POLICY BRIEF NO. 11

THE GENDER GAP IN AGRICULTURAL PRODUCTIVITY IN SUB-SAHARAN AFRICA: CAUSES, COSTS AND SOLUTIONS

SUMMARY

Across sub-Saharan Africa, the agricultural sector remains critical to local and regional economies. It is the basis for food security and an important source of employment, particularly for women. Yet, studies consistently find that female farmers have lower rates of agricultural productivity than male farmers. Based on original research in five countries (Ethiopia, Malawi, Rwanda, Uganda and United Republic of Tanzania), this policy brief shows that gender gaps in agricultural productivity do not arise because women are less efficient farmers but because they experience inequitable access to agricultural inputs, including family labour, high-yield crops, pesticides and fertilizer. Equalizing women's access to agricultural inputs, including time-saving equipment, and increasing the return to these inputs is therefore critical to close gender gaps in agricultural productivity. It also promises to yield important economic and social gains. Across the five countries, it could raise crop production by up to 19 per cent, boost agricultural and overall GDP and lift hundreds of thousands of people out of poverty.

Productivity reflects a relationship between inputs and outputs in the production process. The most widely used measures of agricultural productivity are partial productivity measures of output per unit of a single input. Thus, land productivity is defined as output per unit of land and labour productivity is defined as output per unit of time worked. Agricultural productivity can be measured in volume or value terms. Assessing gender differences in agricultural productivity raises difficult conceptual and methodological questions.[1] At the same time, there is broad-based agreement that women and men farmers do not generally face the same production conditions and, as a result, do not necessarily make the same production choices, with implications for output and incomes. Understanding the constraints on women farmers and the forces that drive gender gaps in agricultural productivity is thus critical for policy and practice.

There have been numerous attempts to estimate gender-based differences in agricultural productivity in Africa.[2] While different studies use different methodologies, they consistently find substantial differences driven by gender-differentiated access to inputs or gender-differentiated returns to those inputs. Building on previous studies, UN Women's office for East and Southern Africa together with the UNDP-UNEP (United Nations Development Programme-United Nations Environment Programme) Poverty Environment Initiative (PEI) conducted original research in five countries to estimate the costs and explore the drivers of gender gaps in agricultural productivity. This policy brief summarizes the findings of the quantitative analysis and draws on qualitative insights from field research conducted in 2017 in Malawi, Uganda and United Republic of Tanzania to put forth country-specific policy and programme priorities for lifting the constraints on the productivity of women farmers.

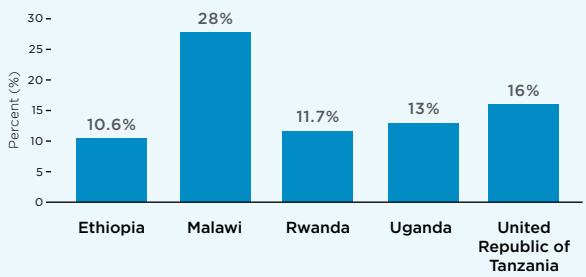
Quantifying gender gaps in agricultural productivity

Data from the World Bank's Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA) were used to calculate productivity gaps and assess the contribution of various factors of production to the overall gender productivity gap, where agricultural productivity is defined as the gross value of crop output (in local currency) produced per hectare of land. Across the five countries in the sample, gender gaps in agricultural productivity are considerable, ranging from almost 11 per cent in Ethiopia to 28 per cent in Malawi (see Figure 1). Studies using comparable methods have generated similar findings for other countries with gender gaps in agricultural productivity, ranging from 8 per cent in Kenya to more than 30 per cent in Nigeria.[3]

Gender gaps in agricultural productivity reflect multiple sources of constraint, including women's lower access to agricultural

FIGURE 1

Gender gaps in agricultural productivity



Sources: UN Women et al. 2015; UN Women and UNDP-UNEP PEI 2016; Ministry of Agriculture and Natural Resources et al. 2018.

inputs, lower returns on the inputs they use and comparatively less secure land rights as well as gender-based distortions in product markets. Underlying these disadvantages are gendered norms and practices, reflecting unequal power relations and fairly rigid gender divisions of labour at the household level (see Figure 2).

