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Can Agricultural Development Projects Empower Women?

A Synthesis of Mixed Methods Evaluations Using Pro-WEAI in the Gender, Agriculture, and Assets Project (Phase 2) Portfolio

Agnes R. Quisumbing
Ruth Meinzen-Dick
Hazel J. Malapit
Greg Seymour
Jessica Heckert
Cheryl Doss
Nancy Johnson
Deborah Rubin
Giang Thai
Gayathri Ramani
Emily Myers
GAAP2 for pro-WEAI Study Team

Poverty, Health, and Nutrition Division
Environment and Production Technology Division

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

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AUTHORS

Agnes R. Quisumbing (a.quisumbing@cgiar.org) is a Senior Research Fellow in the Poverty, Health, and Nutrition Division at the International Food Policy Research Institute (IFPRI), Washington, DC.

Ruth Meinzen-Dick (r.meinzen-dick@cgiar.org) is a Senior Research Fellow in IFPRI's Environment and Production Technology Division, Washington, DC.

Hazel J. Malapit (h.malapit@cgiar.org) Senior Research Coordinator with IFPRI's Poverty, Health, and Nutrition Division, Washington, DC.

Greg Seymour (g.seymour@cgiar.org) is a Research Fellow in IFPRI's Environment and Production Technology Division, Washington, DC.

Jessica Heckert (j.heckert@cgiar.org) is a Research Fellow in IFPRI's Poverty, Health, and Nutrition Division, Washington, DC.

Cheryl Doss (cheryl.doss@qeh.ox.ac.uk) is a Senior Departmental Lecturer in Development Economics and Associate Professor in the Department of International Development of the University of Oxford, Oxford, UK.

Nancy Johnson (n.johnson@cgiar.org) is a Consultant for the Standing Panel on Impact Assessment, CGIAR Advisory Services Secretariat, Rome, Italy.

Deborah Rubin (drubin@culturalpractice.com) is Director at Cultural Practice, LLC, Bethesda, MD.

Giang Thai (giang.tthu@gmail.com) was a Research Analyst in IFPRI's Poverty, Health, and Nutrition Division, Washington, DC. She is currently pursuing her PhD at the University of Minnesota, Minneapolis, MN.

Gayathri Ramani (g.ramani@cgiar.org) is a Research Analyst in IFPRI's Poverty, Health, and Nutrition Division, Washington, DC.

Emily Myers (e.c.myers@cgiar.org) is a Research Analyst in IFPRI's Poverty, Health, and Nutrition Division, Washington, DC.

The GAAP2 for pro-WEAI Study Team

List of projects and authors: Principal investigators: Agnes Quisumbing, Ruth Meinzen-Dick, Hazel Malapit (co-Principal Investigators); Index team: Malick Dione, Jessica Heckert, Hazel Malapit, Elena M. Martinez, Audrey Pereira, Greg Seymour, Chloe van Biljon, Ana Vaz; Qualitative team: Marlène Elias, Ruth Meinzen-Dick, Annet Mulema, Emily Myers, Deborah Rubin; Project management: Ara Go, Federica Argento; Members are listed alphabetically by project, and alphabetically (by last name) within project: Agriculture, Nutrition, and Gender Linkages (ANGeL): Akhter Ahmed, Anika Hannan, Shalini Roy, Masuma Younus; Bangladesh Agriculture Value Chains (AVC): Alan de Brauw, Amita Dey, Berber Kramer, Mike Murphy; Building resilience of vulnerable communities in Burkina Faso (Grameen): Benjamin Crookston, Megan Gash, Bobbi Gray; Deploying improved vegetable technologies to overcome malnutrition and poverty (WorldVeg): Marwan Benali, Pepijn Schreinemachers, Caroline Sobgui; Empowerment, Resilience, and Livestock Transfers (Heifer Project International): Sarah Janzen, Neena Joshi, Nicholas Magnan, Rajendra Pradhan, Sudhindra Sharma, Sophie Theis; Evaluation of women's food security program for impoverished Maasai households (Maisha Bora): Marc Bellemare, Bart Casier, Susan James, Brooke Krause, Mathias Lardinois, Aine McCarthy; Food and Agricultural Approaches to Reducing Malnutrition (FAARM): Sabine Gabrysch, Sheela Sinharoy, Jillian Waid, Amanda Wendt; Integrated poultry value chain and nutrition intervention (SELEVER): Josué Awonon, Rasmane Ganaba, Aulo Gelli, Elena Martinez, Abdoulaye Pedehombga, Armande Sanou , Sita Zougouri; MoreMilk: Making the most of milk: Silvia Alonso, Alessandra Galiè, Tasokwa Kakota, Jef Leroy, Giordano Palloni; Small-scale irrigation and women's empowerment in northern Ghana (iDE): Elizabeth Bryan, Dawit Mekonnen; Targeting and Realigning Agriculture to Improve Nutrition (TRAIN): Mamun Miah, Neha Kumar, Saiqa Siraj; UN Joint Programme on accelerating progress towards the economic empowerment of rural women in Ethiopia (JP RWEE): Mihret Alemu, Brenda Boonabaana, Ana Paula de la Ocampo, Susan Kaaria, Marya Hillesland, Erdgin Mane, Vanya Slavchevska; Women Improving Nutrition through Group-based Strategies (WINGS): Avijit Choudhury, Madhu Khetan, Neha Kumar, Kalyani Raghunathan, Giang Thai.

ABSTRACT

Agricultural development projects increasingly include women's empowerment and gender equality among their objectives, but efforts to evaluate their impact have been stymied by the lack of comparable measures. Moreover, the context-specificity of empowerment implies that a quantitative measure alone will be inadequate to capture the nuances of the empowerment process. The Gender, Agriculture, and Assets Project, Phase 2 (GAAP2), a portfolio of 13 agricultural development projects in nine countries in South Asia and Africa, developed the project-level Women's Empowerment in Agriculture Index (pro-WEAI) and qualitative protocols for impact evaluations. Pro-WEAI covers three major types of agencies: instrumental, intrinsic, and collective. This paper synthesizes the results of 11 mixed-methods evaluations to assess these projects' empowerment impacts. The projects implemented the pro-WEAI and its associated qualitative protocols in their impact evaluations. Our synthesis finds mixed, and mostly null impacts on aggregate indicators of women's empowerment, with positive impacts more likely in the South Asian, rather than African, cases. There were more significant impacts on instrumental agency indicators and collective agency indicators, reflecting the group-based approaches used. We found few significant impacts on intrinsic agency indicators, except for those projects that intentionally addressed gender norms. Quantitative analysis does not show an association between the types of strategies that projects implemented and their impacts, except for capacity building strategies. This finding reveals the limitations of quantitative analysis, given the small number of projects involved. The qualitative studies provide more nuance and insight: some base level of empowerment and forms of agency may be necessary for women to participate in project activities, to benefit or further increase their empowerment. Our results highlight the need for projects to focus specifically on empowerment, rather than assume that projects aiming to reach and benefit women automatically empower them. Our study also shows the value of both a common metric to compare empowerment impacts across projects and contexts and qualitative work to understand and contextualize these impacts.

Keywords: women's empowerment, gender equality, impact evaluation, agricultural development projects, South Asia, West Africa, East Africa

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ACRONYMS

3DE	Three Domains of Empowerment
ANGeL	Agriculture, Nutrition, and Gender Linkages
AVC	Agricultural Value Chain project
A-WEAI	Abbreviated Women's Empowerment in Agriculture Index (pro-WEAI)
BCC	Behavior change communication
BRAC	Bangladesh Rural Advancement Committee, now called BRAC
DAI	Development Alternatives International
FAARM	Food and Agricultural Approaches to Reducing Malnutrition
FGD	Focus group discussion
GAAP2	Gender, Agriculture, and Assets Project Phase Two
GPI	Gender Parity Index
iDE	International Development Enterprises
IDI	In-depth interview
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IPV	Intimate partner violence
ILRI	International Livestock Research Institute
ITT	Intention to treat
JP RWEE	Joint Program for Rural Women's Economic Empowerment
KII	Key informant interview
NGO	Non-governmental organization
PHRS	Public Health Resource Society
PRADAN	Professional Assistance for Development Action
pro-WEAI	Project-level Women's Empowerment in Agriculture Index (pro-WEAI)
RUSACCO	Rural savings and credit cooperatives
SELEVER	Soutenir l'Exploitation Familiale pour Lancer l'Élevage des Volailles et Valoriser l'Économie Rurale
TOT	Treatment on the treated
TRAIN	Targeting and Realigning Agriculture to Improve Nutrition
UN	United Nations
UN JP RWEE	United Nations Joint Program on Accelerating Progress towards the Economic Empowerment of Rural Women
VARD	Voluntary Association for Rural Development
WASH	Water, sanitation, and hygiene
WEAI	Women's Empowerment in Agriculture Index (WEAI)
WINGS	Women Improving Nutrition through Group-Based Strategies

1. INTRODUCTION

Many agricultural development interventions aim to empower women alongside goals to improve agricultural productivity and income; reduce poverty, hunger, and undernutrition; and improve health outcomes (Malapit et al., 2019). Historically, women's empowerment was viewed only as instrumental in achieving development outcomes, a means to achieving more tangible outcomes (Cornwall, 2016). Although empowerment is a multidimensional concept, the greatest emphasis has been given to economic empowerment (Bayissa et al., 2018; UNDP, 2011; Narayan, 2005). Consistent with the Sustainable Development Goals (SDGs) there is increased recognition of the intrinsic value of women's empowerment (Cornwall & Edwards, 2014), and donors and international organizations have included "empowering women" among their program objectives.[1]

