IFPRI REACHING WOMEN FARMERS WITH CSA

POLICY NOTE 7

# Women's empowerment, poverty, and crop productivity: Evidence from Uganda

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## ABSTRACT

Evidence suggests that women's limited access to resources, agency, and associated achievements affect agricultural productivity in much of Africa and Asia. These relationships are further mediated by poverty, which affects the livelihood strategies that are available to, and pursued by, rural women and men. This policy note provides insights on how the relationship between women's empowerment and crop productivity differs for households at different levels of poverty. The findings suggest that better-off households with more-empowered women achieve higher agricultural productivity, while the opposite holds for income-poor households with more-empowered women. Thus, to be successful, resilience strategies need to not only be gender-sensitive but also consider additional time and other constraints of income-poor women farmers.

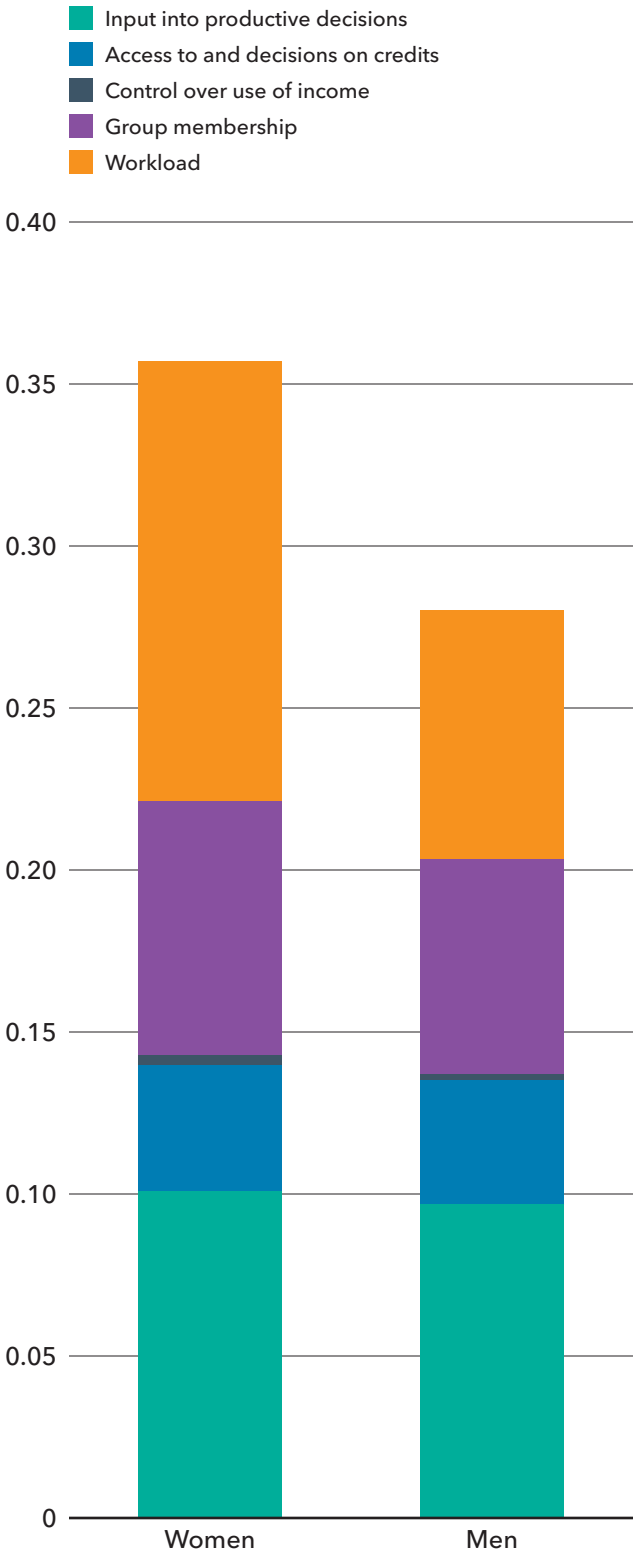
## INTRODUCTION

A growing body of literature shows a positive relationship between women's empowerment and crop productivity. The main reasons more-empowered women are thought to achieve higher productivity are improved access to assets and credit, reduced time burdens, and stronger decision-making and bargaining power. More-empowered women, for example, might be more likely to gain control over fertilizer and other inputs needed for agricultural production. Similarly, group membership, another aspect of women's empowerment, has been found to improve access to information and access to credit. Some evidence also exists of a positive relationship between income and women's empowerment. Finally, reduced time poverty can allow women to dedicate more time to remunerative activities. The literature also suggests that reducing women's time poverty can have a positive impact on their own health and that of their children. However, few empowerment–productivity analyses have taken the role of poverty into account.

