

Improved Activity Cost-Effectiveness (ImpAct) Review:

Women's Agricultural Income

Using evidence to improve the effectiveness of USAID's activities

USAID's Office of the Chief Economist (OCE) supports Operating Units to achieve the greatest possible impact with taxpayer dollars by translating cost-effectiveness evidence into actionable recommendations that can be applied to activity designs. USAID has launched the <u>Generating Resilience and Opportunities</u> for Women (GROW) commitment which includes a focus on accelerating efforts to reduce the gender gap in agricultural production. Despite decades of work, the gap in land productivity between female- and male-managed farms of the same size is 24 percent. In other words, given a similarly sized plot, a male farmer would likely produce and earn 24 percent more than a female farmer because of gender-biased access to inputs, labor, information, and markets¹. This ImpAct Review was conducted jointly by OCE, the Bureau for Resilience, Environment, and Food Security (REFS), and the Gender Equality and Women's Empowerment Hub in the Bureau for Inclusive Growth, Partnerships, and Innovation, to inform missions seeking to integrate gender into Feed the Future (FTF) programs, and summarizes impact evidence *on which interventions have the greatest impact on women's agricultural income*.

What is costeffectiveness? Cost-effectiveness is a measure of impact per dollar spent on a particular intervention, for a particular population. Judging cost-effectiveness requires a comparison among alternative interventions, to identify the one which has the greatest possible impact-per-dollar on a specific outcome for a specific population.

What is impact evaluation evidence? Predictions of a program's likely cost-effectiveness can be made based on existing impact evidence, i.e., the thousands of randomized evaluations conducted in international development. Randomized evaluations are a common type of impact evaluation that quantify the causal effect of an intervention on a targeted outcome.

I FAO. 2023. "The Status of Women in Agrifood Systems." Rome.

Defining "Women's Agricultural Income"

Agricultural productivity, and women's role within agricultural production, are complex concepts with multiple measurement approaches. Critically, the GROW commitment emphasizes not merely *reaching* women farmers at equal parity with male farmers with USAID programming, but ensuring that women farmers *benefit* from and are *empowered* by USAID programs (see Figure 1).

Figure I. Reach, Benefit, Empower, Transform (RBET) Framework

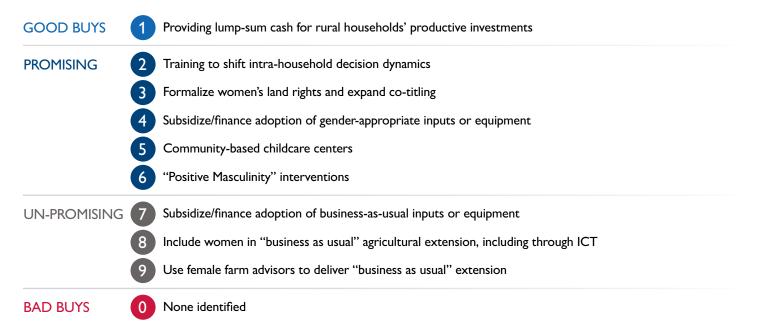


In order to compare interventions based on their impact on a priority outcome, this review adopted a specific definition of "women's agricultural income" that helped harmonize results from many studies. This definition had to be flexible enough to cover the many types of women farmers that USAID targets, including woman-headed households, women engaged in sole production in male-headed households, or women producing jointly with a male partner. This review focused on impacts on two aspects:

- Income (of households, or women individually): Income is defined as the revenue, or ideally the profits, earned due to a woman's engagement in agricultural production, either independently or jointly with other members of her household, in on-farm or off-farm activities.
- **Control of income (for women in male-headed households):** The fact that a woman helped to generate income does not guarantee she will be able to decide how the income is used on her, or her household's, needs. In addition to focusing on women's ability to generate income, this review also prioritizes increasing women's control of her own and her household's income.

What interventions consistently achieve the greatest impact on women's agricultural income?

Based on evidence from 30 randomized evaluations across 16 countries, this review categorizes nine common interventions based on two criteria: (1) the effectiveness and cost-effectiveness of that intervention at increasing women's agricultural income relative to alternatives, and (2) how confident we are that this effectiveness applies *consistently* across contexts and populations when properly adapted.