To know whether agricultural development projects can meet their empowerment objectives, it is important to evaluate the empowerment impacts of these projects. However, these efforts have been stymied by several factors. First, most projects do not clearly define what they mean by empowerment (Malhotra et al., 2002). In many cases, they do not distinguish between reaching, benefitting, and empowering women (Johnson et al., 2018). Projects that reach women include them in program activities, and those that benefit them improve women's well-being, such as income, health, and nutrition. But neither "reaching" nor "benefiting" women explicitly empower them by increasing women's agency, their ability to make strategic life choices (Kabeer, 1999) and to act on them. Second, although there have been many suggestions on how empowerment could be evaluated (see, for example, Alsop & Heinsohn, 2012; Elias et al., 2021; Hillenbrand et al., 2015; Holland & Ruedin, 2012; Ibrahim & Alkire, 2007; Lombardini et al., 2017; Mosedale, 2005, 2014; Narayan, 2005) until recently, no internationally validated measure of women's empowerment existed that was suitable for use in impact evaluations focusing on individual empowerment outcomes. Third, most studies that collect individual-level data collect it only on women, so they cannot assess impacts on women's outcomes relative to men's. Fourth, with few exceptions (e.g., Lombardini & McCollum, 2018), most impact evaluations are conducted on single projects and each uses different outcome measures, making it difficult to generalize findings across a project portfolio. Systematic reviews attempt to synthesize findings using meta-analysis and other techniques, but very few project portfolios are evaluated using a comparable and unified framework or use standardized or validated measures of women's empowerment across the entire portfolio. Finally, attempts to use a comparable measure across contexts has been stymied by the culture- and context-specificity of empowerment (Laszlo & Grantham, 2017) and discontent with quantitative measures of empowerment that do not reflect local meanings of empowerment (O'Hara & Clement, 2018).

We take up these challenges in the Gender, Agriculture, and Assets Project, Phase 2 (GAAP2), a multi-year (2015-2022) and multi-country project. GAAP2 aimed to improve the ability of projects to empower women by developing and validating, based on qualitative and quantitative data, the project-level Women's Empowerment in Agriculture Index (pro-WEAI) (Doss & Rubin, 2022; Malapit et al., 2019; Meinzen-Dick et al., 2019; Yount et al., 2019) and by using pro-WEAI to assess the empowerment impacts of a portfolio of development projects with explicit objectives and strategies around women's empowerment (Johnson et al., 2018; Meinzen-Dick et al., 2019). In this paper, we first present the impacts of 11 GAAP2 projects on

[1] Development projects do not in themselves empower women (Cornwall, 2016) but provide the opportunities for women to empower themselves. Nevertheless, for brevity, we use "empower women" in the rest of this paper.

women's empowerment as measured by pro-WEAI.[2] We report results for both the overall index and each of its component indicators and examine what the results mean for the ability of projects to contribute to women's empowerment and for pro-WEAI as a measure of project impact. We also review the qualitative data to assess whether men's and women's perceptions of project impact on empowerment were captured by the quantitative measures of impact and to uncover any unanticipated impacts or pathways to empowerment.

We then explore *how* projects influenced women's empowerment. At the outset of GAAP2 each project described its empowerment strategy, and these strategies were reconfirmed at the end of the project to account for any changes made during implementation. We classify these strategies into broad categories and examine their association with the magnitude of the estimated impacts. We attempt to identify which strategies were effective at influencing which indicators by regressing standardized impact coefficients on variables capturing project strategies and drawing on qualitative work conducted as part of the impact evaluations and the projects' own theories of change. We conclude by reflecting on the lessons learned from using mixed methods to evaluate empowerment impacts across a project portfolio using a co-developed metric of project-level empowerment, the pro-WEAI, together with its associated qualitative protocols.

2. THE GENDER, AGRICULTURE, AND ASSETS PROJECT, PHASE 2 (GAAP2) PORTFOLIO

2.1 Project portfolio, strategies, and activities

To develop and validate pro-WEAI, GAAP2 worked with a portfolio of agricultural development projects that had explicit women's empowerment goals to identify what they desired in a measurement tool and to learn what works best, in terms of measurement and implementation, under different conditions (Table 1). The 13 projects in the portfolio were implemented in nine countries in South Asia and Africa, with multiple focal outcomes and different start and end dates (see Table 1). In addition to women's empowerment, all projects aimed to improve nutrition outcomes, and some also sought to improve incomes.

[2] We use the 12-indicator version of pro-WEAI, as presented in Malapit et al. 2019. Pro-WEAI has been subsequently revised to 10 indicators, as discussed in Seymour et al. (forthcoming). The indicator for respect among household members was dropped because the indicator could not be calculated in households with only a single adult, which resulted in these households being dropped from the sample. Membership in influential groups was dropped because it was closely correlated with group membership, and hence, did not provide additional information on collective agency.

Table 1: Projects in the GAAP2 portfolio

Project acronym	Project name	Implementer and evaluator	Project modality/goal	Project objective	Project approach
			South Asia/Bangladesh		
ANGeL	Agriculture, Nutrition, and Gender Linkages	Ministry of Agriculture (Bangladesh) and International Food Policy Research Institute (IFPRI)	Crops/Nutrition	To pilot alternative approaches to integrating agriculture, nutrition, and women's empowerment, the most effective of which will be scaled up.	Provide training on three approaches in different combinations: facilitating production of nutrient-rich food, conducting high-quality behavior change communication (BCC), and undertaking gender sensitization activities. All trainings delivered to husbands and wives jointly
AVC	Impact Evaluation of the Bangladesh Agricultural Value Chains Program	Development Alternatives International (DAI) and IFPRI	Crops/Income and nutrition	To increase agricultural output and income, and improve food and nutrition security through strengthened agricultural value chains	Conduct trainings to build farmers' capacity in using improved seed varieties and cultivation practices along with basic training on gender and nutrition issues and provision of promotional discounts on fertilizer and seeds to incentivize adoption
FAARM	Food and Agricultural Approaches to Reducing Malnutrition	Helen Keller International (HKI) and University of Heidelberg	Crops and livestock/Nutrition	To reduce undernutrition among women and young children through a food-based dietary diversification strategy and to increase the status of women within the household	Intervention based on HKI's enhanced homestead food production model involves training rural women's groups in vegetable gardening, fruit tree production, and poultry rearing, along with nutrition and hygiene
TRAIN	Targeting and Realigning Agriculture to Improve Nutrition	BRAC and IFPRI	Crops and livestock/Nutrition	To increase the dietary diversity of poor rural producers by 1) increasing the diversity of crops grown and income generated; 2) improving child feeding, health, and sanitation practices using BCC; and 3) empowering women by facilitating greater control over agricultural income and its allocation toward health and nutrition as well as sensitizing husbands to support wives in productive and reproductive tasks.	Using a randomized controlled trial, assess the impact of incorporating agricultural interventions to promote production, production diversity and income-generation into a strong state-of-the-art maternal and child health and nutrition BCC platform
			South Asia/India		
WINGS	Women Improving Nutrition through Group-Based Strategies	Professional Assistance for Development Action (PRADAN), Public Health Resource Society	Crops and livestock/Nutrition	To improve women's and children's diets and nutrition outcomes through increasing own consumption and income	Uses existing women's self-help groups to deliver BCC and training on nutrition-sensitive agricultural planning, and works with the community and public systems/institutions to ensure that services of public health and nutrition programs are available and accessible in the project area

Project acronym	Project name	Implementer and evaluator	Project modality/goal	Project objective	Project approach
		(PHRS), and IFPRI			
South Asia/Nepal					
Heifer	Empowerment, Resilience, and Livestock Transfers	Heifer International and Montana State University	Livestock/Income and nutrition	To increase income, food security and nutrition, and women's empowerment, and improve aspirations, hope, and economic resilience among the chronically poor by building physical, human, and social capital	Provides women with livestock transfers and training related to nutrition, home gardening, and livestock management; forms self-help groups through which women receive empowerment training
West Africa/Burkina Faso					
Grameen Foundation	Building Resilience of Vulnerable Communities in Burkina Faso	Grameen Foundation and Brigham Young University	Crops and livestock/Income and nutrition	To increase the resilience of vulnerable communities in disaster-affected regions by building women's economic empowerment, and to strengthen women's capacity to make decisions about children's nutrition	Uses community-based women's savings groups as a sustainable platform for improving livelihoods through training, education on agriculture as a business, linkages to agricultural services, financing for common agricultural activities, nutrition education, and gender dialogues
SELEVER	Integrated poultry value chain and nutrition intervention	Agribusiness Systems International, AfricSanté, and IFPRI	Livestock/ Nutrition and income	To increase poultry production and improve the nutritional status of women and children in the Centre-Ouest, Hauts-Bassins and Boucle de Mouhoun regions of Burkina Faso	Uses an integrated market-facilitation approach combining revenue generation, women's empowerment, and nutritional behavior change interventions
West Africa/Ghana					
iDE	Small-Scale Irrigation and Women's Empowerment in Northern Ghana	iDE and IFPRI	Crops/Income and nutrition	To expand production of food during the lean season and reduce production risks during rainy seasons through small-scale irrigation, which will increase income, food security, nutrition, and health	Provides women access to motor pumps along with training, access to credit, and other agricultural inputs
West Africa/Mali					
WorldVeg		World Vegetable Center	Crops/Income and nutrition	To improve nutritional status and dietary diversity by increasing vegetable production and consumption	Integrated home garden project—combining training in gardening with nutrition behavior change communication and training in water, sanitation, and hygiene (WASH)
East Africa/Ethiopia					
JP-RWEE	UN Joint Programme on Accelerating Progress towards the Economic Empowerment of	Food and Agriculture Organization of the United Nations (FAO) and International Fund for Agricultural	Crops and livestock/Income and nutrition	To reduce gender inequalities in pastoralist communities related to access to resources, credit, and financial services to improve household food security, women's decision making within the household, and women's participation in the community	Interventions include strengthening associations and cooperatives to offer financial products to women farmers, providing credit to women farmers, and giving women financial literacy and entrepreneurship training

