

Women's Work on African Farms

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Overview

Common wisdom: *Women provide the bulk of labor input in African agriculture, with their share regularly quoted at 60 to 80 percent.*

Findings:

- *Careful analysis of representative, individual labor input data from Ethiopia, Malawi, Niger, Nigeria, Tanzania, and Uganda puts the average female share of labor in crop production across these countries at 40 percent.*
- *The share varies across countries, from 24 percent in Niger to 56 percent in Uganda, but remains consistently well below what the common wisdom suggests.*
- *There are no systematic differences across crops and activities, but female labor shares tend to be higher in households where women own a larger share of the land and when they are better educated.*
- *Accounting for the gender and knowledge profile of the survey respondents does not overturn this lower-than-expected female labor share in Africa's crop production.*
- *Underlying processes associated with female work include demographic, cultural, and economic factors, but these relationships vary by country, and there are no systematic differences in female labor participation across staple and cash crops or across agricultural tasks.*

Policy messages: *First, the findings question prevailing assertions that increasing female agricultural productivity could yield substantial gains in aggregate crop output. As a result, the findings do not support the universally disproportionate focus on female farmers to boost crop production. However, investment in female labor productivity in agriculture can still be a high-return activity for reaching other objectives, such as female empowerment or improved nutritional outcomes of children. Establishing these relationships would require further research. Second, the findings underscore the importance of nationally representative household surveys to inform policy making, not least to get the stylized facts right. The World Bank Living Standards Measurement Study–Integrated Surveys on Agriculture initiative provides a great step in this direction. Yet, for such*

initiatives to become more widely adopted, the political economy of data production and usage will need to be better understood.

The Issue: Who Does the Farming?

Do Women Perform the Bulk of the Work in African Agriculture?

Women are commonly considered to perform the bulk of work in African agriculture. Combined with evidence of significant gender gaps in agricultural productivity, this belief has motivated increased attention to raising agricultural productivity among African women. Doing so is seen not only as important for empowering Africa's women and improving the development outcomes of the next generation, but also as an important vehicle to increase Africa's food supply, a key objective on the agenda of African and international policy makers.

Yet, the premise—that women perform the bulk of the work in African agriculture—is untenable. On the one hand, there is the widely shared notion that women in Sub-Saharan Africa (SSA) are responsible for the bulk of the agricultural labor supplied. The following quotations are illustrative:

- “Women produce 60 to 80 percent of the food in developing countries and 50 percent of the world's food supply” (Momsen 1991).
- “In SSA, agriculture accounts for approximately 21 percent of the continent's GDP and women contribute 60–80 [percent] of the labor used to produce food both for household consumption and for sale” (FAO 1995).

On the other hand, systematic data on the labor input in agriculture is difficult to come by, let alone systematic data on labor input by gender. Therefore, it is not surprising that the widely quoted female labor share of 60–80 percent can only be traced back to an undocumented quotation in a 1972 United Nations report: “Few persons would argue against the estimate that women are responsible for 60–80 [percent] of the agricultural labor supplied on the continent of Africa” (UNECA, Human Resources Development Division 1972, 359).

What Are the Men Doing?

The oddity of the belief that one-half of the population would conduct the lion's share of the most important economic activity in rural Africa (in addition to food processing, water and fuelwood fetching, and other domestic tasks) has been noted before (Doss et al. 2011). More recent assessments have suggested that women's contribution is slightly less than half, based on the total number of women who are economically active in agriculture divided by the total population that is economically active in agriculture (Doss et al. 2011). This finding assumes that men and women who report agriculture as their main activity spend an equal amount of time in agriculture. Other estimates, based on time-use surveys, range from 30 percent time contribution by women to agricultural activities in

The Gambia, to between 60 and 80 percent in different parts of Cameroon. Yet, these findings are drawn from case studies that are not nationally representative and therefore cannot be generalized.

As a result, the statistical basis for the 60–80 percent share estimate has remained largely uncontested, although it continues to be quoted widely, especially in policy circles. This study takes advantage of the World Bank Living Standards Measurement Study–Integrated Surveys on Agriculture (LSMS-ISA) initiative to put the estimate on more solid empirical footing. The focus is on time allocation to crop production by gender. Although this focus excludes time allocated to livestock and food processing and marketing, crop production makes up the bulk of agricultural gross domestic product in most African countries. Thus, crop production marks an adequate starting point to revisit the issue.

The Analysis: New Gender-Disaggregated Data Provide Insights

Great Data for Analyzing Labor Input Shares

The LSMS-ISA-supported surveys provide an excellent basis for the study of the female labor share in African crop agriculture. Although it is not representative of the whole continent, the initiative encompasses six countries—Ethiopia, Malawi, Niger, Nigeria, Tanzania, and Uganda—which together cover a wide array of agroecological zones, crops, and farming systems. Altogether, the six countries make up 40 percent of SSA's population. The surveys are nationally representative and collect data on each household member's labor input per plot per agricultural activity. The amount of hired labor input (by gender) is also recorded.