Evidence Search, Review, and Categorization

OCE and REFS gathered impact evaluations through web searches and through the recommendations of subject matter experts. A total of 41 studies were reviewed, with 11 later removed because they either were not randomized evaluations, covered unrelated interventions, or did not isolate women's income. From the remaining 30 studies, we identified nine distinct interventions that aim to improve women's agricultural income in a variety of ways (note that livestock interventions have not yet been reviewed). For each of the studies, the review noted the specific context in which the tested interventions were implemented, the factors that contributed to success or failure, and the estimates of impact on the two dimensions that comprise women's agricultural income (x-axis) and level of confidence when estimating cost-effectiveness for a new context (y-axis), we categorized interventions as shown in Figure 2.

Figure 2. Categorizing interventions based on cost-effectiveness

Level of confiedence when estomating cost-effectiveness for new content

BAD BUY

Evidence suggests intervention is NOT cost-effective, and we have high confidence in extrapolation across contexts

GOOD BUY

Evidence suggests intervention is cost-effective, and we have high confidence in extrapolation across contexts

UNPROMISING

Evidence suggests intervention is LESS cost-effective, and we are less confident in extrapolation across contexts

PROMISING

Evidence suggests intervention is cost-effective, but we are less confident in extrapolation across contexts

Comparative cost-effectiveness

GOOD BUY (

Providing lump-sum cash for rural households' productive investments

These programs provide unconditional, lump-sum transfers of cash to rural women. In contrast to "social protection" cash programs, these are larger, one-off transfers (USD \$130 - \$600) that function as unrestricted grants for investments of women's choosing.

Across Kenya, Niger, and Nigeria, impact evaluations of six unconditional lump-sum cash transfer programs routinely showed large impacts on household income. This impact on income was not driven by the cash transfers themselves (i.e., by households reporting the cash transfer as income). Impacts were measured long after transfers had taken place, and evaluations show that targeted households used the cash for investments which then drove income up. The type of investment varied: while sometimes women invested more in on-farm activities, other times they invested in off-farm activities and small businesses One advantage of cash is that women are able to optimize the income-generating activity based on their skills, time, access to complementary inputs, expectations, and preferences. The findings for woman-targeted lump-sum cash programs are consistent with wider evidence on cash transfers–a meta-analysis of 83 randomized evaluations of cash transfers across 26 countries shows that each \$100 in lump sum transfers is associated with a \$51 increase in household assets and a \$24 increase in monthly consumption.²

Beyond increasing household income, targeting women to receive these lump-sum transfers can increase women's control of income and measures of empowerment. Cash transfers may function as "investment capital" for assets, and greater women's control over household assets gives them greater control over resulting income. Depending on norms about gender roles and entrepreneurship, bundling lump-sum transfers with light-touch complementary messaging may generate greater impacts on women's freedom to invest as they wish and control the resulting income. In one <u>study in Niger</u>, for instance, assessments revealed social norms which dictated that women should not engage in individualistic activities, possibly preventing women from investing in off-farm businesses. As part of a multi-faceted social protection program that included a lump sum cash transfer, program designers added a video series framing women's entrepreneurship as supporting the community. This is an example of a program that seeks to not only benefit women, but also to have a transformative impact on gender roles.

PROMISING BUY

Training to shift intra-household decision dynamics

These programs provide training to shift intra-household decision-making dynamics, usually targeting households where both partners contribute to agricultural production. Many use the <u>Gender Action Learning System</u>, a process of joint reflection, planning, and coaching on more equitable distribution of responsibilities and decision-making.

Shifting household decision-making to be more gender-equitable could influence both household incomes–if better cooperation enables better allocation of inputs and labor to increase yields–as well as women's influence on how income will be used. Evaluations of eight interventions across four countries (<u>Côte d'Ivoire</u>, <u>Honduras</u>, <u>Tanzania</u>, <u>Uganda</u>) show mixed results. In two out of three available estimates, such programs positively impacted overall income–a promising finding, although the size of income gains was generally lower than income increases associated with cash transfer programs. However, this intervention did perform comparatively better than other interventions in this review in shifting women's control of income–in four out of the eight programs studied, women's control of income increased.

