



Economic impact of farming cooperatives in East Africa

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5 February 2019

Question

What is the evidence on the economic impact of cooperatives on farmers in East Africa?

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1. Summary

This report identified evidence on the economic impacts of agricultural cooperatives in Ethiopia, Kenya, Rwanda, Tanzania and Uganda. Economic impacts focussed on are yield, productivity and income. Some evidence on social impacts is also included.

Evidence on productivity in Ethiopia was identified. Two reports identified higher use of technology and productive inputs such as fertilisers resulting in higher output levels (Abate et al., 2014; Abebaw & Haile, 2013). Agricultural intensification such as this has been found to improve food security. Research comparing production of milk between cooperative and non-cooperative enterprises in Ethiopia found cooperatives to be more productive, but that quality was lower (Francesconi & Ruben, 2012). Cooperatives may encourage inputs and intensive practices which are not beneficial to production quality.

Evidence on improved incomes was mixed. Two studies in Ethiopia found cooperative farm incomes to be higher compared to non-cooperatives (Getnet & Anullo, 2012; Bernard et al., 2008). However, a study on coffee farms in Ethiopia found overall no significant difference between cooperative members and non-members (Shumeta & D'Haese, 2016). The study found that members of cooperatives who were older, had higher education levels, or larger pieces of land earned more.

Research in Kenya describes an intervention where a banana growing cooperative provided with additional benefits which, along with collective marketing, improved incomes compared to non-cooperative farmers (Fischer, 2012). The benefits for the farmers included access to technological innovation and extension services, which linked to higher value markets.

Analysis of income differences in agricultural cooperatives in Rwanda found significant positive effects for maize cooperatives, but not horticultural cooperatives (Verhofstadt & Maertens, 2014a). Possible explanations are that maize cooperatives have been established longer and receive more government support. There is also a difference in the way cooperatives are managed for the different products, which may lead to different results. Maize producers share land and marketing, but produce individually. Horticulture cooperatives produce collectively, which can have a negative effect on incentives to work.

Studies on welfare and wellbeing in Ethiopia (Ahmed & Mesfin, 2017) and Rwanda (Verhofstadt & Maertens, 2014b) found positive effects for farm cooperatives but again, results were not heterogeneous. Cooperative members in Ethiopia reported higher wellbeing measures if they had higher education levels, more land and fewer children.

An International Labour Organisation (ILO) report notes investigates the effects of cooperatives on women in Kenya, Tanzania and Uganda (Majurin, 2012). In some cases women had less access to cooperatives than men. However, there were benefits for women who were part of cooperatives, such as increased support from the community and greater participation in decision making. Some results show that improvement in wages was greater for female members compared to male members, as they were in higher paid clerical work rather than manual work.

One report on coffee cooperatives in Ethiopia looks at the social and environmental impacts (Mojo et al., 2015). Members reported greater levels of trust, commitment and satisfaction. However, the impacts on the environment were seen to be negative.

Evidence for the economic benefits of cooperatives were found. However, positive results were not found for all involved and heterogeneity was often found within results. Benefits when identified were often skewed towards those with more land and higher education levels rather than the poorest. Islam et al.'s (2015) review of developing countries suggests that poorer farmers are often excluded from cooperative membership altogether. It would seem that the way a cooperative is run and the length of time a cooperative has been running also effects results. There are many different factors that affect productivity that need to be considered. Another point to note is that increased productivity may be detrimental to product quality and to the environment.

The majority of the research identified for this report was from Ethiopia. Some research was identified on Kenya and Rwanda, and very little on Tanzania and Uganda.

2. Background

Cooperatives form to reduce costs for farmers by pooling resources, supporting each other with various challenges, increasing visibility, and strengthening capacity to negotiate prices and markets.

Agriculture is predominant in Ethiopia, accounting for 40.2% of GDP, 80% of employment, and 70% of export earnings.¹ Ethiopia, particularly, has seen a growth in the cooperative movement particularly due to increased government support (Islam et al., 2015). The government of Ethiopia laid out a strategic plan in 2002 to have 70% of the rural population in agricultural cooperatives. Although this has not been achieved, much progress has been made. The legal framework in Ethiopia is thought to have been fundamental to the success of the cooperative movement compared to other countries. More research has been identified on Ethiopia than the other countries of interest.

Cooperatives are widespread in Kenya. According to International Labour Organisation (ILO) figures² 63% of Kenyans earn their living from cooperatives, with agriculture being the dominant sector (75% of the labour force). Cooperative incomes across sectors account for 45% of Gross Domestic Product (GDP).

