



Tropentag 2021, hybrid conference

September 15-17, 2021

Conference on International Research on Food Security, Natural Resource  
Management and Rural Development  
organised by the University of Hohenheim, Germany

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## A Gendered Analysis of Small-Scale Cocoa Production in Uganda

Kuhn<sup>a,\*</sup>, Michaela and Lina Tennhardt<sup>b</sup>

<sup>a</sup>University of Göttingen, Dept. of Agricultural Economics and Rural Development, Germany.

<sup>b</sup>Research Institute of Organic Agriculture (FiBL), Dept. of Socioeconomics, Switzerland.

### Abstract

Agriculture is an important accelerator for economic growth, food security, and poverty alleviation in many developing countries. In the specific case of the cocoa sector, which underwent a rapid transformation in recent years due to the steadily increasing demand for cocoa beans, the majority of smallholder cocoa farmers live below the international poverty line. The sector does not exploit its full potential because, amongst others, female farmers, who make up a large proportion of farm managers, provide a notable amount of agricultural labour and contribute to the rural economy, face multifaceted constraints that reduce their productivity. Therefore, female farmers can be identified as the group that is largely missing out on the positive development and empowerment due to cultural, social and, institutional gender-based disparities. We use primary cross-sectional survey data of smallholder cocoa farmers in Uganda to investigate a potential gender gap based on a holistic statistical approach. We first draw on empirical evidence to what degree women participate in agriculture. Subsequently, the data analysis reveals that the sample's female farmers are disadvantaged in various key aspects of farming, such as access to land, credit, training, and other productive resources. In addition, there are differences in the role distribution and decision-making between male and female managed farms, where women are generally excluded from input decisions and female farm managers are dependent on a female workforce. Furthermore, regression models confirm a gender gap in cocoa revenue generation for the sample group. A formal bank account, a greater workforce and a larger cocoa area can be identified as the key determinants that significantly influence revenue. These properties represent areas where the female farmers of the sample are at a comparative detriment to their male counterparts.

**Keywords:** Cocoa, Female Empowerment, Gender, Smallholder, Uganda

\*Corresponding author Email: [info@michaela-kuhn.com](mailto:info@michaela-kuhn.com)

## Introduction

Cocoa (*Theobroma cacao*) is a perennial tree native to the tropical and humid forests of the Amazon and Central America. Once domesticated by the Maya and Aztecs as the 'Food of the Gods', its cultivation has spread to other regions of the world (Nair, 2010). To meet this demand, global production, which is primarily carried out in developing countries, has gradually increased over the past few decades and is mainly conducted by over five million smallholder farmers. There, the cash crop cocoa serves as the main source of livelihood, generating revenue for 40 to 50 million people (Voora et al., 2019). However, one group can be identified that largely missed out on this positive market development: Female farmers. Although differences between men's and women's roles in cocoa production can be found, women make up a large portion of cocoa labour and are involved in most of the processing steps, from preparing seedlings to selling dried beans. A substantial part of farm managers in the cocoa sector are female, yet they are not remunerated accordingly and experience discrimination in various key agricultural areas, such as access to inputs, training and official land titles (Fountain & Hütz- Adams, 2020; Ohara & Begianpuye, 2019). Thus, gender-based disparities are a bottleneck that prevent women from thriving in the cocoa sector (Bamwesigye et al., 2020; Osorio et al., 2019). In this research, we investigate a potential gender gap for a sample group of 205 cocoa farmers in Mukono district, Uganda.

## Methodology

The empirical evidence is based on a primary data set that contains cross-sectional data from the Mukono district in Uganda. In total, 205 eligible cocoa farmers participated in a semi-structured interview. These farmers represent a random sample from the future supplier base of a national export company. First, descriptive statistics and independent samples t-tests were used to compare various variables between male and female farmers. Furthermore, to account for differences on the farm level, the responsibilities, affiliations and roles in cocoa cultivation and related activities were examined for the surveyed cocoa farmers. In addition, ordinary least squares regression models were developed to estimate whether female farmers have lower cocoa revenues than male farmers, with and without controlling for other sociodemographic, farm and contextual characteristics, such as farm size, education, and access to financial services based on Equation (1):

$$(1) \quad Y_i = \alpha + \beta \cdot F_i + \gamma \cdot X_i + \varepsilon_i$$

Where  $Y_i$  is the dependent variable and stands for the total annual revenue of cocoa production at the individual farm level.  $F_i$  is a dummy that takes the value 1 if the farm was female managed and 0 if it was male managed.  $X_i$  is a vector of various agronomic and sociodemographic control variables.  $i$  refers to the  $i^{\text{th}}$  individual farm and  $\varepsilon_i$  is a random error term.

We used the model as follows. First, a simple regression that solely included  $F_i$  as the explanatory variable was employed. Here, we expected  $\beta$  to be negative, based on the assumption that a female farmer is disadvantaged in cocoa revenue generation. Additional variables that represent mechanisms of gender discrimination were gradually added to the regression, where we expected that  $\beta$  is becoming smaller in absolute terms, thus, less negative. Therefore,  $\beta$  was particularly interesting in the present study context, as we expected that once the variables control for some of the mechanisms and factors, gender differences disappear. More precisely, the so-called 'female effect' should be more visible if these variables were not considered.