From this set of studies, it is not yet clear what characteristics of the program's context or intervention design is responsible for the variation in program effectiveness. For instance, a pair of evaluations across Tanzania and Uganda tested two variations of this approach—a half-day training and facilitation session versus the half-day training and facilitation session PLUS intensive follow-up coaching. In a <u>study</u> in <u>Tanzania</u>, the half-day training alone had no impact on women's control of coffee income, whereas training plus intensive coaching

² Crosta et al. "Unconditional Cash Transfers: A Bayesian Meta-Analysis of 50 Randomized Evaluations in 26 Low and Medium Income Countries". November 2023.

did. But the <u>evaluation in Uganda</u> shows opposite results, with the half-day training effectively increasing women's control of income, but no incremental effect from adding intensive coaching. The evidence is not yet sufficient to explain what program design or contextual differences drive variation in the effectiveness of this approach, and further impact evaluations are needed to improve our ability to predict when and why such programs can drive increases in income.

PROMISING BUY

Formalize women's land rights and expand co-titling

In addition to formalizing land rights, policy-makers can improve land registration for women, either jointly with spouses or as individuals. Formalization of women's land tenure can be encouraged with information campaigns or small incentives.

In many countries, even after large-scale land demarcation and registration efforts, men are predominantly listed on land titles whereas women lack secure, legal title. Activities to promote more gender-equal titling of land could give women the legal rights and confidence to make productive investments, potentially giving women in male-headed households greater de-facto control over this joint asset, and thus improving women's agricultural income. Evidence supports the first step in this chain (activities to promote gender-equal titling can increase women's subsequent investment) but evidence for the second step (increasing women's income and control of income proceeds) is weaker. Five studies across <u>Benin, Tanzania</u>, and <u>Uganda</u> show that simple information campaigns or small incentives were able to dramatically increase women's co-titling. Strikingly, getting households to list women alongside men on land titles did not require extensive persuasion or shifting of norms, which suggests that co-titling could be integrated into land demarcation or registration programs fairly simply.

While gender-equitable titling of land has intrinsic value, the evidence is not conclusive on whether formal land rights increase women's agricultural productivity or control of income. In one <u>study in Benin</u>, women who received title on parcels of land increased their investments in improving land on those parcels. At the same time, however, women shifted their labor and spent more time working other, un-titled plots, actually reducing their productivity on the land with more secure tenure. On net, formalizing women's land rights, especially through simple pushes for co-titling, is a likely useful element of programs to improve women's agricultural income when feasible. However, improving women's title to land is not, on its own, transformative and this intervention likely takes a long time to achieve impact.

PROMISING BUY (

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Subsidize/finance adoption of gender-appropriate inputs or equipment

Many programs encourage women to adopt new production methods, including improved seeds, chemical fertilizer, or equipment, via subsidies or financing. A subset of these subsidy/ finance programs focus on inputs or equipment that are designed for women's unique needs.

Many programs seek to reach women with agricultural inputs or equipment, often encouraging take-up through subsidies or the offer of financing. Although many programs may reach women with gender-blind services (for more on "business as usual" inputs and equipment, see page 8), evidence suggests that only certain kinds of inputs or equipment are likely to benefit women farmers in the form of higher income. For an input or piece of equipment to be "gender-appropriate" means:

- 1. The new <u>technology can stand alone</u>, delivering higher yields or profits without relying on complementary inputs that women may not have (e.g. more water required for improved seeds).
- 2. Implementing that technology is <u>feasible within the labor hours</u> that women already dedicate to agriculture, since they may have greater care obligations and difficulty securing other labor.
- 3. Using that technology is acceptable within norms about women's mobility or appropriate work.