Identifying the drivers of gender gaps in agricultural productivity

The relative contribution of different factors to the overall gender gap in agricultural productivity was estimated based on a decomposition procedure commonly used in labour economics to explain the gender wage gap and in other studies to determine gender differences in productivity at the micro level.[4] Table 1 shows the results for Ethiopia, Malawi, Uganda and United Republic of Tanzania. The results for Rwanda are not included because the underlying dataset contained slightly different variables.[5]

Women have less access to male family labour

The results indicate that unequal access to male family labour is one of the most important factors in Ethiopia, Malawi and United Republic of Tanzania. Typically, women have less access to male family labour in cases of divorce, separation and widowhood. For women smallholders, income constraints limit their capacity to hire male wage labour. In United Republic of Tanzania, lack of male family labour explains virtually the entire gap in agricultural productivity, while in Ethiopia and Malawi it accounts for about 45 per cent of the agricultural productivity gap.

Women's lack of cash income translates into lower use of contemporary farm technologies

The gender differential in the use of implements and machinery explains 18 per cent of the gender gap in Malawi, 9 per cent in Uganda and 8 per cent in United Republic of Tanzania.

TABLE 1

Contribution of different factors to the gender gap in agriculutral productivity (%)

	Ethiopia	Malawi	Uganda	United Republic of Tanzania
Male labour	43.7	45.2	–	97.3
High-value crops	–	28.4	13.3	3.0
Implements	–	17.8	9.0	8.2
Pesticides	45.3	1.0	4.5	12.0
Fertilizer	25.1	5.3	3.0	6.4

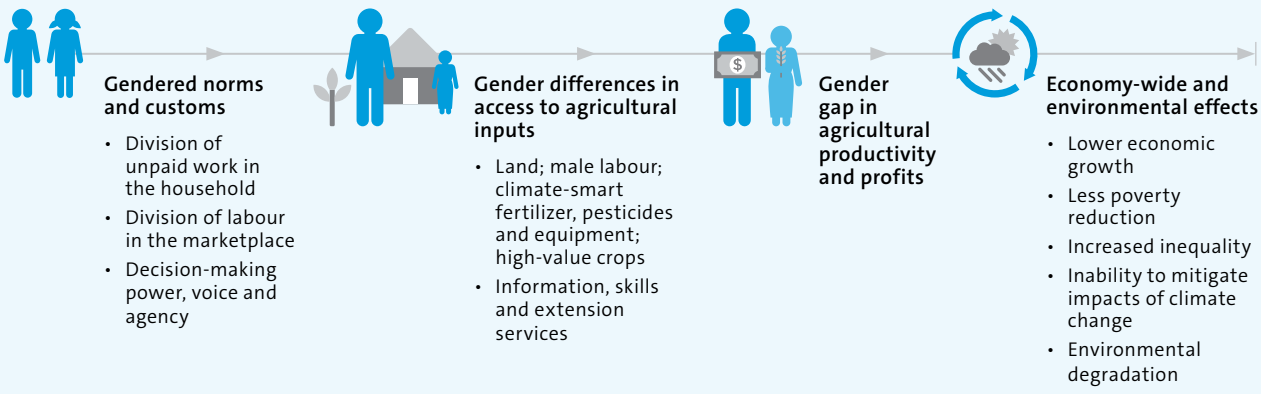
Source: UN Women et al. 2015; Ministry of Agriculture and Natural Resources et al. 2018.

Note: Percentages do not sum to 100 because the decompositions included numerous other categories, some with negative values.

One of the primary explanations for these gaps is women's household maintenance responsibilities, along with lower access to cash income related to heavy demands on their time performing unpaid farm labour for their husbands. Gender differentials in the use of pesticides and fertilizer are particularly large in Ethiopia, explaining 45 per cent and 25 per cent of the total agricultural productivity gap, respectively. Women are especially constrained by their relative lack of access to inorganic fertilizers, which must be purchased in the marketplace. Rather, they tend to rely more on organic fertilizers, which are usually produced by livestock owned by a household. While organic fertilizers have beneficial effects for soil quality, women's over-reliance on this input reduces the productivity of their plots compared to the plots of men, who may use chemical fertilizers. Gender differentials in the allocation of pesticides and fertilizers also play a relatively large role in United Republic of Tanzania, collectively explaining almost