Project acronym	Project name	Implementer and evaluator	Project modality/goal	Project objective	Project approach
	Rural Women in Ethiopia	Development (IFAD)			
East Africa/Kenya					
MoreMilk	MoreMilk: Making the most of milk	International Livestock Research Institute	Livestock/Income and nutrition	To enhance milk safety and child nutrition in peri-urban Nairobi	Training milk traders to improve their milk handling and business practices
East Africa/Tanzania					
Maisha Bora	Evaluation of Women's Food Security Program for Impoverished Maasai Households	Savannas Forever and University of Minnesota	Livestock/Income and nutrition	To increase food security of semi pastoralist communities through a more diversified and secure income from improvements in livestock	Builds capacity of pastoralists' organizations to provide entrepreneurship training, business skills training, and advocacy for women; forms savings and credit groups and women-only farms; provides training on household budgeting and gender awareness

Source: Adapted and updated from Johnson et al. (2018)

Having women's empowerment objectives was one of the criteria for inclusion in the GAAP2 portfolio. When projects applied to join GAAP2, project implementers and their evaluation partners identified the strategies that their projects used to empower women (Table 2). The first stage of the qualitative analysis was to examine project documents to identify the gender-related strategies. In analyzing these strategies, we realized that although all projects said they had empowerment objectives, many of the strategies were designed to reach women (to involve them in project activities) or to benefit them (improve their well-being) without necessarily empowering them (increasing their agency or ability to make strategic life choices). This led to the development of the "Reach-Benefit-Empower" framework used to classify strategies and activities (Johnson et al., 2018). We further classified the strategies into categories of providing goods and services, strengthening organizations, building capacity (knowledge and skills), and influencing gender norms. We then identified which indicators of pro-WEAI could be targeted by that particular strategy. We recognize that this was a simplification and that characterizing strategies across projects is complicated. Our goal in classifying project strategies was to help implementers and evaluators think more carefully about their theories of change regarding women's empowerment and in so doing, enhance learning and, ultimately, project effectiveness. In this paper, we examine whether the four main strategies identified by the projects ex ante, prior to their participation in GAAP2, are associated with impacts on pro-WEAI indicators.

Owing to the Covid-19 pandemic, two projects were unable to complete their endline surveys in time for the synthesis work on this project. All projects completed qualitative studies prior to the pandemic. Our analysis of which strategies work to empower women is therefore based on the 11 projects that completed endline data collection before December 2020.[3]

[3] The TRAIN endline was halted because of Covid-19; eventually a phone survey was fielded to track some of the project's outcomes. The endline survey was eventually fielded and completed between January to March 2022. MoreMilk decided to restart the intervention in a different community so no endline data were collected.

Table 2: Activity areas and specific activities to empower women in GAAP2 projects

Activity area	Specific activity	Main link(s) to RBE framework	Number of projects using the activity as part of their strategy
Provide goods and services	Direct provision of goods/assets to beneficiaries	Reach and benefit;	7
	Direct provision of services to beneficiaries	possibly empower	5
	Indirect provision by supporting availability, quality, or access	Benefit	2
Strengthen organizations	Form/strengthen groups or other organizations (such as enterprises)	Reach; possibly benefit or empower	8
	Form/strengthen platforms or networks that link organizations	Reach; possibly benefit or empower	1
Build capacity, knowledge, and skills	Agricultural training and extension	Reach; possibly benefit	10
	Business and finance training	Reach; possibly benefit	6
	Nutrition education	Reach; possibly benefit	8
	Other training	Reach; possibly benefit	4
Influence gender norms	Awareness raising about gender issues and their implications	Possibly reach; empower	3
	Community conversations to identify community solutions to gender issues	Possibly reach; Empower	8

Adapted from: Johnson et al., 2017, p 13

The 11 completed GAAP2 projects were implemented in South Asia (Bangladesh, India, Nepal), West Africa (Burkina Faso, Ghana, Mali), and East Africa (Ethiopia, Tanzania). All but one of the partner projects in South Asia worked through nongovernmental organizations (NGOs). The FAARM intervention in northeastern Bangladesh, based on Helen Keller International's enhanced homestead food production model and implemented by VARD, a regional NGO, involved training rural women's groups in vegetable gardening, fruit tree production, and poultry rearing, along with nutrition and hygiene counseling (Wendt et al., 2019). The WINGS project, implemented by PRADAN, a large Indian NGO, added nutrition-intensification efforts to an existing women's self-help group platform, delivering nutrition behavior-change communication (BCC) and training on nutrition-sensitive agricultural planning, and worked with the community and public systems/institutions to ensure that services of public health and nutrition programs were available and accessible in the project area (Kumar et al., 2021). The project implemented by Heifer International in Nepal formed self-help groups through which women receive values-based training related to Heifer's "cornerstone principles"[4] and provided women with livestock transfers and trainings related to nutrition, home gardening, and livestock management (Janzen et al., 2018a). The Agricultural Value Chain (AVC) project in Bangladesh conducted trainings to build farmers' capacity in using improved seed varieties and cultivation practices and provided promotional discounts on fertilizers. NGOs provided the trainings to male farmers, and these included basic messaging on gender and nutrition issues (De Brauw et al., 2019). In a separate treatment arm for the jute value chain the program worked with a private input provider to promote improved fertilizers. This market systems approach did not provide room for gender programming, meaning that any gender impacts would be indirect, through impacts on production or income, or arising from the very light-touch gender and nutrition training to men in the initial phase of the program. The only project not primarily implemented by an NGO was the ANGeL project in Bangladesh, which was implemented by the Government of Bangladesh, albeit with an NGO partner in one of the treatment arms. ANGeL tested three approaches to providing training jointly to husbands and wives, namely: (1) facilitating production of nutrient-rich food, (2) conducting nutrition-related BCC, and (3) undertaking gender sensitization activities using Helen Keller International's Nurturing Connections curriculum (Quisumbing et al., 2021). Many of these trainings used a group-based format, although without an explicit strategy to form or strengthen women's groups.

Many of the projects in Africa also worked through NGOs and used group-based approaches. The Grameen Foundation's project in Burkina Faso used community-based women's savings groups as a sustainable platform for improving livelihoods through training, education on agriculture as a business, linkages to agricultural services, financing for common agricultural activities, nutrition education, and gender dialogues (Crookston et al., 2021). The UN JP RWEE program in Ethiopia strengthened women's associations and cooperatives to offer financial products and credit to women farmers and provided training to women in financial literacy and entrepreneurship (Hillesland et al., 2022), although a subgroup of beneficiaries lost access to credit between baseline and endline survey rounds.[5] These beneficiaries had either left the group or failed to maintain good standing and, thus, lost access to credit through the rural savings and credit cooperative (RUSACCO). The Maisha Bora program in Tanzania built the capacity of pastoralists' organizations to provide entrepreneurship training, business skills training, and advocacy for women; formed savings and credit groups and female-owned and operated farms; and provided training on

[4] Heifer has 12 cornerstone principles: (1) passing on the gift; (2) accountability; (3) sharing and caring; (4) sustainability and self-reliance; (5) improved animal and resource management; (6) nutrition and income; (7) gender and family focus; (8) genuine need and justice; (9) improving the environment; (10) full participation; (11) training, education and communication; and (12) spirituality (Heifer International, 2022).

[5] Although losing access to credit is technically not a treatment arm, JP RWEE analyzed impacts for beneficiaries who retained or lost access to credit separately because it was informative to the program.

household budgeting and gender awareness (Krause et al., 2018). The WorldVeg program in Mali implemented an integrated home garden project that combined training in gardening with nutrition BCC and training in water, sanitation, and hygiene (WASH) (Benali et al., 2020). The two other Africa projects used value-chain approaches. The SELEVER project in Burkina Faso, a poultry value chain project, used an integrated market-facilitation approach combining revenue generation, women's empowerment, and nutrition-related BCC interventions (Gelli et al., 2017). Finally, the iDE project in Ghana provided small groups of men and women with access to motor pumps along with training and access to credit to purchase agricultural inputs (Bryan & Mekonnen, 2022).

2.2 Project evaluation design across the GAAP2 portfolio

GAAP2 worked with the projects' existing evaluation design, adding top-up funding to implement pro-WEAI and its associated qualitative protocols (Meinzen-Dick et al., 2019). Table 3 presents details on the evaluation designs used by the 11 completed projects. These fall into two main categories: (1) randomized controlled trials (six projects), and (2) quasi-experimental difference-in-difference designs (five projects, of which three used matching methods and/or inverse probability weights, one used entropy balancing, and one did not use any matching or weighting procedure). In all cases, the control group was clearly established, so that empowerment impacts could be assessed relative to a well-defined counterfactual.