When a new input or equipment is specifically adapted to reach and benefit women farmers, it can trigger important increases in their revenue or income. For instance, <u>researchers in Uganda</u> encouraged women farmers to adopt high-nutrient orange-fleshed sweet potatoes, in lieu of white-fleshed sweet potatoes which were already commonly cultivated. Because women already had the skills, inputs, and time necessary to cultivate this new variety, take-up was high and yields increased. In another case, <u>researchers in Kenya</u> provided a small hand-powered irrigation pump to women in rural households, resulting in a 13 percent increase in net farm revenue. In both of these programs, the new input or equipment was directly subsidized and women farmers were not asked to take on debt to finance adoption. Other evidence (see page 8) suggests that the finance or subsidy, as well as the technology itself, must be adapted to address women's unique risks and demands on their resources, if it is to achieve high reach and benefit for women farmers.

While subsidizing or financing gender-appropriate inputs/equipment is a promising buy, the evidence is not clear enough that it lets us predict exactly which new technologies will be gender-appropriate enough to ensure that women farmers benefit. In addition to more women-centered design processes for agricultural innovations, more impact evaluations are needed which go beyond tracking adoption of technologies and measure women's income as well.

PROMISING BUY (5) Community-based childcare centers

Community-level childcare services through qualified caregivers or accredited centers could allow women to invest more time as well as mental energy into income-generating activities.

Availability of labor, especially at key planting or harvesting times, appears to be a major constraint for women engaged in agriculture, not least because women tend to have tremendously greater childcare obligations. Evidence from non-agricultural sectors of the economy suggests that providing access to childcare can greatly increase women's labor force participation, and in some cases has increased individual or household income. One study in the rural Democratic Republic of the Congo looked at community-based daycare centers, where children aged 2-6 could come for six hours a day, five days a week. The availability of daycare led to a large and statistically significant increase in earnings from plots managed by women, as well as improvements in women's subjective well-being and child development outcomes. These daycare centers were relatively low cost, at roughly \$16 per month per child who attended, suggesting that they could feasibly be scaled in sufficiently dense communities. Further impact evaluations are needed, to determine whether community childcare centers are similarly effective in other contexts, and how they can be implemented for scalability and impact.

PROMISING BUY

Positive Masculinity Interventions

These programs attempt to shift men's attitudes and norms about women and their role in the household and community, promoting equitable, caring, and non-violent relationships. This is often done through facilitated reflection & training.

There is no direct evidence on the impact of positive masculinity interventions on women's agricultural income, but there is evidence that such interventions affect upstream factors—such as gendered caregiving obligations—associated with women's productivity and income. For instance, a <u>study in Rwanda</u> finds that a series of 15 group reflection and training sessions increased men's sharing of household and childcare tasks six years after the program ended. Critically, positive masculinity interventions have also generated a number of important related impacts outside the scope of this review (e.g., driving statistically significant reductions in gender-based violence).

UN-PROMISING BUY

Subsidize/finance adoption of business-as-usual inputs or equipment

Many programs "include gender" by encouraging women to participate in programs promoting advanced production methods (e.g., improved seeds, chemical fertilizer, or equipment) through subsidies or financing. Quite often, these advanced production methods or inputs have been developed without considering the specific constraints women face.

Many programs seek to reach women with inputs or equipment, encouraging take up through subsidies or the offer of financing. While some of these programs encourage take-up of specifically gender-adapted approaches (for more, see page 6), many of the studies in this review looked at programs which added women to "business as usual" programs. For instance, a <u>study in Tanzania</u> estimated the impact of the National Agricultural Input Voucher Scheme on income and gender outcomes, and another <u>study in Mali</u> directly examined providing fertilizer to women rice farmers (i.e. a 100% subsidy). In other cases, studies look at the impacts of providing women farmers with business-as-usual financial products, such as agricultural loans (with a balloon payment at harvest time), or index-based agricultural insurance. In only two out of eight available estimates did these programs increase even the yields that women farmers achieved, and none of the six studies which report on profits shows any statistically significant increases. Evidence suggests that simply adding women to programs designed without considering gender-specific constraints risks promoting irrelevant or unprofitable technologies, and actually exacerbating rather than improving the gender productivity gap.