FIGURE 2

Path model of gender gaps in agricultural productivity



Source: UN Women and UNDP-UNEP PEI 2018.

one fifth of the agricultural productivity gap. While data are not shown for Rwanda, the country report showed that gender differentials in the use of insecticides accounts for nearly 13 per cent of the gap.[6]

Women are less likely to plant high-value crops

Gender differences in planting of high-value crops account for another 28 per cent (in Malawi), 13 per cent (in Uganda) and 3 per cent (in United Republic of Tanzania). Using slightly different variables, lack of production of high-value crops was estimated to account for two thirds of the gender productivity gap in Rwanda.[7] High-value crops include cash crops and exported crops, which are typically farmed by men, while women are more likely to plant subsistence crops. Social norms that assign the primary responsibility for household food production to women contribute to this disparity, along with the fact that women typically receive lower returns to their inputs because of gender biases in product markets. Moreover, women may be unable to scale up to the level required for high-value crops if they are constrained by plot size, plot quality and/or ownership. Women's lower likelihood of planting high-value crops may also result from limited access to climate change adaptation tools and extension services.

Women face disadvantages in access to credit and land

Although credit and land rights were not included in the decomposition analysis, these factors both play a role in influencing crop choice and access to agricultural inputs. In all five countries, women typically have land of poorer quality and quantity. Women also face difficulties in accessing formal credit through commercial banks due to their lack of collateral, and this problem is exacerbated by weak or non-existent property rights. The negative effects of credit market imperfections tend to be greater for women, constraining their ability to engage in income-generating activities and to purchase farm inputs. Access to land, in turn, has implications for the scale of farming women can engage in. Greater equality in a continuum of land rights and credit access could thus increase women's engagement in agricultural markets.

Social norms constrain the availability of women's own time for agricultural work

In Malawi, Uganda and United Republic of Tanzania, women's high burdens of unpaid care and domestic work leave them less able than men to invest their time in agricultural work. Women are also less able to work on their own self-managed plots of land due to social norms that create the expectation that they will work on plots that are controlled by or jointly with their husbands before working on their own, particularly in polygamous households. These norms reduce the amount of time that women have available for their own plots and their likelihood of investing in higher-value, higher-maintenance crops.

Estimating the gains from closing the gender gap in agricultural productivity

Overall, the five case studies support the argument that once access to agricultural inputs such as labour, machinery and fertilizer is accounted for, women can be as productive and technically efficient as men. This is consistent with other country case studies using the same methodology.[8] Increasing women's access to agricultural inputs and improving the returns to those inputs is hence an important priority from a gender equality perspective. It also promises to yield broader economic and social benefits. Closing the gender gap in agricultural productivity corresponds to an estimated increase of almost 19 per cent in crop production in Rwanda and 7 per cent in Malawi.[9] Although the percentage increases in crop production in the other three countries are smaller, the boosts to gross domestic product (GDP) are still large. In Ethiopia, for example, the 1.4 per cent increase in crop production translates into a $221 million increase in agricultural GDP. The increases in overall GDP across countries are even higher, ranging from $67 million in Uganda to $419 million in Rwanda (see Figure 3). Closing the gender gap in agricultural productivity also corresponds with a substantial reduction in poverty. At least 80,000 people in United Republic of Tanzania and as many 238,000 people in Rwanda could be lifted out of poverty per year over a 10-year period if gender gaps in agricultural productivity were closed.