The main quantitative metric of women's and men's empowerment is pro-WEAI (Malapit et al., 2019). At the project's inception workshop in 2016, participating projects critiqued the existing Women's Empowerment in Agriculture Index (WEAI) questionnaire and proposed additional domains and indicators that they deemed essential to project success. Both program implementers and quantitative and qualitative researchers who have studied women's empowerment collaboratively designed a new survey instrument by proposing content to pilot. The project teams field-tested the new materials in their project baselines, conducted between April 2016 and June 2018. Baseline quantitative data were then shared with the pro-WEAI team for analysis, validation, and creation of a draft pro-WEAI. Feedback on the draft index was elicited from the participant projects and expert stakeholders in the research and development communities.

Some of the projects had already implemented baseline surveys using an earlier WEAI version, the Abbreviated WEAI (A-WEAI) (Malapit et al., 2017) when they joined GAAP2, but the majority implemented pro-WEAI at endline. We take the variation in empowerment indicators into account in analyzing the results across the portfolio.[6] Some projects did not collect all 12 pro-WEAI indicators, because some (such as self-efficacy) were considered optional when the baselines were implemented, and a few projects did not collect data on men.

All projects also implemented qualitative protocols, although at different stages in each project's lifecycle (some more than once) and with different priority research topics. Most projects integrated qualitative work while the project was underway, as part of a process evaluation, or to explain project impacts. In some cases, discussed below, the qualitative results illuminated which aspects of empowerment participants deemed most important, as well as interrelationships among components of empowerment.

[6] For example, Heifer collected A-WEAI in both baseline and endline, and ANGeL collected A-WEAI in its baseline round. The results for Heifer therefore use A-WEAI, but ANGeL, which was an RCT, used single difference estimates and analyzed impacts on pro-WEAI computed from the endline data. In separate work, Seymour et al. (forthcoming) find that differences in the impact estimates on the aggregate metrics depending on the WEAI variant used are small in magnitude but may be, in fact, significant.

Table 3: Project evaluation design, empowerment metrics, and qualitative work[1]

Project acronym	Country	Evaluation design	Sample selection and sample size for pro-WEAI analysis	Survey dates	WEAI metric collected	Qualitative tools	Dates of qualitative data collection
			South Asia				
ANGeL	Bangladesh	Randomized controlled trial	Farming households with at least one child younger than 24 months Women: 2,739 Men: 2,739	Baseline: Nov 2015 -Jan 2016 Endline: Jan -March 2018	Baseline: A-WEAI Endline: pro-WEAI	FGDs with beneficiaries IDIs with beneficiaries	April to June 2018 (break for Eid)
AVC	Bangladesh	Randomized controlled trial	Households intending to plant jute and cultivating at most 2.02 hectares Women: 477 Men: 457	Baseline: February-March 2016) Midline: February-March 2017 Endline: April-May 2018	Baseline: A-WEAI Midline and endline: pro-WEAI	FGDs with beneficiaries KIIs with Agricultural officers. input dealers, and traders	January to February 2018
FAARM	Bangladesh	Randomized controlled trial	Married women aged 15-30 years Women: 457 Men: 449	Baseline: March to May 2015 Pro-WEAI data collection: April to May 2019	Endline: pro-WEAI	FGDs with beneficiaries IDIs with beneficiaries and non-beneficiaries KIIs with market traders, program staff, community leaders, group leaders Life history interviews with beneficiaries Seasonal calendars	September to October 2017 February 2018 February 2019 June to July 2019
WINGS	India	Inverse probability weighted difference-in-difference	Households with at least one ever-married female member between 15 and 49 years old Women: 1,333 Men: 1,330	Baseline: Nov 2015 – Jan 2016 Midline: November 2017 to January 2018 Endline: November 2019-January 2020	Baseline: A-WEAI Midline and endline: pro-WEAI	FGDs with program beneficiaries IDIs with program beneficiaries KIIs with project staff	June 2019
Heifer	Nepal	Randomized controlled trial	Women eligible to participate in Heifer program Women: 1,817 Men: empowerment data were not collected	Baseline: Mid 2014 Endline: Mid 2016	Baseline and endline: A-WEAI	FGDs IDIs with beneficiaries and non-beneficiaries Life history interviews with women and men Observation Seasonal calendar	March to April 2017

Project acronym	Country	Evaluation design	Sample selection and sample size for pro-WEAI analysis	Survey dates	WEAI metric collected	Qualitative tools	Dates of qualitative data collection
West Africa							
FFH/Grameen Foundation	Burkina Faso	Difference-in-differences	Women who were members of savings groups Women: 380 Men: 380	Baseline: May 2016 Endline: November 2017	Baseline and endline: pro-WEAI	Community profile FGDs with beneficiaries KIIs with project staff and market traders Life history interviews with beneficiaries Seasonal calendar	Baseline: October-November 2015 Endline: January 2019
SELEVER	Burkina Faso	Randomized controlled trial	Households with women aged 15-35 years and at least one child aged 2-4 years Women: 1,487 Men: 1,396	Baseline: March 2017 (post-harvest) Lean season surveys: September 2017 September 2019 Endline: March 2020, postponed, resumed in August	Baseline and endline: pro-WEAI	FGDs with beneficiaries and community members IDIs with beneficiaries, poultry producers, poultry traders, village vaccinators, group leaders Seasonal calendars	January to March 2019
iDE	Ghana	Treatment villages randomly selected from stratified pairs; trust groups within treatment villages selected by lottery	Households in three groups: 1) lottery winners in early treatment villages, 2) lottery losers in early treatment villages (and non-participants), and 3) farmers who formed groups in control villages that did not participate in the lottery. Women: 747 Men: empowerment data not collected	Baseline: November 2015 to early February 2016 Endline: December 2017 and February 2018	Baseline: A-WEAI and endline: pro-WEAI	FGDs with beneficiaries and non-beneficiaries KIIs with market traders Life history interviews with beneficiaries and non-beneficiaries Seasonal calendar	July to August 2017

Project acronym	Country	Evaluation design	Sample selection and sample size for pro-WEAI analysis	Survey dates	WEAI metric collected	Qualitative tools	Dates of qualitative data collection
WorldVeg	Mali	Difference-in-difference with entropy balancing	Households with women aged 15-49 years and oversampled households with a child younger than five years old Women: 560 Men: 560	Baseline: September to October 2016 Endline: September to October 2018	Baseline and endline: pro-WEAI	Community profile FGDs with beneficiaries and non-beneficiaries KIIs with project staff and market traders Life history interviews with beneficiaries and non-beneficiaries Seasonal calendar	December 2016 and January 2017
			East Africa				
JP-RWEE	Ethiopia	Difference-in-difference with Inverse Probability Weighting	Members of RUSSACO in beneficiary communities at baseline; comparison group randomly drawn from two comparable kebeles in three woredas All women: 723 Women in couple households: 528 Men in couple households: 528	Baseline: December 2016 to January 2017 Midline: February to March 2019	Baseline and midline: pro-WEAI	FGDs with beneficiaries and spouses of beneficiaries IDIs with beneficiaries and spouses of beneficiaries KIIs with project implementers and kebele leaders	July to August 2017
Maisha Bora	Tanzania	Propensity weighted difference-in-difference	Households randomly drawn from sub-village registers, 60 households from 14 villages, half of which received the Maisha Bora program treatment Women: 681 (both baseline and endline) Men: 154 (both baseline and endline)[3]	Baseline: December 2015 - May 2016 Endline: December 2019 - February 2020	Baseline and endline: pro-WEAI	FGDs with beneficiaries IDIs with beneficiaries KIIs with project staff; village leaders	December 2016 (KIIs with project staff) June 2017 (all others)

[1]This refers to the 11 GAAP2 projects that completed their impact evaluations in 2020. [2]Sample size for pro-WEAI impact analysis may be smaller than the sample for the impact evaluation where pro-WEAI was collected for a subsample of households. Numbers of women and men reported are from the combined control and intervention samples. [3]Maisha Bora interviewed 225 men at baseline, but owing to the challenges of interviewing pastoralists, interviewed only 154 at both baseline and endline. They did not analyze men's outcomes owing to the small sample size.

To develop these protocols, the research team held a virtual meeting in April 2016, to discuss lessons learned from previous qualitative work and objectives for future qualitative research. Working groups for each topic area created a matrix listing the detailed questions and methods of data collection. The research team honed this matrix to determine which questions were most essential. The pro-WEAI qualitative guidance include seven protocols: (1) review of project documents; (2) community profile; (3) seasonality calendar; (4) local understandings of empowerment; (5) life histories; (6) key informant interviews with market traders; and (7) key informant interviews with project staff. Table 4 summarizes the method and purpose of each protocol.

