to sell their products.

Michel-Villarreal, R., E. L. Vilalta-Perdomo, and M. Hingley. 2020. "Exploring Producers' Motivations and Challenges within a Farmers' Market." *British Food Journal* 122 (7): 2089–2103. <https://doi.org/10.1108/BFJ-09-2019-0731>

The authors are affiliated with the Lincoln International Business School, University of Lincoln, Lincoln, United Kingdom.

The authors, in this study, sought to explore food producers' motivations and challenges while participating in short food supply chains (SFSCs). The paper compared findings with previous literature and investigated the topic in the context of producers' motivations. In addition to the literature review concerning producers' motivations to engage in SFSCs, a case study was also designed to investigate motivations underlying producers' engagement in SFSCs, as well as the challenges that they faced. Semi-structured interviews were conducted in a farmers' market located in Mexico. Thematic analysis was used to identify the principal issues for producers. The findings suggested that small, large, part-time, and full-time producers are willing to engage with farmers' markets for diverse primary economic and noneconomic motivations. Individual and collective challenges were also identified. Lack of Mexican organic certification schemes, storage requirements for organic eggs, transportation of fragile products, and weather-related events affecting organic production were some of the individual challenges faced by the farmers that were noted by the authors.

Torres-Rojo, J. M., R. Moreno-Sánchez, and J. Amador-Callejas. 2019. "Effect of Capacity Building in Alleviating Poverty and Improving Forest Conservation in the Communal Forests of Mexico." *World Development* 121: 108–22. <https://doi.org/10.1016/j.worlddev.2019.04.016>

The authors Torres-Rojo and Amador-Callejas are affiliated with Centro de Investigación y Docencia Económicas, Mexico, and Moreno-Sánchez is affiliated with the Department of Geography and Environmental Sciences, University of Colorado, Denver, Colorado.

The aim of the study was to explore the effects of local capacity building in forest communities by analyzing the Community Forestry Program (CFP) in Mexico. The CFP provides grants to forest communities to improve local capacity in four areas: human, social, economic, and environmental. The authors employed a quasi-experimental approach to compare matched and control communities for any differences in poverty alleviation and forest cover conservation. Treatment and control communities were assessed before they received CFP grants (intervention), and five years later. The authors used the database of the CFP to select 5,074 communities that met their inclusion criteria. The CFP database included more than 20,000 records. The poverty alleviation was measured using the Marginality Index from the federal government. Forest conservation was estimated from the rate of change on forest cover and forest cover fragmentation obtained from the National Statistical and Geographic Institute (INEGI).

The matching of groups was done using the propensity score matching method with probit regression. The covariates used to identify comparable groups included: property size, forest covered area, level of vertical integration in their forest activities, and poverty.

The study found that communities that received the CFP grants to improve all capacities were better able to reduce poverty than those communities that did not receive the grants. However, the authors mentioned that grants that focus only on expanding human/social capacities of communities, as compared to grants to improve all capacities, are the most effective mechanism for poverty alleviation. The authors concluded that local capacity building enables forest communities to diversify development paths. Diversification in production in a community depends on the community's internal factors, such as efficient governance structure, accountability, and profit-sharing. Thereby, well-organized communities may take advantage of grants aimed at improving human/social capacity. Examples of human/social capacity targeted by the CFP grants include



participatory workshops and training on alternative economic activities, rural extension services, development community trainers, creation of groups to monitor and sanction, and creation of participation platforms inside and outside communities. Enhancing human/social capacities provides a more equitable way to benefit all members of a community, or ejido.

ECUADOR

**Coral Guerrero, C. A. 2018. "Emprendimiento indígena, ¿Una dimensión económica del 'Sumak Kawsay'?" *REVECO. Revista de Estudios Cooperativos* 129: 123–41.
<https://doi.org/10.5209/REVE.62849>**

The author is affiliated with the Universidad de Granada, España – Universidad Internacional SEK, Ecuador.