## DATA AND METHODS

Our analysis uses mixed methods, including household data collected in 2020 in Uganda's central region and data collected through focus group discussions (FDGs). We study the relationship between women's empowerment and household crop productivity, using a Cobb-Douglas production function. Productivity was measured using the total yield value per hectare of household-operated plots at market prices. Households were grouped according to their poverty level, which was calculated based on total household income and household size. The Ugandan poverty line of US$ 1/capita/day was used to determine the household poverty cut-off. Women's empowerment was measured using the Abbreviated Women's Empowerment in Agriculture Index (A-WEAI). Empowerment scores were calculated by summing across the six binary indicators that comprise A-WEAI. To supplement the quantitative data, 14 sex-disaggregated FGDs were conducted in November and

**FIGURE 1 Contribution of each A-WEAI indicator to disempowerment**




**Source:** IFPRI Uganda CSA baseline survey.

**Note:** No respondents were inadequate in the ownership of assets indicator, hence there is no contribution to disempowerment.

December 2021 to investigate gender differences in agricultural productivity of smallholder farmers.

# RESULTS

Decomposition of the A-WEAI results (Figure 1) shows that compared to men, women's high workloads contribute most to their disempowerment, followed by a lack of group membership.

In addition to achieving different levels of productivity, men and women in poor and nonpoor households differ in the quantity of time they devote to different activities, and in the level of inputs they use. Both male and female members of nonpoor households spent more time on nonagricultural work and less on agricultural activities, compared to members of poor households (Table 1). In addition, women in poor households spent significantly more time on childcare than women in nonpoor households. This suggests a link between income and time poverty. Moreover, women in poor households spent, on average, 3.3 more hours on nonagricultural activities and 9.8 more hours on childcare than their male counterparts.

Differences in input use between poor and nonpoor households are also significant. Nonpoor households spent 4.5 times as much on hired labor and 3 times as much on agricultural chemicals. Hired labor might well reduce women's time spent on drudgery-prone agricultural activities such as planting and harvesting. In addition, application of pesticides results in less time spent weeding, a task typically done by women.

The econometric results show a significant positive relationship between women's empowerment scores and crop yields for nonpoor households (Table 2). For poor households, women's empowerment scores are negatively linked to crop yield values. The yield gap between poor and nopoor households thus widens as women's empowerment increases. The results imply that a certain level of resources (that is, lack of poverty) is required for women's empowerment to lead to productivity gains. In households above this threshold, greater control and access to these resources allows women to contribute in ways that increase crop production. For households below this threshold, however, this is not possible. In these households, women may choose to not engage in agriculture, focusing instead

**TABLE 1 Average time spent per day on agricultural and nonagricultural work by gender and poverty level**

| Time spent on… | Wealth status | Time (min) | | N | Standard deviation |
|---|---|---|---|---|---|
| **Nonagricultural work (men)** | Nonpoor | 206 | *** | 102 | 269 |
| | Poor | 114 | | 618 | 194 |
| **Nonagricultural work (women)** | Nonpoor | 361 | ** | 105 | 224 |
| | Poor | 309 | | 618 | 163 |
| **Agricultural work (men)** | Nonpoor | 329 | ** | 102 | 218 |
| | Poor | 366 | | 618 | 202 |
| **Agricultural work (women)** | Nonpoor | 242 | ** | 105 | 205 |
| | Poor | 276 | | 618 | 263 |
| **Childcare (men)** | Nonpoor | 199 | | 102 | 362 |
| | Poor | 215 | | 618 | 375 |
| **Childcare (women)** | Nonpoor | 689 | ** | 105 | 542 |
| | Poor | 808 | | 618 | 529 |