In 2008, Rwanda had approximately 1,500 registered cooperatives,³ of which 43% were active in agriculture; and 186,000 cooperative members, of which 54% in an agricultural cooperative. The fourth Rwandan population and housing census in 2012 registered 297, 996³ farmers operating in cooperatives. Agricultural cooperatives are most prevalent in the horticulture, coffee, and maize subsectors (Verhorstadt & Maertens, 2014).

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http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/2015/CN_data/CN_Long_EN/Ethiopia_GB_2015.pdf

² <https://www.ilo.org/public/english/employment/ent/coop/africa/countries/eastafrica/kenya.htm>

³ http://www.rca.gov.rw/uploads/media/Statistics_on_cooperatives-March_2018.pdf

Little research was identified on Tanzania and background information was not readily available. Recent background on cooperatives in Uganda was also not identified within the scope of this report.

Researchers suggest there has been limited empirical studies evaluating the impact of cooperatives (Kwapong & Korugyendo, 2010; Abebaw & Haile, 2013; Abate et al., 2014). The literature has been building since then. This report focuses on journal published research since 2010. An amount of grey literature was identified which was not focussed on but is listed in Section 9 for further reading.

3. Impact on productivity

Household survey data was analysed in Ethiopia to evaluate the impact of cooperatives on technical efficiency among smallholders (Abate et al., 2014). Comparison between cooperative member farmers and similar member farmers found cooperatives to be more technically efficient, due to support received. Technical efficiency in this study measured members' ability to access productive inputs and services, including training that enhances productive efficiency. Cooperative farmers were found to use more productive inputs as they had better access to fertilisers and seeds. Technical efficiency difference was estimated at around 5%. Details of the impact of technical efficiency on yield or income was not described. The size of the sample was 1638 farm households.

Another empirical study looked at the impact of agricultural cooperatives on adoption of technology in Ethiopia (Abebaw & Haile, 2013). Cooperative members were found to have better access to extension services and greater fertiliser adoption than non-members. Background research for this study found evidence that agricultural intensification through greater adoption of technologies can improve food security in Sub-Saharan Africa. Within the results it was found that fertiliser adoption was greater for illiterate cooperative farmers. The authors acknowledge that their sample may not be representative of the rest of the country, but does contribute to the limited body of evidence in this area. The sample size was 965 households.

Francesconi and Ruben (2012) investigated the effects of being in a cooperative on milk production in Ethiopia. Both instrumental variable regression and propensity score matching cooperative members produced higher volumes per input compared to farmers who were not cooperative members. Cooperative farmers produced on average 17 litres of milk per day (8 litres per cow) compared to individual farmers who produced 3.5 litres per day (2.5 per cow). However, there was a negative effect on milk quality (measured as the percentage of fat and protein in the milk). Indigenous cows used more by non-cooperative farmers produced smaller amounts of milk, but of a higher quality. State subsidies available to cooperative farmers encouraged the use of artificial insemination services and live exotic⁴ cows. The authors note that this would not explain all the difference in quality, and that there are likely to be other factors. These include what is being used for feed and that cross-bred cows are kept inside a barn rather than grazing outside. The sample size was 100 farmers.

⁴ Breeds from other countries

Studies focussing on cooperatives and productivity in Kenya, Rwanda, Uganda, and Tanzania were not identified within the scope of this report.

4. Impact on income

Research on cooperatives in an area of southern Ethiopia found rural household income of cooperative farmers to be higher than within households which are not part of a cooperative (Getnet & Anullo, 2012). Incomes were generated from annual and perennial crops sold to the cooperatives. The study also found a positive effect on savings, and found cooperatives were able to reduce input costs for farmers. A study on smallholder commercial cereal farms in Ethiopia from 2008 (Bernard et al., 2008) found that cooperative members gained a significantly higher price for their outputs compared to similar famers who were not members. Nevertheless, the authors cautioned that the overall result hides considerable heterogeneity. The sample size was 7186 households.

Another study on the impact of cooperative membership on coffee farmers in southwest Ethiopia did not find a significant difference in the incomes, compared to those who were not cooperative members (Shumeta & D'Haese, 2016). The sample size was 256 households. This result was not heterogeneous, identifying that cooperative members who were older, had higher education levels and with larger plantations benefited more from membership. A more recent investigation using the same data set (Shumeta & D'Haese, 2018) found that membership had a positive effect on production of maize and teff grain, and increased the use of fertiliser and improved seeds. However, the effect on food expenditure and income could not be confirmed.