Table 4: Pro-WEAI qualitative protocols

Protocol	Method and purpose
Review of project documents	• Method: Desk review completed by member of research team • Purpose: Examine the study context, a project's theory of change, and the different components of the intervention evaluated
Community profile	• Method: Group activity with 2 to 3 community members in a few different locations in the study area • Purpose: Understand migration patterns, infrastructure, information communication technologies, education, natural resources, healthcare, and marriage practices in the study context
Seasonality calendar	• Method: Group activity with 4 to 5 women and men • Purpose: Develop a production calendar showing agricultural activities distributed by gender and age over the course of a year to see how seasonal variations affect time use
Local understandings of empowerment	• Method: Sex-disaggregated focus groups of women and men • Purpose: Understand the various ways empowerment is perceived among the study population
Life histories	• Method: Semi-structured interviews with women and men • Purpose: Gather information about key events and experience in respondents' lives, related to agriculture and other topics to uncover patterns across individuals and groups
Key informant interviews with market traders	• Method: Semi-structured interviews with market traders, both women and men • Purpose: Examine how women and participate in different nodes in relevant value chains, such as engaging with formal and informal markets, the assets needed to work in a particular node, and gendered constraints to participating in particular nodes
Key informant interviews with project staff	• Method: Semi-structured interviews with project staff • Purpose: Elicit insights into how the project affects women's empowerment, whether staff are knowledgeable about the project's empowerment objectives, and whether they support those objectives to enhancing project performance, learning about the viability of bringing projects to scale, and ultimately achieving gender equality.
Additional questions specific to project strategies	• Awareness and benefits of the project activities such as trainings and/or provision of inputs (e.g., credit, seeds, livestock, agricultural equipment) • Project participants' perspectives on gender sensitization strategies and/or their group participation • Relationships between project participants and project staff.

3. EMPOWERMENT IMPACTS OF THE GAAP2 PROJECTS

In this section we discuss the estimated empowerment impacts of the GAAP2 projects. We present impacts on aggregate pro-WEAI outcomes as well as on pro-WEAI's component indicators, grouped by type of agency. We report impacts separately for each project's treatment arm. To facilitate cross-regional comparisons, where relevant, we present the South Asia results first, followed by the Africa results.

3.1. Outcome indicators

The quantitative outcomes include the following aggregate empowerment measures:

- Whether the individual is empowered, defined as achieving at least an empowerment score of 80% (A-WEAI) or 75% (pro-WEAI) (binary).[7]
- Empowerment score, the weighted proportion of indicators in which a respondent is adequate (continuous).
- Whether the household achieves gender parity, meaning the woman's empowerment score is greater than or equal to the empowerment score of the male decision maker in her household (binary).

The outcome variables also include individual component indicators (Table 5). These differ slightly depending on whether A-WEAI or pro-WEAI was used; Appendix Table 1 shows the differences between the six A-WEAI and the 12 pro-WEAI indicators. Because both A-WEAI and pro-WEAI are composites of indicators, contrasting indicator-level impacts may cancel each other out in the calculation of the aggregate impacts. To unpack these results further, we estimate project impacts on adequacy (using binary indicators) and on the variables that underlie the indicator itself (henceforth called continuous indicators). We analyze impacts on the continuous indicators used to determine adequacy because binary indicators may be sensitive to the choice of thresholds or cutoffs. Because the scale and range of the continuous indicators are different for each indicator, we estimate standardized coefficients, which involves scaling each coefficient by the standard error of the dependent variable.[8]

[7] As mentioned above, some of the projects that had started earlier used A-WEAI in their baselines. A-WEAI (Abbreviated WEAI) (Malapit et al. 2017) has the five domains of WEAI, but only six indicators, and was developed to reduce survey length and to eliminate questions that were difficult to implement in the field.

[8] This is estimated using "stdbeta, se store" in Stata Version 17.0

Table 5: Definition of pro-WEAI aggregate measures and binary and continuous indicators

Pro-WEAI Measure	Binary indicator	Continuous indicator
	Aggregate measures	
Five Domains of Empowerment Index (5DE) (A-WEAI) or Three Domains of Empowerment Index (3DE)	Whether empowered: if individual achieves at least an empowerment score of 80% (A-WEAI) or 75% (pro-WEAI)	Empowerment score
Gender Parity Index (GPI)	Whether household achieves gender parity: woman's empowerment score is greater than or equal to the empowerment score of the male decision maker in her household.	Intrahousehold inequality score (men's empowerment score minus women's empowerment score)
	Pro-WEAI component indicators	
	Defined as adequate if:	
	Instrumental agency	
Input in productive decisions	Meets at least ONE of the following conditions for ALL the agricultural activities they participate in: 1) makes related decision solely; 2) makes the decision jointly and has at least some input into the decisions; 3) feels could make decision if wanted to (to at least a MEDIUM extent)	Number of types of agricultural and non-agricultural activities for which the respondent makes decision solely, makes decision jointly and has at least some in input in the decisions, or feels could make decision[9]
Ownership of land and other assets	Owns, either solely or jointly, at least ONE of the following: 1) At least THREE small assets (poultry, nonmechanized equipment, or small consumer durables); 2) At least TWO large assets; 3) Land	Number of asset types (including agricultural land) solely or jointly owned
Access to and decisions on financial services	Meets at least ONE of the following conditions: 1) Belongs to a household that used a source of credit in the past year AND participated in at least ONE sole or joint decision about it; 2) Belongs to a household that did not use credit in the past year but could have if wanted to from at least ONE source; 3) Has access, solely or jointly, to a financial account	Number of types of credit sources in which respondent participates in at least one sole or joint decision, plus access to sole or joint financial account
Control over use of income	Has input in decisions related to how to use BOTH income and output from ALL the agricultural activities they participate in AND has input in decisions related to income from ALL non-agricultural activities they participate in, unless no decision was made	Number of types of activities in which respondent has some control over use of income
Work balance	Works less than 10.5 hours per day: Workload = time spent in primary activity + (1/2) time spent in childcare as a secondary activity	Time spent on paid and unpaid work, plus .5 x time spent on childcare as a secondary activity

[9] There is a slight discrepancy in the definitions for the binary and continuous indicator for "input in productive decisions." Projects calculated the original version of the indicator, which only included agricultural activities, whereas the continuous indicator was based on a revised version of the indicator, which includes both agricultural and non-agricultural activities. See Seymour et al. (forthcoming) for more detail.

Pro-WEAI Measure	Binary indicator	Continuous indicator
Visiting important locations	Meets at least ONE of the following conditions: Visits at least TWO locations at least ONCE PER WEEK of [city, market, family/relative], or 2) Visits least ONE location at least ONCE PER MONTH of [health facility, public meeting]	Number of types of important locations visited
Intrinsic agency		
Autonomy in income	More motivated by own values than by coercion or fear of others' disapproval: Relative Autonomy Index score>=1. RAI score is calculated by summing responses to the three vignettes about a person's motivation for how they use income generated from agricultural and non-agricultural activities (yes = 1; no = 0), using the following weighting scheme: 0 for vignette 1 (no alternative), -2 for vignette 2 (external motivation), -1 for vignette 3 (introjected motivation), and +3 for vignette 4 (autonomous motivation)	RAI score (ranging from 3 to -3)
Self-efficacy	''Agree" or greater on average with self-efficacy questions: New General Self-Efficacy Scale score>=32	Self-efficacy scale score (ranges from 8 to 40)
Attitudes about IPV against women	Believes husband is NOT justified in hitting or beating his wife in all 5 scenarios: 1) She goes out without telling him; 2) She neglects the children; 3) She argues with him; 4) She refuses to have sex with him; 5) She burns the food	Number of situations in which violence is not justified
Respect among household members	Meets ALL the following conditions related to their spouse, the other respondent, or another household member: 1) Respondent respects relation (MOST of the time) AND 2) Relation respects respondent (MOST of the time) AND 3) Respondent trusts relation (MOST of the time) AND 4) Respondent is comfortable disagreeing with relation (MOST of the time)	Number of conditions met from the following: 1) Respondent respects relation (MOST of the time); 2) Relation respects respondent (MOST of the time); 3) Respondent trusts relation (MOST of the time); 4) Respondent is comfortable disagreeing with relation (MOST of the time)
Collective agency		
Group membership	Active member of at least ONE group	Number of types of groups of which the respondent is an active member
Membership in influential groups	Active member of at least ONE group that can influence the community to at least a MEDIUM extent	Number of types of groups of which the respondent is an active member and which the respondent regards as influential

Source: Binary indicators: Malapit et al. (2019); continuous indicators: Authors

3.2 Impact estimates

3.2.1 Impacts on aggregate measures

Table 6 presents estimates of project impacts on the aggregate women's and men's empowerment measures (whether empowered and the empowerment score) and gender parity; these estimates are graphed in Figures 1 and 2. Since many of the projects had multiple treatment arms, each observation is the coefficient estimate of the specific treatment relative to the control. Despite these projects' self-identified empowerment objectives, most projects overall did not have a significant impact on the aggregate empowerment indicators. Of the 32 treatment arms across the 11 projects, there are 9 and 12 cases of significant positive impacts on whether the woman is empowered and the women's empowerment score, respectively, and 2 cases of negative impacts for both measures. In contrast, there are 15 and 18 cases of insignificant or null results on these indicators, respectively. When we look by region, the positive cases are heavily concentrated in South Asia, where 7 of 16 treatment arms are associated with empowerment, and a majority (10 of 16) cases had significant increases in empowerment scores. Projects with estimated positive impacts on women's aggregate measures are ANGeL, FAARM, Heifer (only empowerment scores), and World Veg (whether empowered in intent to treat (ITT) estimates, empowerment scores in treatment on the treated (TOT) estimates). AVC trainings plus promotions arm (which had minimal gender content) and JP RWEE beneficiaries who lost credit access are the only treatment arms showing negative impacts on empowerment status.