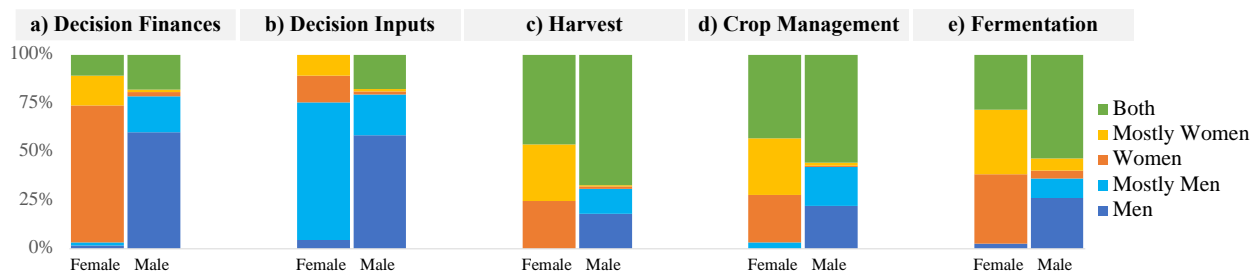
## Results

### *Individual Characteristics by Gender*

In total, 31% of the respondents in the questionnaire were female. Seven variables showed significant differences between male and female farmers in the data set. The female farmers of the sample received significantly fewer school years than male farmers (5.66 years and 8.13 years), had smaller farms (average of 4.70 hectares and 8.45 hectares), cultivated smaller cocoa plots (average of 0.41 hectares and 0.73 hectares), carried out weed management less frequently (3.57 times per year and 4.57 times per year), received fewer training days per year (1.52 days and 3.27 days), owned less formal savings account with a bank (6% and 26%), but owned significantly more informal accounts than men (65% and 37%).

### *Gender Roles and Decision-Making*

The analysis of roles and decisions at the farm level showed that women are involved in all processing steps and most farming decisions. However, several gender-based differences were found in the sample group (Table 1). Decisions regarding inputs were male-dominated and fell under the responsibility of men on male as well as female managed farms. The female managed farms in the sample were characterized by a prominent female workforce, while male managed farms included women more often in decisions and activities of the farm.



**Table 1:** Gender Roles and Decision-Making on Male and Female Managed Farms

### *Cocoa Revenue Generation*

A female farmer was negatively associated with cocoa revenue generation, resulting in a disadvantage of approximately -570 USD relative to a male farmer. By adding the explanatory variables that controlled for several mechanisms of female discrimination, the effect gradually became less visible in absolute magnitude, accounting for -212 USD when all predictors were included. We could identify a formal savings account, a greater workforce, and a larger cocoa area as the key determinants that significantly influenced the revenue from cocoa.

## Discussion and Conclusions

The data revealed a considerable gender gap for the sample caused by several interrelated systemic inequalities that hinder women from participating in the cocoa sector and that aggravate their ability to manage a successful agricultural business. The female managed farms are disadvantaged in critical attributes of cocoa farming and the results of the analysis confirmed that a ‘female effect’ is existent in the sample group. To strengthen a woman's role in cocoa, several substantial disparities for female cocoa farmers need to be addressed, such as the access to official land titles and formal savings accounts, productive resources, and the requirement for more education and training opportunities. As challenges such as undernourishment and rural poverty prevail, the transformation towards a gender-sensitive cocoa sector offers an opportunity to combat these through removing the existing bottlenecks for female farmers. This, in turn, would allow them to lead their agricultural businesses with success, which would contribute to overall food security and Uganda's economic development. The research results are therefore of central importance for organizations and private companies active in the cocoa sector in order to strengthen the role of

female cocoa farmers and to contribute to strategies that eliminate the systemic gender gap. This guides effective interventions, which can expand the evidence base on what is successful in reaching, benefiting, and empowering female cocoa farmers and women in agriculture in general.

### Recommendations

Based on the study results, various recommendations can be made for local exporters and private companies that have the potential to strengthen the role of female cocoa farmers and reduce the gender gap in the cocoa sector. A selection is listed below.

- **Cocoa Value Chain:** All companies and organizations in the cocoa value chain need a clear strategy to promote gender equality, both within their organizations and along their supply chains.
- **Recognition of Women in Cocoa:** Women involved in cocoa production should be recognized as producers regardless of their land ownership status.
- **Reduce Constraints in Access to Land, Credit, Productive Resources, Market Information and Technology:** The differential needs of female cocoa farmers need guidance and support. Better access to the key aspects of farming is vital for the empowerment of female farmers.
- **Training for Women in Cocoa:** The training should be open to everyone involved in cocoa production. Group meetings should be held at the community level to ensure that women are reached and can participate, although being time-constrained. Female trainers are needed to encourage women to become specialists in cocoa growing.

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