Business as Usual Inputs & Equipment: In large part, this low effectiveness seems driven by the fact that the **inputs and equipment** promoted are often not relevant or sufficient to enable women to profit. In that <u>study in Mali</u>, women who received subsidized fertilizer increased their use of fertilizer, but also increased complementary inputs such as herbicides or hired labor (which were not subsidized). While women's yields did increase thanks to this standard input subsidy, so did the costs of production, and the program did not lead to an increase in profits. We suggest thinking of "business as usual" inputs or equipment as those that do not meet the criteria on page 6, i.e., that: require complementary inputs to increase yields and income, require additional labor, or violate norms about women's mobility or jobs.

<u>Business as Usual Finance & Subsidies:</u> Studies also suggest that **financial products** such as loans, insurance, and savings groups—which may be used to encourage improved inputs and equipment—are not by default well-suited to the unique needs of women farmers. A <u>study in Senegal</u> finds that men had stronger demand for agricultural insurance, while women had stronger demand for a non-earmarked emergency savings product, potentially because women face more multifaceted risks such as the burden of caring for family who fall ill. Women farmers may also be aware of the fact that they have lower returns to investments due to unique constraints and risks, and choose to avoid taking on debt for that reason. A <u>study in Mali</u> examined a loan designed around cash flow needs for agriculture, allowing women to repay with a lump sum at harvest time, leading to higher investment and higher profits compared to a control group. This is an important contrast to traditional microcredit programs, which typically generate lower impact on women's incomes.

UN-PROMISING BUY

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Including women in business-as-usual agricultural extension, including via ICT

Many training programs encourage women to adopt advanced production methods, including improved seeds, chemical fertilizer, or equipment. Such trainings are typically delivered through farmer field schools, demonstration plots, or information & communication technologies (ICT).

Four studies look at including women in agricultural training—sometimes by inviting women to join in existing training that had previously targeted men, in other cases by adopting new methods of delivering training (e.g., video-enabled extension featuring female presenters) that are likely to reach women better. In many cases, these trainings were encouraging women to adopt new agricultural techniques, inputs, or crops. In most of the studied programs, the new technique, input, or crop being promoted was not specifically tailored to women's needs or constraints, and women were simply added to existing (gender-blind) training. The one exception was a technical training program on improved barley varieties in Tunisia that included women in the training, and also added a female empowerment component.

Simply adding women in "business as usual" agricultural training had small and inconsistent effects on agricultural income, consistent with evidence on using subsidies/finance to encourage adoption of "business as usual" inputs and equipment. The <u>study in Tunisia</u> documents high adoption of improved barley strains by women farmers, but does not measure whether this drove increases in yields or net incomes. Only one of three studies that reports effects on yields or incomes shows any statistically significant increase, and no studies look at changes in women's control of income. Training may be an important component of cost-effective programs, and indeed some of the more effective programs to encourage gender-adapted techniques (see page 6) included training. But the conclusion remains that simply adding women to gender-blind agricultural training is an unpromising strategy to improve income. A future research priority is to understand which inputs, equipment, or techniques tend to be profitable for women farmers, and what features of market structures and norms affect the profitability, to help form the basis for more gender-relevant and beneficial extension.

UN-PROMISING BUY

Using female volunteers/advisors to deliver business-as-usual extension

Women farmers may not be well served by male extension workers, because of the relevance of their advice or because of social norms governing male-female interactions. Many programs train up female extension workers, in an attempt to reach women farmers more effectively.

While evidence supports the idea that gender is an important factor mediating how information flows through networks, these dynamics vary greatly across contexts and this review did not find evidence that swapping out male extension workers for female extension workers improves women farmers' income. A <u>study in Malawi</u> sheds light on how gender shapes information flow through networks, showing that regardless of their actual knowledge both men and women farmers were less receptive to messages from female extension agents. In another context, a <u>study in Mozambique</u> finds that women farmers exposed to female extension workers were more likely to learn about new techniques, which was not true when female farmers were reached by male extension workers. Yet even in a case where female extension workers helped disseminate information more effectively, there was no statistically significant change in women farmers' use of new land management practices, potentially because of other constraints they faced. As with several other interventions in this review, the binding constraint on increases in women's income seems to be the profitability and relevance of the new agricultural techniques, an issue not addressed by swapping out male farm advisors for female ones.

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