The author studied the impact of Indigenous entrepreneurship in cocoa production and commercialization in Ecuador under the ideology of Sumak Kawsay (good living), which stresses group unity and environmental stewardship. One problem of Indigenous communities is their economic informality and exclusion from the conventional economic system. The study looks at Indigenous practices as an alternative way to development, centered in Indigenous culture. The author applied 22 semi-structured interviews within an 850-family cooperative in the community Kiwcha Kallari in the Ecuadorian Amazon between March and April 2016, using the snowball method. The analysis was qualitative, based on a case study. The cooperative produces, markets, and exports organic cacao and chocolate in 2.47 ounce bars. The cooperative began in 1997, selling more than 30 varieties of seeds and handcrafts. In 2001, the cooperative received a grant from the Ecuadorian Canadian Fund to begin selling coffee and corn, and in 2002, cacao.

The study found that community members felt that the cooperative creates benefits for the community, such as political participation, greater women's empowerment in decision-making processes of the cooperative, and higher income derived from the development of new products and services, like agricultural tourism. The cooperative promotes environmental stewardship and a long-term vision of the problems of natural resource exploitation. Incorporating the community's Indigenous culture and political organization, members feel more empowered in their community, with a stronger social fabric.

HONDURAS

Kano, M., W. P. Davies, R. N. Baines, and R. Mancía. 2013. "Contributions of Rambutan Production to Poverty Reduction of Small Scale Farmers in La Masica, Honduras." *Acta Horticulturae* 1006: 177–84. <https://doi.org/10.17660/ActaHortic.2013.1006.21>

Kano, Davies, and Baines are affiliated with the Royal Agricultural College, Cirencester, UK; Mancía is affiliated with Frutas Exóticas, La Masica, Honduras.

The paper studied the challenges and development of the cultivation of rambutan fruit in Honduras and included an analysis of the benefits associated with improving the quality and of obtaining a certification, better analysis of the market, development of value addition in the supply chain, and better access to international markets, along with more extensive farmer training.

Rambutan is a fruit that is not native to Honduras and is mostly cultivated in Asia but, in recent times, also has been grown in humid areas of Africa and Central America. It was initially introduced in Honduras with the purpose of cultivating and exporting it to the United States. The cocoa crop in Honduras is vulnerable to diseases and has seen a decline in recent years, which has prompted the farmers to switch to other alternative crops, such as rambutan. A cooperative AHPERAMBUTAN (Honduran Association for Rambutan Producers and Exporters) was established in the country in 2000 to encourage, support, and promote the smallholders growing rambutan and has over 200 members.

The data for the paper involved the administration of a semi-structured questionnaire to 19 rambutan farmers in Honduras, who were divided into three groups, which included independent farmers, cooperative-affiliated farmers, and farmers who sold to the company Frutas Exóticas. The results of the study showed that farmers affiliated with the cooperative or selling to Frutas Exóticas were more likely to grow high-yielding varieties of rambutans and receive more technical assistance. Furthermore, the cooperative AHPERAMBUTAN is in the process of obtaining international certification, whereas Frutas Exóticas is pursuing value addition, such as canned rambutan, which is preferred in large cities.

Rambutan production has helped increase the income of small farmers while, at the same time, allowing them to maintain a stable livelihood. Rambutan production has the potential of reducing poverty in the La Masica area of Honduras. The roles of the cooperative and the private sector have been positive for rambutan farmers, as they have helped to secure higher prices, more stable incomes, and have resulted in more job creation. While some small farmers are apprehensive about their past cooperative experiences with banana and cocoa cooperatives, the rambutan cooperative has thus far had only positive results.

BRAZIL

Filippi, A. C. G., P. Guarnieri, J. M. Carvalho, S. A. Reis, and C. A. da Cunha. 2019. "New Configurations in Brazilian Agribusiness: Rural Warehouse Condominiums." *Journal of Agribusiness in Developing and Emerging Economies* 10 (1): 41–63. <https://doi.org/10.1108/JADEE-12-2018-0178>

Filippi, Guarnieri, Carvalho, and Reis are affiliated with the Universidade de Brasília, Brasília; da Cunha is affiliated with the Universidade Federal de Goiás, Goiania; both institutions are located in Brazil.