The national female labor share can then be calculated as the total labor input in crop production provided by women across all households (rural and urban) divided by the total labor input provided by men and women. The estimates are weighted with sampling weights in accordance with the complex survey design, involving stratification and clustering in each country.

But Are There Biases in These Data?

One potential weakness of the data is that the responses may differ according to the characteristics of the respondent. Information about labor input per plot is typically provided by the most knowledgeable household member. But male respondents may overestimate or underestimate contributions by female household members, and vice versa. Similarly, less knowledgeable respondents may be inclined to overreport or underreport the contribution of men or women systematically. The little evidence available in the literature does not exclude the potential existence of such effects, but does not provide any evidence of the bias systematically going either way. As well as reporting the relative shares of labor input in crop production in these countries, the study assesses whether the estimated shares change with the gender and knowledge

Box 7.1 Testing the Sensitivity of the Findings to Survey Design

The study assesses whether the estimated female labor share in crop production is influenced by the survey design—by the gender or knowledge profile of the respondent. To do this, the analysis estimates the following ordinary least squares regression for Malawi, Niger, and Nigeria: $L_{fi} = \alpha + R_f + R_k + \beta X_i + \gamma D_i + \varepsilon_i$, where L_{fi} is the female labor share in crop production in household i ; R_f is a dummy variable that equals 1 if the respondent is female for the majority of the household plots; R_k is a dummy variable that equals 1 if the respondent has worked at least 50 percent of the total number of hours worked on all household plots (a measure of how knowledgeable the respondent is about what is happening on the plots); X is a vector of household-level demographic, cultural, and socioeconomic attributes that may affect the outcome of interest; D is a vector of location fixed effects; and ε is the stochastic error term, randomly distributed across households. This setup permits investigation of the effects of differences in questionnaire and survey design, as well as the more fundamental processes that influence female labor input shares.

Controlling for various demographic, cultural, and socioeconomic household characteristics, the reported female labor share in Malawi is predicted to be 4 percentage points higher when the respondent is knowledgeable and 7 percentage points higher when the respondent is female. In Nigeria, the opposite is observed. More knowledgeable respondents tend to report a lower female share of labor, as do female respondents (although the latter effect is not statistically significant). Overall, the conflicting findings highlight that, while there is a lingering effect of the characteristics of the respondent on the reported labor shares, after controlling for various factors, the direction of these effects can go either way.

One way to gauge the possible effect is to establish a range by predicting the estimated female labor shares for the extreme cases when all respondents are knowledgeable and female, as well as the case when all respondents are not knowledgeable and male. Doing so situates the female agricultural labor share between 50 and 60 percent in Malawi, and between 24 and 38 percent in Nigeria, compared with estimated shares of 56 and 32 percent, respectively. Put differently, the point estimates may be 5 to 8 percentage points higher or lower when considering these extreme cases. Clearly, more work is needed to more accurately establish the role of the characteristics of the respondent in estimating the female labor share. This would require randomly assigning respondents with different features across households.

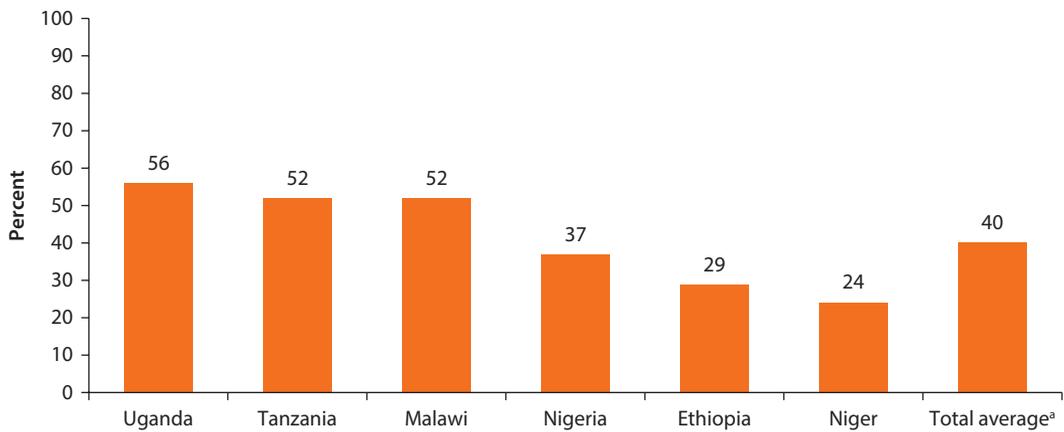
profiles of the respondents (box 7.1). The model used to make this assessment also serves to provide insights into the processes behind household decisions on female work.