**Source:** IFPRI Uganda CSA baseline survey.

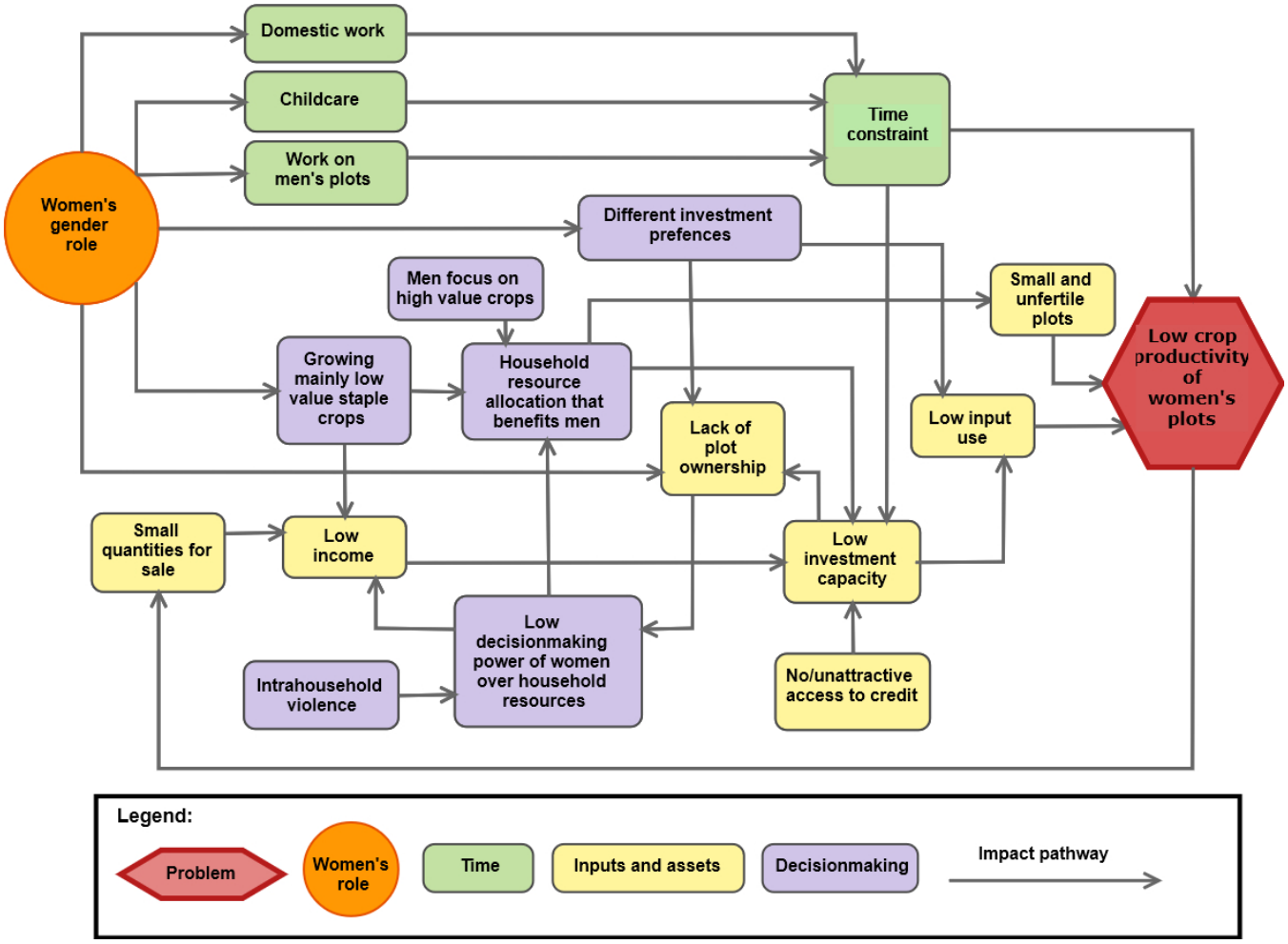
**Note:** Differences between poor and nonpoor are statistically significant at *** p<0.01, ** p<0.05, * p<0.1. Agricultural work includes staple crop, horticultural, and high-value crop farming and livestock raising and keeping. Nonagricultural work includes work as an employee, own business work, fishpond culture, weaving/sewing, and commuting to work.