The article examined the growth of rural warehouse condominiums or "condos," as a form of collective action for Brazilian agribusinesses. The authors conducted a detailed qualitative analysis and complemented it with a systematic literature review (SLR), which focuses on global cases. However, most of the cases in the SLR were based in Brazil. The authors deployed content analysis to examine and explain the secondary and primary data. Three condos were chosen for primary case research. They produce grains, namely, soybean, corn, and wheat. Semi-structured interviews of condo managers and non-participant observations were used

to collect primary data. It is estimated that condos began to emerge in Brazil around the 1980s and 1990s. They proliferated after the government invested in pork production in the 1990s to help smallholders improve productivity, increase income, gain access to agricultural technology, and improve their quality of life. Over time, the government support for condos dwindled with a change in the government and their policies. Some of the factors that triggered the emergence of condos were addressing storage deficit, infrastructure needs for transportation, the remoteness of farms from warehouses, and an increase in production and export of grains. Another factor was to address the projected increase in productivity, while the storage capacity in the country remained insufficient. Most of the grain producers in Brazil are in the southern and midwestern regions, with smallholders largely inhabiting the southern region. Thus, the early condos were established by smallholders and proliferated in this region.

Despite the growth of condos and their prolonged presence, Brazil's national registry of storage units does not include condos in its records. However, it does include the warehouses owned by cooperatives. Unlike cooperatives, condos do not suffer because of bureaucratic hurdles. Their operations, planning, and collective marketing are administered by a management appointed by the condo members. The authors explained that "transparency and regular administrative meetings lead to business success" (p. 53). However, the authors did not explain how they defined and measured success. The condo property is co-owned on a quota basis in which the storage facility's share is proportional to the land owned by the members. In some condos, this proportion may translate to the member's vote weightage as well. Condos can raise capital for their operations by using their property to access finance and by charging a condominium fee. Condos are strategically located on flatlands and ensure convenient access to highways and to their members. They help their members by ensuring standardization of high quality grains, improving their bargaining power through the collective purchase of inputs at reduced costs, and partial payment at delivery. The payment depends on adherence to the condo's quality standards and is related to the grains' humidity and purity. Condos add value to the product by providing services and infrastructure. The services include processing, cleaning, drying, and purging, while the infrastructure is built for cleaning, sorting, and warehousing activities. With no need to rely on third-party siloes, condos have higher profit margins as they save on rent, processing, and transportation.

Owning a warehouse allows the condo members to sell their produce at a strategic time that fetches better prices. Since the condominiums are capital intensive, lack of access to finances has limited their growth in Brazil, and lack of viability studies have added to the slow growth. Although the article was rich in its descriptive account, it lacked critical analysis of condos' impact on smallholders' welfare. The systematic literature review added to the study's richness but had very few relevant articles to ensure robustness in content analysis.

Piao, R. S., L. Fonseca, E. de Carvalho Januário, M. S. M. Saes, and L. F. de Almeida. 2019.
"The Adoption of Voluntary Sustainability Standards (VSS) and Value Chain Upgrading in
the Brazilian Coffee Production Context." *Journal of Rural Studies* 71: 13–22.
<https://doi.org/10.1016/j.jrurstud.2019.09.007>

Piao and Fonseca are affiliated with the Department of Production Engineering, University of São Paulo, Brazil; de Carvalho Januário and Saes are affiliated with the Department of Business, University of São Paulo, Brazil; and de Almeida is affiliated with a Master Program in Consumer Behaviour, ESPM–Business School, São Paulo, Brazil.

The authors argued that, with the spread of sustainable thinking, people have come to recognize that profitability is not the only element for the long-term success of businesses. Of equal importance is the issue of the use of natural resources and people's living conditions. With this in mind, the authors aimed to present a taxonomy of value chain upgrading types through Voluntary Sustainability Standards (VSS) adoption by farmers. Empirical evidence to test the proposed framework was presented, focusing on the adoption of the 4C (Common Code for the Coffee Community) system by coffee farmers in Brazil. A qualitative approach was used, aimed at understanding the social phenomenon from the actors' perspectives. A semi-structured



Coffee beans are sun-dried on a field in Costa Rica.
(Photo by Kevin Valverde Salazar/Shutterstock)

script was applied, referring to different types of upgrading, based on the typology. There were 27 interviews with small coffee producers (production area from 1 to 20 ha). Although all five types of upgrading were identified in the field research, most of the improvements can be characterized as environmental. Furthermore, the results indicated that the adoption of the 4C standards was an upgrading form for farmers to enhance the coffee production process, as well as to control management activities within the production unit. The paper was innovative in integrating and proposing a framework for the value chain by adding value through VSS. It also empirically applied the proposed framework in the context of the Brazilian coffee chain.