Determining context-specific policy priorities

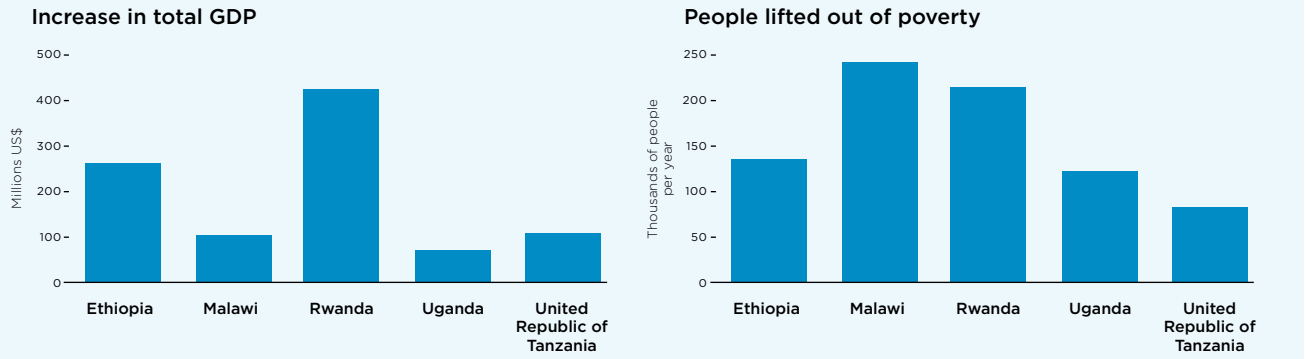
Raising the productivity of women farmers is critical for these economic and social benefits to materialize. Policy alternatives exist, but their impact will vary across countries depending on the relative weight of the factors driving the gender gap.

Improve women's economic security and access to time-saving equipment and services

Transforming gender biases within households around the division of labour is important if women are to strengthen their income-earning capacity and improve their access to male labour. Gender-responsive programmes that work with farming households to develop a cooperative vision for improving their livelihoods and food security—Including through increased production and more technical efficiency in family farming—are one way to overcome conflicts over family labour. In addition, labour-saving technologies such as energy-efficient and environmentally friendly improved cooking stoves and rainwater harvesting have the potential to reduce women's unpaid care and domestic work burdens, save time and facilitate increased crop production. Similarly, public infrastructure such as improved paths, roads, water tanks and latrines can save women time. Investments in these areas are particularly promising in countries where our decomposition

FIGURE 3

Gains from closing the gender gap in agricultural productivity



Source: UN Women and UNDP-UNEP PEI 2018.

identified time and labour constraints as the main bottleneck for increasing women's productivity (e.g., Ethiopia, Malawi and United Republic of Tanzania).

Facilitating women's shift to high-value crops and access to non-labour inputs

Interventions such as improving access to technical information and food markets and promoting gender awareness in research and extension are particularly promising in countries such as Malawi and Rwanda where women's focus on the production of subsistence crops inhibits their productivity. Long-term commitment to agricultural input subsidies is one way to shift production towards marketable crops. Malawi's Farm Input Subsidy Programme (FISP), for example, has helped close the gender gap in modern maize adoption since 2005/2006. Receipt of subsidized seed and fertilizer coupons had no discernible effect on male farmers but positively influenced modern maize adoption by female household heads.10 Gender-responsive agricultural extension services also have the potential to facilitate a shift to higher-value crops while at the same time promoting the use of more climate-friendly farm technologies. Note that women's switch to cash crops could involve changes in the nutritional content of household food consumption or make households more vulnerable to price volatility in the marketplace for their cash crop outputs and inputs. Any policy interventions designed to push women toward high-value crops must be designed to protect households from such unintended effects.

Strengthening women's land rights

Greater equality in terms of land rights and access to credit can further strengthen women's engagement in agricultural markets. In Uganda, United Republic of Tanzania and to some extent Malawi, existing programmes that strengthen land titles—especially in the form of certificates of customary occupation—have the potential to be made far more gender-responsive while at the same time being scaled up. Rwanda's Land Tenure Regularization (LTR) programme provides a good example. Starting in 2009, the programme clarified land rights, lessened tribal conflicts and reduced gender discrimination in land access, each of which contributed to increased land access for married women and improved documentation of inheritance rights. This resulted in greater land tenure security and large positive effects on agricultural investment, especially in female-headed households.[11]

ENDNOTES

1 Doss 2018.
2 E.g., Quisumbing 1995, Agarwal 2012, World Bank and the ONE Campaign 2014.
3 Backiny-Yetna and McGee 2105; Oseni et al. 2015; World Bank 2012.
4 Peterman et al. 2011. For full details on the methodology, see UN Women et al. 2015.
5 UN Women and UNDP-UNEP PEI. 2016.
6 Ibid.
7 UN Women and UNDP-UNEP PEI 2016.
8 Backiny-Yetna and McGee 2015; Oseni et al. 2015; World Bank 2012.
9 UN Women et al. 2015.
10 Fisher and Kandiwa 2014.
11 Ali et al. 2014.

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