Table 6: Project impacts on women's and men's empowerment (whether empowered and empowerment score) and gender parity

	Women				Men				Whether household achieved gender parity	
	Whether empowered		Empowerment score		Whether empowered		Empowerment score			
	Endline control mean (%)	Impact	Endline control mean	Impact	Endline control mean (%)	Impact	Endline control mean	Impact	Endline control mean (%)	Impact
South Asia										
ANGeL[1, 2]										
Control mean	0.25		0.59		0.39		0.67		0.47	
T-N		0.08**		0.04***		0.10**		0.03**		0.05
T-A		0.07*		0.04**		0.02		0.01		0.05
T-AN		0.08**		0.04***		-0.01		-0.00		0.08*
T-ANG		0.13***		0.07***		0.01		0.00		0.13***
AVC[2,3]										
Control mean	0.23		0.53		0.41		0.18		0.31	
NGO trainings only		0.01		0.02		0.02		-0.00		0.12*
NAAFCO promotions only		-0.03		0.02		0.08		0.02		-0.05
Trainings + promotions		-0.09*		0.01		-0.02		-0.02		0.02
FAARM[2,4]										
Control mean	0.04		0.47		0.20		0.61		0.28	
Intervention	0.24	2.1***	0.61	0.13***	0.25	0.30	0.63	0.02**	0.54	1.31***
WINGS										
A-WEAI [5]										
Control (Standard)	0.13		0.79		0.29		0.90		0.507	
Nutrition-intensification		-0.22		0.01		-0.05		-0.02		-0.01
Pro-WEAI [3]										
Control (Standard)	0.57		0.65		0.72		0.79		0.70	
Nutrition-intensification		0.02		-0.02		-0.04		-0.02		0.02
HEIFER[2,6]										
Heifer Direct beneficiaries										
Control	0.54		0.75							
Full treatment		0.10*		0.06***		n.c.		n.c.		n.c.
Values-based training		0.06		0.05**		n.c.		n.c.		n.c.
Goats		0.08		0.05**		n.c.		n.c.		n.c.

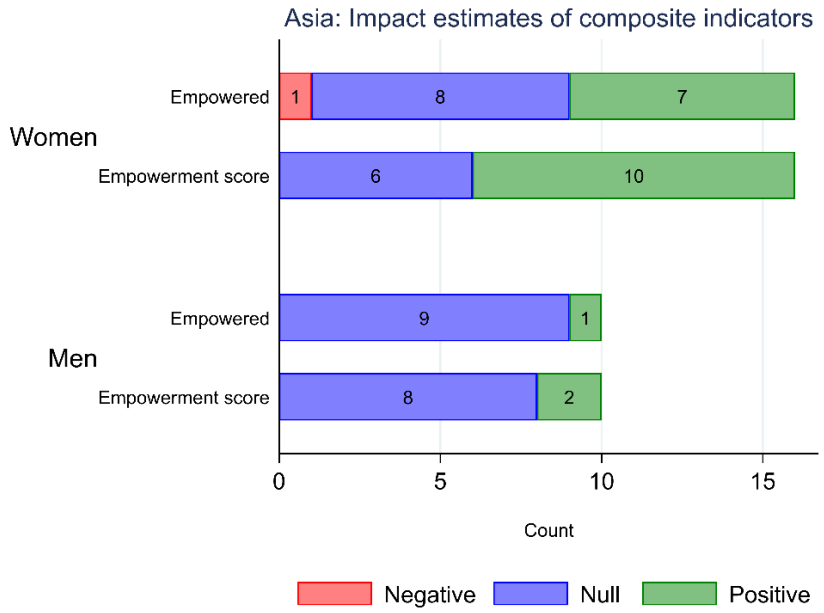
	Women				Men				Whether household achieved gender parity	
	Whether empowered		Empowerment score		Whether empowered		Empowerment score			
	Endline control mean (%)	Impact	Endline control mean	Impact	Endline control mean (%)	Impact	Endline control mean	Impact	Endline control mean (%)	Impact
Heifer Pay-it-forward beneficiaries										
Control	0.48		0.71							
Full treatment		0.07		0.07***		n.c.		n.c.		n.c.
Values-based training		0.13**		0.08***		n.c.		n.c.		n.c.
Goats		0.07		0.03		n.c.		n.c.		n.c.
West Africa										
Grameen[7]										
Intervention		-0.08		0.00		0.15**		0.06***		-0.06
SELEVER[8]										
Control	0.14		0.53		0.43		0.68		0.29	
SELEVER		0.03		0.00		0.03		0.01		0.02
SELEVER+		-0.02		-0.02		0.04		0.01		-0.06
iDE[9]										
Control 1 (A-WEAI			.75							
Motor pump				-0.00		n.c.			n.c.	
Control 2 (A-WEAI)			.75							
Motor pump				-0.02		n.c.		n.c.		n.c.
Spillover control (A-WEAI)			.75							
Spillover effect				-0.07*		n.c.		n.c.		n.c.
Control 1 (Pro-WEAI			.69							
Motor pump				0.02		n.c.		n.c.		n.c.
Control 2 (Pro-WEAI)			.69							
Motor pump				-0.03		n.c.		n.c.		n.c.
Spillover control (Pro-WEAI)			.69							
Spillover effect				-0.05		n.c.		n.c.		n.c.
WorldVeg [10]										
Control	0.29		0.65		0.70		0.89		0.36	
Intervention ITT[2]		0.19***†		0.04		-0.25***††		-0.12***††		0.25***††
Intervention ToT[6]		0.16**		0.08**		-0.25**		-0.09**		0.24***†††

	Women				Men				Whether household achieved gender parity	
	Whether empowered		Empowerment score		Whether empowered		Empowerment score			
	Endline control mean (%)	Impact	Endline control mean	Impact	Endline control mean (%)	Impact	Endline control mean	Impact	Endline control mean (%)	Impact
East Africa										
JP-RWEE[11]										
Control										
With access to credit		0.03		0.03		0.07		0.05**		-0.00
Lost access to credit		-0.46**+		-0.12**+		-0.47**+		-0.12**+		-0.39**+
Maisha Bora[12]										
Control	0.21		0.54		0.38		0.64		0.39	
Intervention		0.10		0.06		0.12		0.02		-0.05

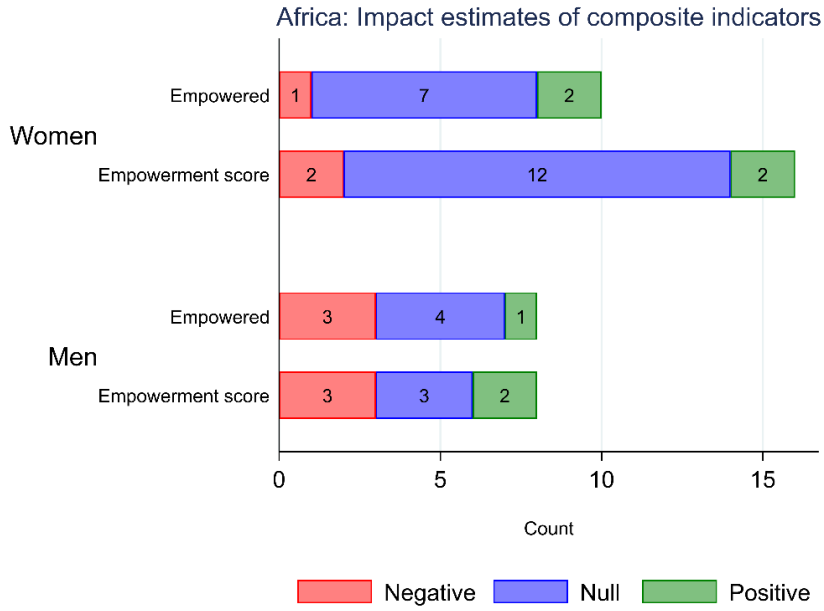
*p<.10; **p<.05; ***p<.01

Notes: [1]Single difference estimates, endline; [2]Intent to treat (ITT) estimates; [3]Double-difference estimates, midline and endline; [4]Multilevel logistic regression with random effects, OR=odds ratio; [5]Double difference estimates, baseline and endline, nearest neighbor estimates; [6]Treatment on the treated (ToT) estimates; [7]Double difference, baseline and endline ; [8]Intent to treat, ANCOVA regression; [9](IDE) ; [10]Difference-in-differences weighted with entropy balancing method and selection of control variables with post-double-selection method via Lasso regressions, baseline and endline using machine learning methods. †q<.10; ††q<.05; †††q<.01. Q-values estimated following Benjamini and Hochberg (1995); [11]Inverse probability weighted, single difference; significant + after controlling for false discovery rate; [12]Propensity score weighted difference-in-difference regressions. n.c.=not computed or measured

Figure 1. Distribution of impact estimates on whether empowered and empowerment score, GAAP2 portfolio



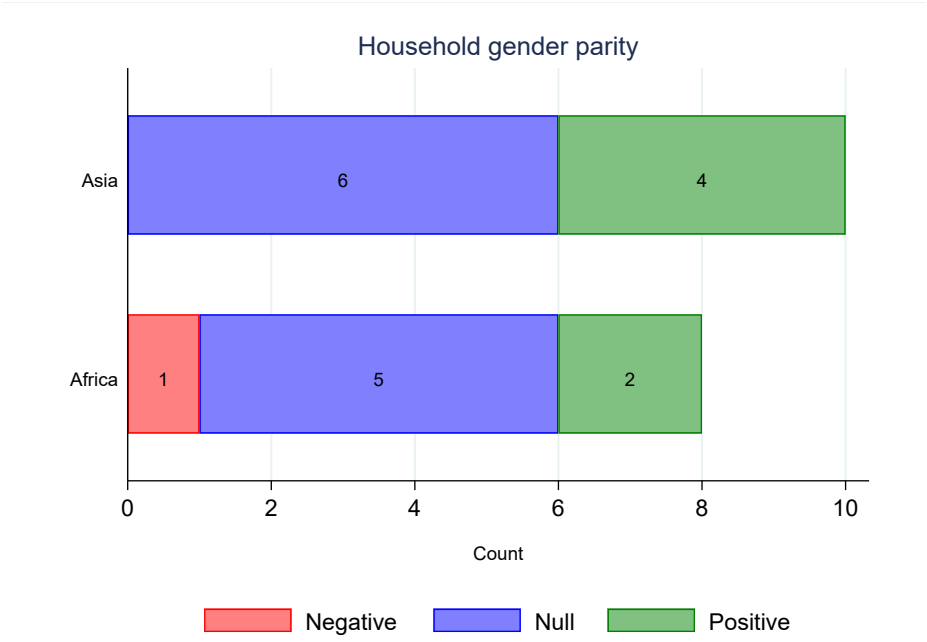
Number of estimated coefficients: Women: 16; Men: 10



Number of estimated coefficients: Women: 16; Men: 8

Notes: Count refers to the number of estimated impact coefficients across treatment arms in the GAAP2 portfolio (where measured). Definition of variables: Empowered denotes whether the individual is empowered (binary): An individual is defined as empowered if they achieved at least an empowerment score of 80% (A-WEAI) or 75% (pro-WEAI) Empowerment score (continuous): This is the proportion of indicators in which a respondent is adequate.