COSTA RICA

Wollni, M., and M. Zeller. 2007. "Do Farmers Benefit from Participating in Specialty Markets and Cooperatives? The Case of Coffee Marketing in Costa Rica." *Agricultural Economics* 37 (2-3): 243-48. <https://doi.org/10.1111/j.1574-0862.2007.00270.x>

Wollni is affiliated with the Institute of Rural Development, University of Goettingen, Germany, and Zeller is affiliated with the Institute of Agricultural and Social Economics in the Tropics and Subtropics, University of Hohenheim, Germany.

The study identified the factors of coffee producers in Costa Rica that determine participation in specialty coffee markets and whether participants in these markets receive higher prices than non-participants. The authors also analyzed the factors that determine membership in a cooperative of producers. The study applied a two-stage model, used to control for endogeneity in the marketing choice, to analyze producer marketing decisions and their effect on prices received. The first stage analyzed probability of participation (in specialty coffee production and in a cooperative), and the second stage analyzed the marketing performance of producers, as a function of exogenous variables, and probability of participation in specialty markets and a cooperative. The study was conducted in two coffee growing regions in Costa Rica: Valle Central Occidental (Central Valley) and Coto Brus (South), between March and April 2003. Household selection was done through multistage cluster sampling, and districts within these two regions were weighted according to the number of producers in each district. A total of 216 households were sampled from 26 villages.

The paper concluded that producers who participated in both the specialty market and in a cooperative received higher prices for their coffee than producers who continued to produce conventional coffee. The authors concluded that more effort should be put into increasing participation in specialty coffee markets to improve producer welfare resulting from low prices received from conventional coffee production. Lack of access to information and liquidity were some of the most important factors preventing farmers from participating in the specialty coffee market.

MULTIPLE COUNTRIES IN LATIN AMERICA

Clasadonte, L., E. de Vries, J. Trienekens, P. Arbeletche, and J. F. Tourrand. 2013. "Network Companies: A New Phenomenon in South American Farming." *British Food Journal* 115 (6): 850–63. <https://doi.org/10.1108/BFJ-Dec-2009-0257>

Clasadonte and Tourrand are affiliated with the Environments and Societies Department, CIRAD, Montpellier, France; de Vries and Trienekens are affiliated with Management Studies, Wageningen University and Research Centre, Wageningen, The Netherlands; Arbeletche is affiliated with the Departamento de Ciencias Sociales, Facultad de Agronomía, Universidad de la República, Paysandú, Uruguay.

The paper presented a case study that analyzed a unique agriculture model called farming companies, which represents a fundamental change from the conventional agriculture goods production that relies heavily on fixed assets. Such an approach allows for a separation between production activities, land, and machinery ownership, and thus, makes owning of assets redundant for the farming process. The farming companies have capital but do not own assets, and thus, rent everything, ranging from land and labor to capital and transportation.

The paper analyzed 9 different farming companies and 80 representatives within these companies, which comprised around 11 percent of their total staff. The findings from the study showed that the size and scale of the network companies are increasing. This new innovative business model presents a break from the past for agriculture in Argentina and Uruguay, where the new changing structures are adapting to an evolving world economy. There is a need to introduce investment policies for these network companies in South America, so that can help earn valuable foreign investment.

The farming companies can add positively to the members of their supply chains and the rural populations of Latin America at large. This can be achieved through a combination of factors that include reducing risks with regards to bad weather, optimizing the combination of soils and crops, invoking economies of scale, and leading to more uniform production and engagement strategies.

One of the consequences of the network companies is greater urban migration of farmers toward the cities, as they can rent their land to the companies and no longer have the need to work on them. There is an opportunity for greater economic gains, as compared to conventional farming methods, that can have an overall positive effect on the economies of the Latin American countries with GDPs based largely on agriculture. One of the disadvantages of these network companies is that they could make the farming sector in Latin American oligopolistic, as individual farmers might sell off their lands to the companies, giving the companies greater influence.

Giuliani, E., L. Ciravegna, A. Vezzulli, and B. Kilian. 2017. "Decoupling Standards from Practice: The Impact of In-House Certifications on Coffee Farms' Environmental and Social Conduct." *World Development* 96: 294–314. <https://doi.org/10.1016/j.worlddev.2017.03.013>

The authors, by order of authorship, are affiliated with the University of Pisa, Italy; King's College, London, UK; University of Insubria, Varese, Italy, and Bocconi University, Milano, Italy; and INCAE Business School, Costa Rica, respectively.