Fischer (2012) investigated banana growing cooperatives in Kenya. Cooperatives were part of an intervention which provided members with access to technological innovation and extension services as well as linking farmers to higher value markets. Members received higher incomes from collective marketing than non-cooperative members. Benefits were thought to come from better product information and planting material. It was the provisions of the intervention that were made available to the cooperative which resulted in improved incomes. The sample size was 444 households.

A study of maize and horticultural cooperatives in Rwanda found significant differences in income levels between members and non-members (Verhofstadt & Maertens, 2014a). Increases were identified in gross farm revenue, net farm income, and farm income per worker. When looking at maize and horticultural cooperatives separately, the positive findings were only identified in maize cooperatives. Findings were not significant for horticultural cooperatives. Modest estimates show maize cooperative incomes increase by around 30% per farm compared to non-cooperatives. Maize cooperatives are larger so can achieve greater economies of scale. They have also been established longer. Maize cooperatives also receive more government support. Another difference is that maize cooperatives share land and marketing, but produce individually; horticulture cooperatives share land and production, and cultivation is communal so may provide less incentive. The sample size was 389 households.

5. Impact on welfare

A study in the eastern part of Ethiopia assessed the impact of cooperatives on member's wellbeing as measured by consumption per adult (Ahmed & Mesfin, 2017). Two estimation methods (propensity score matching and endogenous switching regression estimation) both indicated higher wellbeing measures for members of farm cooperatives compared to non-members. Wellbeing was measured in consumption expenditure per adult equivalent. Cooperative membership was found to be more beneficial for household heads with higher education, more land and fewer children. It is therefore not necessarily targeting the poorest. The sample size was 250 households.

Verhofstadt & Maertens (2014b) investigate the relationship between poverty and cooperative membership in Rwanda. They found statistically significant result that cooperative membership reduces the likelihood of being poor by 10 to 14 percentage points. The effects are more pronounced for larger farms and those in more remote areas. The sample size was 389 households.

6. Agricultural markets

A systematic review looked at the effects of farmer cooperatives in expanding agricultural markets (Islam et al., 2015). Within the countries of interest for this report two studies were found on Kenya, two on Rwanda and eight on Ethiopia. They found the body of literature did not show a notable impact on market access.

Bernard et al. (2008) assessment of cooperatives in rural Ethiopia found cooperatives improved marketing with farmers having better bargaining power and lower transaction costs.

7. Women and youth

Research from an ILO cooperative programme and local organisations in Kenya, Tanzania and Uganda gathered primary data and reviewed secondary data to investigate women's participation in cooperatives (Majurin, 2012). Women made up around 27% of the membership of the sample of agricultural cooperatives from a sample size of 175 cooperatives. Women were found to be marginally represented in traditional cash crop cooperatives. However, men were less represented in smaller agri-businesses involving fruit, spices, cereals and dairy. Women's representation on cooperative boards was low, an average of 17%. In Kenya, a greater proportion of men were found to have employment contracts and be permanently employed. Women employees were found to earn more than men. This is thought to be due to the larger proportion of men being manual labourers and a larger proportion of women in higher paid clerical work. Access to, and control over, land hinders women from joining cooperatives. Women were surveyed on economic benefits since joining an agricultural cooperative: 59% had started new productive activities, 82% had been able to make new investments, 84% experienced positive change in volume of production (non-commercial), and 96% experienced greater commercial production and profit. Income increased for women, on average, by 186%. On social benefits since joining a cooperative: 64% of members felt an increase in support from

the community, and 62% felt an increase in respect; equal participation between married couples in cooperative meetings increased from 30 to 67%. There was also an increase in equality of decision making in a couples' economic activities and children's education. Cooperative membership was found to help build women's confidence.

A scoping study, led by the Royal Tropical Institute (KIT), explored the potentials for youth (age 15-24) in joining agricultural cooperatives after finding knowledge gaps in this area (Flink et al., 2018). Focus group discussions and interviews in Kenya, Uganda and Rwanda identified access to knowledge and training as a key motivator for youth to join a cooperative. Youth were also interested in joining an agricultural cooperative to gain access to land and financial services. Women found it harder to join a cooperative because of heavier burden of household duties than men. Lack of faith in the system of cooperatives was also found. Young men in Uganda believed those put in decision-making roles were chosen through favouritism. The study proposes that cooperatives themselves would benefit from involving young people who would bring new ideas and technologies.