Figure 2. Distribution of impact estimates on whether the household achieved gender parity



Number of impact estimates: Asia: 10; Africa 8

Notes: Count refers to the number of estimated impact coefficients across treatment arms in the GAAP2 portfolio (where measured). Definition of variables: whether the household achieved gender parity.

There are fewer significant impacts reported for men, which is not surprising since some projects did not collect data on men and most projects did not target men's empowerment. ANGeL, FAARM, Grameen, and JP RWEE (beneficiaries with credit access) reported positive impacts on men's aggregate measures, while WorldVeg and JP RWEE (beneficiaries who lost access to credit) experienced negative impacts.

Very few projects reported significant impacts on gender parity in their quantitative findings, (Figure 2). Out of 10 treatment arms in South Asia that measured gender parity, 4 reported improvements, and 6 reported null impacts. Among 10 treatment arms measuring gender parity in Africa, only 2 reported improvements, 5 reported null impacts, and 1 reported a deterioration. Only ANGeL, AVC (weakly significant, NGO trainings only), FAARM, and WorldVeg reported improvements in gender parity; beneficiaries who lost access to credit in JP RWEE were worse off in terms of gender parity.[10]

To unpack these effects, we estimated impacts on binary indicators of adequacy[11] and the continuous indicators underlying the binary indicators. Estimated impacts on binary indicators are found in Appendix

[10] The results for AVC, which are ITT estimates, may be spurious because only about 15 percent of respondents reported attending a training. Nevertheless, we report them for consistency with the way we reported results across the projects.

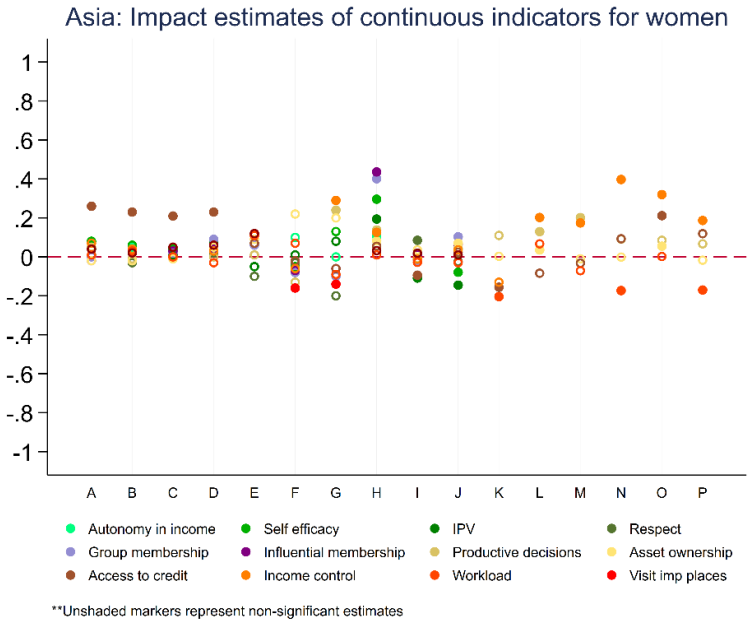
[11] The thresholds vary for each indicator because the indicators capture different aspects of agency and may be measured in different units. For example, a person is defined as adequate with respect to asset ownership if she or he owns, either solely or jointly, at least ONE of the following: 1) At least THREE small assets (poultry, nonmechanized equipment, or small consumer durables); 2) At least TWO large assets; 3) Land. In contrast, the adequacy with respect

Tables 2 and 3, for women and men, respectively, and in Tables 7 and 8 for continuous indicators, also for women and men. Comparison of the binary and continuous indicator estimates (not reported here) shows that the coefficients are quite similar in sign and statistical significance. For brevity, we focus our discussion on the continuous indicator results. The continuous indicators (such as the number of asset categories that a woman owns) may be more sensitive to incremental changes associated with program activities compared to the binary indicators.

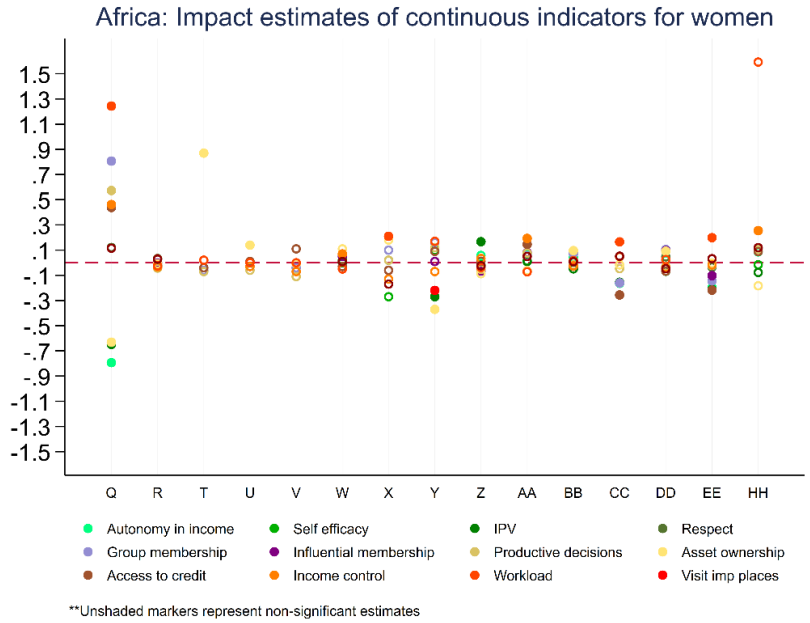
Figures 3 and 4 show the distribution of the standardized coefficients for each project, while Figures 5 and 6 indicate the numbers of coefficients that are positive, insignificantly different from zero, and negative. We see a larger number of significant impact estimates for the continuous individual indicators than the aggregate indicators, possibly because some impacts may offset each other. These indicator-specific estimates also provide information on what aspects of empowerment are more directly affected by the programs. We first discuss the instrumental agency indicators, followed by intrinsic and collective agency indicators.

to work balance is achieved if the person works less than 10.5 hours per day, where workload = time spent in primary activity + (1/2) time spent in childcare as a secondary activity.

Figure 3. Standardized impact coefficient estimates on pro-WEAI continuous indicators, women

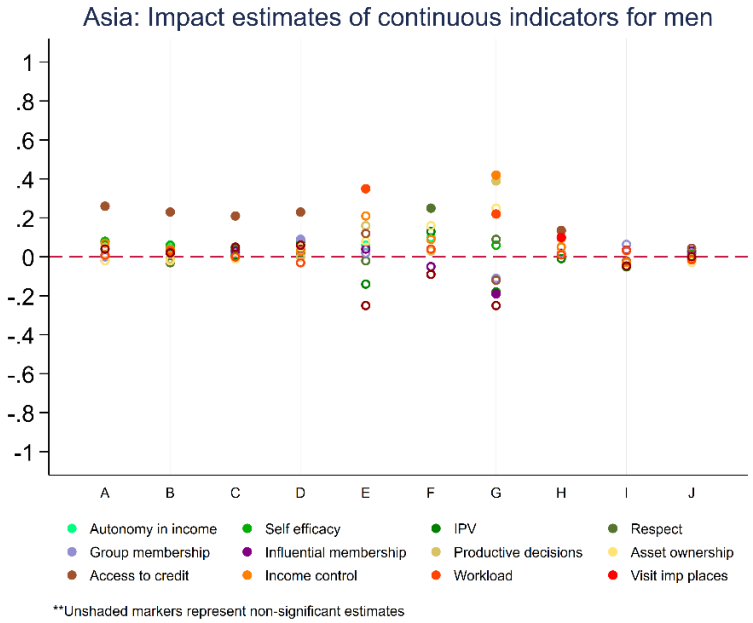


Project key: Asia: A: ANGeL T-A; B: ANGeL T-N; C: ANGeL T-AN; D: ANGeL T-ANG; E: AVC-Trainings only; F: AVC-Promotions only; G: AVC-Trainings+promotions; H: FAARM (Intervention); I: WINGS-NI-DD J: WINGS-NI-SD K: Heifer DirectFull L: Heifer: DirectTrain M: Heifer: DirectGoat N: Heifer: PIFFull O: Heifer: PIFTrain P: Heifer: PIFGoat
See Key Table for full descriptions of the projects and treatment arms