The aim of the study was to test if coffee farms that have in-house socio-environmental certification from a global buyer have better social and environmental actions, compared to non-certified farms. The study consisted of various econometric analyses of surveys of 575 farms located in various regions in Brazil, Colombia, Costa Rica, Guatemala, and Mexico. The econometric analyses used included generalized linear regression, simultaneous equation system, outlier trimming, robust regression, propensity score matching, and quantile regression.

The authors found that farmers with the in-house certification from a global buyer showed better environmental conduct, but no better social conduct than non-certified farmers. Better environmental conduct is stronger if the farmer sells mainly to a cooperative. The authors also found that strong home country institutions, as measured by the quality of civil and public services, implementation of sound policies and regulation, and enforcement of the rule of law, was positively correlated to sustainable social production practices, regardless of farmer certification. These social production practices include working conditions, child labor, and democratic decision-making, among others. Environmental issues concerning the certification include soil conservation, waste management, and pesticide use, among others.

The authors concluded that farmers did not have the incentives to engage in social beneficial conduct, like better working conditions, better wages, or eradicating child labor, since they are costly to implement. Improving environmental conduct, on the other hand, can reduce operational costs to farmers.

Hellin, J., M. Lundy, and M. Meijer. 2009. "Farmer Organization, Collective Action and Market Access in Meso-America." *Food Policy* 34 (1): 16–22. <https://doi.org/10.1016/j.foodpol.2008.10.003>

The authors, by order of authorship, are affiliated with the International Maize and Wheat Improvement Center (CIMMYT), Mexico; the International Center for Tropical Agriculture (CIAT), Cali, Colombia; and the Food and Agriculture Organization of the United Nations (FAO), Rome, Italy, respectively.

The paper analyzed the benefits to smallholder producers of joining an FPO or taking collective action, and what value chain characteristics contribute to those benefits. The authors compared the costs and benefits of establishing FPOs for corn-producing farmers in Mexico, and vegetable-producing farmers in Honduras and El Salvador. The vegetables produced were tomato, bell pepper, potato, broccoli, lettuce, and carrots. Although vegetable production provides a pathway out of poverty, smallholder farmers in the region depend on corn for livelihood security.

The study focused on small producers in farmer organizations in Honduras (2) and El Salvador (1). The FPOs in both countries are suppliers to supermarkets. The study methodology in these countries included workshops, focus groups, and semi-structured interviews with value chain stakeholders to analyze the history of value chains and to develop strategies to improve their operations. One main component of the study was to estimate the distribution of returns along value chain participants. In Mexico, the focus was on analyzing the role of FPOs in providing access to factor and output markets. The method used in Mexico was semi-structured interviews and focus group meeting with key stakeholders of the value chain (seed companies, extension agents, grain buyers).

Some findings of the study in Honduras and El Salvador concluded that the FPOs receive about 3 and 6 percent of the consumer price of vegetables in the value chain in Honduras and El Salvador, respectively, raising questions about the sustainability of the FPOs. In the study in Mexico, the authors found that individual farmers have little incentive to establish an FPO due to low transaction costs. Most of the collective action of smallholder corn farmers are focused on accessing subsidized inputs, but farmers found no benefit in the commercialization of their corn. The benefits to smallholder farmers of joining an FPO is more evident for high-value products with high transaction costs. For producers of undifferentiated products, the benefits of establishing an FPO are low.

Peralta, P. O., A. Bebbington, P. Hollenstein, I. Nussbaum, and E. Ramírez. 2015. "Extraterritorial Investments, Environmental Crisis, and Collective Action in Latin America." *World Development* 73: 32–43. <https://doi.org/10.1016/j.worlddev.2014.08.020>

Peralta and Hollenstein are affiliated with Universidad Andina Simón Bolívar, Ecuador; Bebbington is affiliated with Clark University in Worcester, MA, United States; and Nussbaum and Ramírez are affiliated with RIMISP (Latin American Center for Rural Development), Chile.