The Results: From Myths to Facts

Women Contribute Substantially Less Labor to Agriculture Than Expected, but at Varying Degrees

On average, across the six countries, the female share of labor input into crop production is 40 percent (figure 7.1). But there is substantial variation

Figure 7.1 Female Labor Contribution to Crop Production Is Well Below the Commonly Cited Figure of 60 to 80 Percent



Source: Computations based on LSMS-ISA data.

a. Population-weighted average.

across countries. At 56 percent, the estimated female share of agricultural labor is highest in Uganda, followed by Tanzania (52 percent) and Malawi (52 percent). These are also the countries where the female share in the total population is slightly greater than half (52, 53, and 51 percent, respectively). In the other countries, the female labor share in agriculture is substantially lower. For example, the female share is well below half in Ethiopia and Niger, estimated at 29 and 24 percent, respectively.

The findings for Nigeria are especially illuminating. On average, about 37 percent of labor in crop production is contributed by women. Yet, the female share reduces to less than a third (32 percent) for northern Nigeria. In southern Nigeria, the share is similar to the shares found in eastern and southern Africa (51 percent). These findings tally well with expectations. The ability of the data to distinguish these differences in Nigeria provides confidence in the approach. It also underscores the heterogeneity in women's time allocation in agriculture, even within countries.

How the Data Are Collected Does Not Change the Core Findings

Using multivariate analysis (box 7.1), the study assesses the potential bias introduced by the way in which the data were obtained, at least in two countries. Two important conclusions emerge:

- First, the analysis confirms that the reported labor shares can be influenced by the characteristics of the respondent, but also that the direction of the bias can go either way (box 7.1 provides details). More research is needed on this.
- The key point advanced by the study still stands: the average female agricultural labor share across these countries is well below the shares commonly quoted in policy circles.

Labor Shares Do Not Systematically Differ by Crop, Task, or Most Household Characteristics

It is common to assume that women focus more on food crops, and men on cash crops. Nonetheless, there is no systematic difference across crops in terms of labor contribution by gender. There is also no clear difference in female labor shares across various agricultural tasks—land preparation, planting/weeding, and harvesting. The exceptions are Ethiopia and Niger, where women were relatively less involved in land preparation. Animal traction is also much more common in these countries, while Africa's agricultural mechanization remains limited in general.

Fundamental Processes Underlying Female Labor Contribution to Crop Production

The multivariate analysis described in box 7.1 casts light on the underlying processes behind women's work inputs. The analysis suggests the following:

- More educated women tend to provide a larger share of a household's labor.
- If women own the land, their labor share is greater.
- Female labor shares in crop production are not affected by livestock ownership.

The Implications

The implications of these findings for policy are twofold. First, the policy priority for females in agriculture is not so clear-cut: the lower-than-expected female labor shares (well below 50 percent in some countries) do not support *universally disproportionate* attention to female farmers to boost crop production. That said, could concerted policy attention to women to boost agricultural output in Africa still be justified based on the gender gap in agricultural productivity? Caution is counseled here as well. The estimated gender gaps in agricultural productivity are not based on differences in returns to male and female labor time spent on crop production within the household. The gaps are calculated based on differences in land productivity between male- and female-managed plots. With female-managed plots, on average, less than 25 percent of the plot population, full elimination of the gender gap in land productivity (estimated at 25 percent at most) would increase aggregate crop output by no more than 6.25 percent (and often less).

Second, there is a need for robust data to inform policy. The findings underscore the continuing importance of household surveys to query the common wisdom and put the policy debate on solid empirical footing. In addition to time modules to record time allocation across activities, more systematic and nationally representative information on the locus of control over the returns to these activities is needed, as well as methodological research on survey design effects on the information thus acquired. The new survey rounds supported under the LSMS-ISA initiative are making useful steps in this direction, creating promising opportunities for future research on gender and agriculture in SSA.

Additional Reading

This chapter draws on:

Palacios-Lopez, Amparo, Luc Christiaensen, and Talip Kilic. 2017. "How Much of the Labor in African Agriculture Is Provided by Women?" *Food Policy* 67: 52–63. <https://doi.org/10.1016/j.foodpol.2016.09.017>.

Other key references:

Doss, C. 2017. "Women and Agricultural Productivity: Reframing the Issues." *Development Policy Review*. doi:10.1111/dpr.12243.

Doss, C., T. Raney, G. Anriquez, A. Croppenstedt, S. Gerosa, S. Lowder, I. Matuscke, and J. Skoet. 2011. "The Role of Women in Agriculture." FAO-ESA Working Paper 11-02. Food and Agriculture Organization, Development Economics Division, Rome. <http://www.fao.org/docrep/013/am307e/am307e00.pdf>.

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Momsen, J. H. 1991. *Women and Development in the Third World*. New York: Routledge.

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