**TABLE 2 Econometric results of relationship between women's empowerment score and agricultural productivity**

| Variables | Ln (plot yield value in kg/ hectare) | Robust standard errors |
|---|---|---|
| **Plot size (ha)#** | 0.132** | (0.0552) |
| **Male field days on plot (days)#** | 0.157* | (0.0838) |
| **Female field days on plot (days)#** | -0.0916 | (0.0827) |
| **Cost of hired labor on plot (in UGX)#** | 0.0346*** | (0.0109) |
| **Cost of agrichemicals (in UGX)#** | 0.0243** | (0.0107) |
| **Water shortage on plot (1=yes)** | -0.666*** | (0.131) |
| **Total land cultivated (ha)#** | 0.150* | (0.0789) |
| **Household size (no. of people)#** | 0.446*** | (0.165) |
| **Extension visit last year (1=yes)** | 0.0190 | (0.161) |
| **Women's empowerment score#** | 0.849* | (0.461) |
| **Poor (1=yes)** | -1.068*** | (0.299) |
| **Poor* women's empowerment score#** | -1.091** | (0.524) |
| **Constant** | 11.81*** | (0.447) |
| **Observations** | 736 | |
| **R-squared** | 0.277 | |

**Source:** Calculated from IFPRI Uganda CSA baseline survey. # Measured using natural log (Ln) transformation. Note: 'Poor' indicates the average change in the dependent variable when comparing individuals who are classified as poor (poor = 1) to those who are not (poor = 0); *** p<0.01, ** p<0.05, * p<0.1

**FIGURE 2 Flowchart of factors contributing to low crop productivity on women's plots**




**Source:** Authors based on focus group discussions.

on nonagricultural work or unpaid activities. This may ultimately lead to a decrease in crop productivity. Although no positive relationship can be identified between women's empowerment and crop productivity for poor households, empowered women in poor households may experience less time poverty.

In addition to quantitative data, the results of the FGDs (Figure 2) provide insights into the underlying intrahousehold factors that influence women's contributions to crop productivity. They also provide valuable information on challenges that need to be addressed to allow women to fully benefit from their contributions to agricultural production. The main challenges identified during the FGDs include women's lack of time and low disposable income, assets, and inputs. In addition, women are often assigned smaller and less fertile plots and focus on producing food for the table, while men, who most often allocate plots in the family, farm plots where cash crops are grown. In some households, women may have a say in agricultural decisions, but others experience intrahousehold violence and some lose control of the crops they have grown.

Women are also expected to work on men's plots, particularly for planting and weeding, limiting the time they can spend on their own plots or on other income-generating activities. The lack of decision-making power over income, and insufficient own income reduces their investment in the plots they manage. In addition, their willingness and time capacity to invest is further limited by the time consumed by activities such as childcare, domestic work, and work on men's plots.

# CONCLUDING COMMENTS

Our results suggest that poverty levels mediate the pathways from women's empowerment to household crop productivity. Women's increased agency alone, if not linked to assets and other resources that allow them to engage productively, does not necessarily increase crop productivity. Moreover, even if income, inputs, and assets are available and women can make decisions about them, their large time burden might prevent them from engaging more in agriculture. While interventions to improve women's empowerment may not directly result in a measurable reduction in income poverty or an increase in crop productivity, improved agency can help reduce time poverty or allow women to engage in other income-generating activities.

Better-off households that purchase more inputs show a positive relationship between women's empowerment and crop productivity, as women in these households benefit from a lower time burden, probably through hired labor and increased input use. Therefore, to improve agricultural productivity, especially in periods of crisis, policies that aim at empowering women should go hand-in-hand with measures that improve access to inputs and increase household income.

Reducing time poverty, a key domain of women's agency, can have multiple positive impacts for women and their families, including improved health, human capital formation, and economic opportunities. Governments could unlock this potential by providing collective childcare opportunities or machinery services to reduce the time spent on planting and harvesting crops, among other local solutions.

## FURTHER READING

Welk, L., C. Bosch, E. Bryan, E. Kato, G. Seymour and R. Birner. 2022. "How Do Quantitative Gender Indicators Compare to Qualitative Findings in the Analysis of Gender Differences in Agricultural Productivity? Evidence from Uganda." IFPRI Discussion Paper 2140. IFPRI, Washington, DC. https://doi.org/10.2499/p15738coll2.136407

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