The paper covered three different geographical areas with three different products in South America, which share the common feature of being exploited by extraterritorial private sector actors. The major objective of this paper was to explore the conditions under which efforts might be undertaken to address the environmental problems in areas that are dominated by these external actors. These areas include salmon aquaculture in Chiloe (Chile), fruit growing in the O'Higgins area of Chile, and gas production in Tarija, Bolivia.

The paper discussed how the presence of such external actors stimulates economic growth but sometimes at the expense of exerting pressure on the environmental assets in the area. It also tried to explore the various mechanisms by which environmental institutions might emerge to protect the environmental assets and the types of these environmental institutions. One of the ways through which institutions of environmental management might emerge is through collective action, where the external extractive actors are sometimes forced to create new environmental regulatory institutions by local and international NGOs, as was observed with the gas extraction industry in Tarija, Bolivia.

The paper uses a mixed methods approach, and the empirical data for the paper was collected in two phases. The different areas mentioned in the paper have reacted differently to the presence of the external actors. In areas where there were a lot of small and medium-sized providers of goods and services, such as the salmon industry in Chiloe and fruit growers in O'Higgins, the lack of unity among the service providers prevented the formation of powerful local social movements. In contrast, in the case of Tarija in Bolivia, a group of actors were excluded from the gas production activity, coupled with the inherent enclave type nature of gas extraction, which gave rise to the emergence of a local social movement that called for more stringent environmental regulations. Thus, the two ways that environmental protection institutes have emerged have been through ecological crises and the collective action of social movements.

The paper concluded that collective action is generally difficult to achieve and depends to a large extent on the actors, including the state and the locals, and how much they benefit from economic activities of these extra-territorial enterprises. The areas where the local actors are part of or benefit from the activities of the extractive enterprises are more likely to not engage in collective action. In cases where local communities are excluded from the economic growth and their access to the environmental assets are restricted, as in gas exploration in Tarija, Bolivia, they are more likely to mobilize and demand a response.

A photograph of a farmer with blonde hair and a beard, wearing a dark jacket and trousers, standing in a field of large-leafed green vegetables. In the background, there is a long, curved greenhouse covered in plastic, and a line of trees under a blue sky with white clouds. A green rectangular box with the word 'Studies' in white text is overlaid on the right side of the image.

Studies

A farmer inspects a plot of vegetables on a farm in Normandy, France. (Photo by Leitenberger Photography/Shutterstock)

OECD Countries

FRANCE

Agarwal, B., and B. Dorin. 2019. "Group Farming in France: Why Do Some Regions Have More Cooperative Ventures than Others?" *Environment and Planning A: Economy and Space* 51 (3): 781–804. <https://doi.org/10.1177/0308518X18802311>

Agarwal is a researcher at the Global Development Institute at the University of Manchester, United Kingdom, and the Institute of Economic Growth, Delhi, India. Dorin is affiliated with CIRAD (Agricultural Research Centre for International Development), UMR, and CIRED (International Centre for Research on Environment and Development), Montpellier, France, and CSH (Centre de Sciences Humaines), New Delhi, India.

The study explored an underresearched and internationally little recognized model of group farming—the GAEC (Groupement Agricole d'Exploitation en Commun)—based on farmers pooling land, labor, and capital. The authors used data from the French agricultural census and other sources to identify the factors—economic, ecological, social, and demographic, underlying the regionally uneven development of GAECs across France. It was stated that the group farming model has received comparatively little policy or research attention, as it is based on voluntary cooperation, without farmers forfeiting their private property rights, in sharp contrast to the collective farms that were created through forced collectivization under socialist regimes. France is known particularly for having the oldest and numerically, the most important example of voluntarily constituted and legally enabled group farms. Hence, the research question: "Do regions with more group farms have features especially conducive to cooperation, such as the local economy, ecology, demography, culture, or a mix of these and other factors?" The authors utilized an ordinary least squares (OLS) regression model to test for the significance of the identified factors.

Their analysis suggested three major outcomes: (1) having a higher presence of group farms in highly fertile ground, in regions that have less overall economic inequality; (2) the presence of cooperative ventures only in agricultural activities requiring labor inputs daily (for example, in ecological zones that have a high incidence of permanent pastures); and (3) the impact of demographic factors like the incidence of agricultural graduates or of women farm workers in a region, subject to legal conditions where an agriculture degree is required to access subsidies or whether the spouse alone can form an association. Group farming can provide an important third model of farming, beyond family farms and corporate agriculture. However, the authors did mention that extrapolation of their results to developing countries might pose higher difficulty due to lack of laws governing land use and tenancy and the structure of subsidies.