8. Social and environmental impacts

Data on coffee farmers in Ethiopia was investigated to analyse social capital of cooperative members (Mojo et al., 2015). Compared to non-members, researchers found greater trust, commitment and satisfaction levels. Trust measures referred to trust in the community, trust in information received through the cooperative and information received by their customers. Farmers rated various statements on commitment and satisfaction.

Farmers assessed their agreement or disagreement to statements related to these areas for assessment. Analysis on environmental performance was not positive. Farmers were asked to rate changes to soil fertility, soil erosion, fertiliser consumption, herbicide use, crop diversity and canopy cover. Cooperative farming is more intensified so was found to negatively affect these factors.

9. Further resources, grey literature

The scope of this report focused on journal-based literature. However, a number of unpublished resources were identified and may be useful for further research.

Anania, P. & Rwekaza, G.C. (2018). **The Benefits And Challenges Of Agricultural Marketing Co-operatives In Moshi District, Tanzania.**

https://www.researchgate.net/publication/322664987_THE_BENEFITS_AND_CHALLENGES_OF_AGRICULTURAL_MARKETING_CO-OPERATIVES_IN_MOSHI_DISTRICT_TANZANIA

Anania, P. (2016). **The Contribution of Agricultural Marketing Co-operatives in Service Provision to Members in Tanzania: A Case of Moshi District.**

https://www.researchgate.net/publication/324759398_The_Contribution_of_Agricultural_Marketing_Co-operatives_in_Service_Provision_to_Members_in_Tanzania_A_Case_of_Moshi_District

Mahando, D & Ganja, S. (2013). **The Dilemma of Members of Farmers' Cooperatives after Liberalisation of Domestic Coffee Marketing: The Case of Moshi and Rombo Districts, Tanzania.**

<http://jehs.duce.ac.tz/index.php/jehs/article/view/68/>

Manzano Lepe, B. (2015/16). **The Role Of Agriculture Cooperatives And Farmer Organizations On The Sustainable Agricultural Practices Adoption In Uganda.**

https://lib.ugent.be/fulltxt/RUG01/002/305/220/RUG01-002305220_2016_0001_AC.pdf

Pesha, J.C., Liu, Y., Ehsan, E., Addo, A.M. & Ingabire M.C. (2017). **The Role of Financial Cooperatives in Promoting Rice Production in Tanzania: A Case of Mvomero SACCO**

<https://iiste.org/Journals/index.php/JEDS/article/download/40374/41521>

Lutwama, J. (2015) **Smallholder Farmer Organizational Models in Uganda and Kenya Successful Models, Best Practices and Lessons Learned**

https://d2vmpwbfz8sj1e.cloudfront.net/sites/default/files/paragraph/attachments/agric_report_revised_internet_2.pdf

Kwapong, N. A. & Lubega, P. (2010). **Revival of Agricultural Cooperatives in Uganda**

https://www.researchgate.net/publication/325896285_Revival_of_Agricultural_Cooperatives_in_Uganda

Jordan, T. (2016) **Agricultural cooperatives and the social economy in Kenya's changing governance landscape**

<http://edepot.wur.nl/408768>

UN Women. (2018). **Empowering women farmers in Rwanda to grow better crops, better food and incomes.**

<https://reliefweb.int/report/rwanda/empowering-women-farmers-rwanda-grow-better-crops-better-food-and-incomes>

Nsingize, G. (2013). **The contribution of agricultural cooperatives to small holder farmers' household income A Case of COAMV Cooperative, Burera District, Rwanda.**

<http://edepot.wur.nl/279035>

Tefera, D.A., Bijman, J. & Slingerland, M. (2016). **Agricultural Co-Operatives in Ethiopia: Evolution, Functions and Impact: Agricultural Co-operatives in Ethiopia**

https://www.researchgate.net/publication/305826248_Agricultural_Co-Operatives_in_Ethiopia_Evolution_Functions_and_Impact_Agricultural_Co-operatives_in_Ethiopia

Rodrigo, M. (2012). **Do cooperatives benefit the poor? Evidence from Ethiopia**

<https://pdfs.semanticscholar.org/b7b7/759b8b30182e2debc245fd50eed5b03a33a3.pdf>

Feyisa, A.D. (2016). **The Role of Agricultural Cooperatives in Risk Management and Impact on Farm Income: Evidence from Southern Ethiopia**

<http://article.sciencepublishinggroup.com/html/10.11648.j.ijebo.20160404.11.html>

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Suggested citation

Bolton, L. (2019). *Economic impact of farming cooperatives in East Africa*. K4D Helpdesk Report 535. Brighton, UK: Institute of Development Studies.

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