MULTIPLE COUNTRIES IN THE ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD)

Csaki, C., and Z. Lerman, 1994. "Land Reform and Farm Sector Restructuring in the Former Socialist Countries in Europe." *European Review of Agricultural Economics* 21 (3-4): 553-76. <https://doi.org/10.1093/erae/21.3-4.553>

Csaki is affiliated with Budapest University of Economics, Hungary, and The World Bank, Washington, DC, United States; Lerman is affiliated with the Department of Agricultural Economics, The Hebrew University, Rehovot, Israel.

The paper reviewed the land reforms strategies in former European socialist countries and provided evidence toward farmers' preferences of staying together within a collective, instead of moving to a private farm model. The paper built on agriculture being a traditionally predominant sector of the economies in the 1970s and 1980s, when socialist agriculture was relatively labor intensive and contributed up to a 15 percent share in national incomes. The need for reform largely came because of large, inefficient farms that suffered seriously from the lack of individual initiative and the "free rider" attitude. This need was supplemented by macroeconomic distortions that included a chronic budget deficit, inflation, and mounting foreign debt, while the agriculture reforms are driven and motivated largely by political factors. The failure of the socialist agriculture model was further attributed to the ideological goal of controlling all agriculture production, distribution, and consumption.

The authors claimed the process of farm restructuring to be poorly organized; in many instances, the framework approved by the parliament did not match the administrative capability of the country. Hence, an array of agriculture structures to be seen in these countries have ranged from family farms to associations of private producers supported by voluntary cooperatives. Three key findings were presented as necessary for the creation of an efficient farming structure, namely, clear definition of ownership rights, removal of restrictions on land use, and easy transferability of titles or leases to the most efficient producer.

GLOBAL

Hellin, J., and S. Higman. 2008. "Underutilized Plant Products and Market Access: Challenges and Opportunities." In *International Symposium on Underutilized Plants for Food Security, Nutrition, Income and Sustainable Development* 806: 393-406. <https://doi.org/10.17660/ActaHortic.2009.806.49>

The authors are affiliated with the International Maize and Wheat Improvement Center (CIMMYT), Mexico.

The authors identified some challenges and opportunities in marketing underutilized plant products. The main objectives of the study were to find ways to facilitate access to markets for producers of underutilized plant products, and to study the role of the public and private sector in supporting the market access of producers of underutilized plant products through demand expansion, improvement of production and marketing efficiency, and product and production process specification.

The underutilized plant products represent a niche market, similar to high-value agricultural products, like vegetables with high transaction costs. Some differences between underutilized plant products and high-value agricultural products and commodities are weak demand (due to lack of product information in the market), lack of quality standards, thin market dominated by few buyers, lack of quality and harvest consistency because the products are collected wild, and unclear legal framework.

The authors reported findings of various case studies: native potatoes in Peru, capers in Syria, minor millets in India, and quinoa in Bolivia and Peru.

Some findings of these case studies mentioned the importance of collective action among producers of underutilized plant products to reach economies of scale and access financial and business services. However, the authors warned that maintaining an FPO is not simple. Establishing rules, commitments, and monitoring members are challenging. Establishing a value chain for these products also has its challenges. Organizational skills are necessary, and it may be necessary to involve the private or public sector in supporting the creation of FPOs.

The study concluded that demand for underutilized plant products can be stimulated, and value chains can operate efficiently while benefiting producers. The success depends on collective action, creation of standards, and policies that foster commercialization.

Markelova, H., R. Meinzen-Dick, J. Hellin, and S. Dohrn. 2009. "Collective Action for Smallholder Market Access." *Food Policy* 34 (1): 1–7. <https://doi.org/10.1016/j.foodpol.2008.10.001>

Markelova, Meinzen-Dick, and Dohrn are affiliated with the International Food Policy Research Institute (IFPRI), Washington, DC, United States; Hellin is affiliated with the International Maize and Wheat Improvement Center (CIMMYT), Mexico.

The study began with the challenges for the agriculture sector because of changing economics, environment, and sociopolitical conditions. The authors picked up the case of the natural resource management sector, which has already demonstrated the advantages of collective action for technology adoption. Like findings in the resource management literature, there is evidence from agricultural collectivization that suggests marketing groups are an effective tool to build internal cohesion among smallholder farmer groups. The study mentioned characteristics of successful farmer groups and reported a group size of 20–40 members as a successful collective marketing form, while highlighting the advantages of economies of scale with larger groups. The authors suggested simple and understandable rules to increase compliance within organizations and a need for established accountability and enforcement mechanisms. On the marketing front, the study showed that small groups and federated structures with multiple linkages and networks along the commodity value chain to be the most appropriate for collective commercial activities.

The authors provided key recommendations from the study that are applicable across the agriculture collectivization efforts globally. These recommendations include creating and improving incentives for cooperation, facilitation through public or private institutions, removing entry barriers to joining farmer groups through the use of policies addressing business sustainability and equity distribution, and finally, being realistic in the approach as the authors stated that, "collective marketing as an approach to pro-poor development is not a silver bullet" (p. 4).

Gnych, S., S. Lawry, R. McLain, I. Monterroso, and A. Adhikary. 2020. "Is Community Tenure Facilitating Investment in the Commons for Inclusive and Sustainable Development?" *Forest Policy and Economics* 111: 102088. <https://doi.org/10.1016/j.forpol.2019.102088>

The authors Gnych, Lawry, McLain, and Monterroso are affiliated with the Center for International Forestry Research, Indonesia. Adhikary is affiliated with ForestAction, Nepal.

The authors considered evidence and drew on lessons from four countries—Guatemala, Mexico, Nepal, where communities have been granted rights to forests, and Namibia, where communities have significant new rights to wildlife—to better understand the pathways emerging to deliver investment in the commons. They found

that investment in community-owned resources was taking place and described a process of “investment readiness.” During the first stage, rights devolution triggers inward investment, development of community user groups, and sustainable resource management plans subject to government review and approval. In the second stage, social enterprises, commonly referred to as Community Forest Enterprises (CFEs), are spawned or licensed by the community user groups. The authors argued that stronger local social capital and the effective performance of local enterprises attract new forms of private investment in a third phase. Improved community capacity enables diversification and investment into new sectors, linking to value chains that adhere to global market and environmental standards. Progress from one stage to the next is in part conditional on increases in the level of assurance that stakeholders have that the obligations of each party will be met. It was also pointed out that community rights have fostered investment that recognizes the social character of common ownership, to deliver environmental and social returns, as well as profits. The authors also developed a theory of change that linked rights devolution to financial investments and environmental and social outcomes. CFEs help drive social innovation in rural regions by solving social, economic, and resource governance problems that neither the state nor the market has proved capable of addressing. CFE-based solutions remain experimental and fragile, however, and long-term success of community-based forest enterprise depends on states and markets adopting innovations of their own, which are supportive and not corrosive of community-based resource governance and development.

Vaughan, B., and M. Robinson. 2017. “Small-scale Farmers Supplying Produce Commercially: Five Issues and Associated Buyer Questions and Implications for Extension.” *Journal of Extension* 55 (3). <https://archives.joe.org/joe/2017june/iw7.php>

The authors are affiliated with the College of Agriculture, Environment, and Nutrition Sciences at Tuskegee University, Alabama, United States.

The paper drew on the efforts of extension personnel in translating industry standards for supply in selling produce from a small-scale farmer’s cooperative to commercial buyers. The efforts ranged from meetings to conference calls, and correspondence with the commercial buyers, thereby detailing standards, translating them into practices suitable for small-scale farmers, and providing applicable training to members of the cooperative. The paper addressed five issues associated with the supply chain. The issues included the capabilities of small-scale farmers to be able to meet commercial buyers’ demands, to meet quality specifications, to follow food safety standards and good agricultural practices, and to constantly meet quantity needs and timelines and long-term sustainability of the cooperative–commercial buyer relationships. The authors recognized that by identifying pertinent issues of commercial buyers, extension services can provide resources and training to assist small farmers in meeting demands of the commercial buyers. The research was inclined toward balancing the needs of small-scale farmers with those of commercial buyers in building a sustainable supply chain for the commercial buyers, who are solely motivated by market demands and will only procure easily sellable produce.



Vegetables for sale in a French market.
(Photo by Anna Kaminova/Unsplash)

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