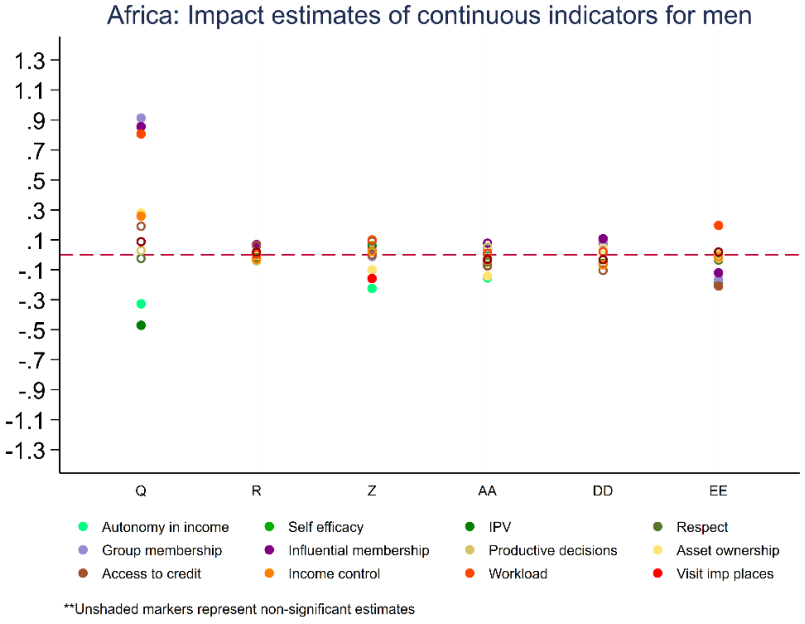


Project key: Africa: Q: Grameen; R: SELEVER; S: SELEVER+; T: iDE-M-DD1; U: iDE-M-DD2; V: iDE-M-DDS; W: iDE-M-SD1; X: iDE-M-SD1; Y: iDE-M-SDS; Z: WorldVeg-ITT; AA: WorldVeg ToT; BB: JPRWEE AC; CC: JPRWEE AL; DD: JPRWEE Married MC; EE: JPRWEE Married ML; HH: Maisha Bora (treatment)
See Key Table for full descriptions of the projects and treatment arms

Figure 4. Standardized impact coefficient estimates, continuous indicators, men



Project key: Asia: A: ANGeL T-A; B: ANGeL T-N; C: ANGeL T-AN; D: ANGeL T-ANG; E: AVC-Trainings only; F: AVC-Promotions only; G: AVC-Trainings+promotions; H: FAARM (Intervention); I: WINGS-NI-DD J: WINGS-NI-SD
See Key Table for full descriptions of the projects and treatment arms

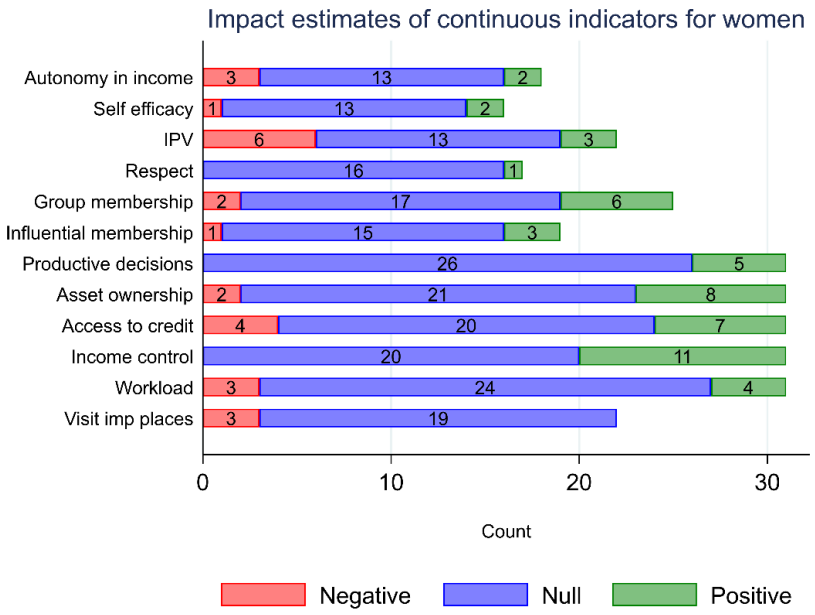


Project key: Africa: Q: Grameen; R: SELEVER; S: SELEVER+; Z: WorldVeg-ITT; AA: WorldVeg ToT; DD: JPRWEE Married MC; EE: JPRWEE Married ML
See Key Table for full descriptions of the projects and treatment arms

Key Table: Key to graphs with estimated impact coefficients

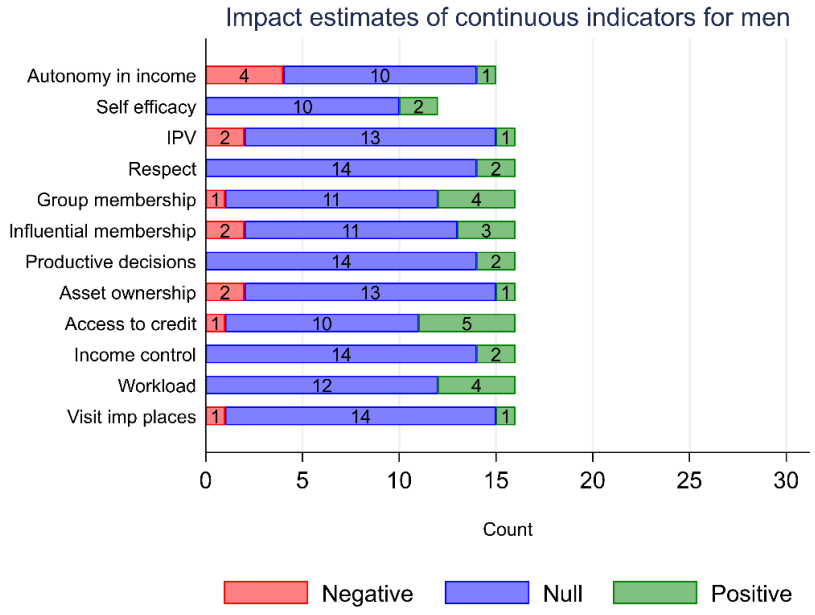
	Key	Treatment arm	Treatment description
South Asia projects	A	ANGeL - T-A	Agricultural extension
	B	ANGeL - T-N	Nutrition BCC
	C	ANGeL - T-AN	Agriculture and nutrition training
	D	ANGeL - T-ANG	Agriculture, nutrition, and gender sensitization training
	E	AVC - T	NGO trainings only
	F	AVC - P	NAAFCO promotions only
	G	AVC - T+P	Trainings + promotions
	H	FAARM	Homestead food production program
	I	WINGS - NI - DD	Nutrition-intensification - Double difference
	J	WINGS - NI - SD	Nutrition-intensification - Single difference
	K	Heifer - DFull	Full treatment - Direct beneficiaries
	L	Heifer - DTrain	Values based training - Direct beneficiaries
	M	Heifer - DGoat	Goats - Direct beneficiaries
	N	Heifer - PIFFull	Full treatment – Pay-it-forward beneficiaries
	O	Heifer -PIFTrain	Values based training – Pay-it-forward beneficiaries
	P	Heifer - PIFGoat	Goats – Pay-it-forward beneficiaries
Africa projects	Q	Grameen	Intervention
	R	SE LEVER	SELEVER
	S	SE LEVER+	SELEVER+
	T	iDE - M - DD1	Motor pump, relative to control group 1 - DiD
	U	iDE - M - DD2	Motor pump, relative to control group 2 - DiD
	V	iDE - M - DDS	Motor pump, relative to spillover - DiD
	W	iDE - M - SD1	Motor pump, relative to control group 1 - SD
	X	iDE - M - SD2	Motor pump, relative to control group 2 - SD
	Y	iDE - M - SDS	Motor pump, relative to spillover - SD
	Z	WorldVeg - ITT	Intervention, intent-to-treat estimate (ITT)
	AA	WorldVeg - ToT	Intervention, treatment effect on the treated estimate (ToT)
	BB	JP-RWEE - O - AC	Oromia - All women/men - Beneficiaries with access to credit
	CC	JP-RWEE - O - AL	Oromia - All women/men - Beneficiaries who lost access to credit
	DD	JP-RWEE - O - MC	Oromia - Married women/men - Beneficiaries with access to credit
	EE	JP-RWEE - O - ML	Oromia - Married women/men - Beneficiaries who lost access to credit
	HH	Maisha Bora	Intervention

Figure 5. Distribution of estimated coefficients on women's continuous indicators



Notes: Count refers to the number of estimated impact coefficients across treatment arms in the GAAP2 portfolio (where measured). Y axis lists the component indicators of pro-WEAI, continuous version.

Figure 6. Distribution of estimated coefficients on men's continuous indicators



Notes: Count refers to the number of estimated impact coefficients across treatment arms in the GAAP2 portfolio (where measured). Y axis lists the component indicators of pro-WEAI, continuous version

3.2.2 Impacts on women

Instrumental agency

Instrumental agency corresponds to Rowlands's (1995) "power to"; pro-WEAI's instrumental agency domain comprises six indicators: (1) input in productive decisions; (2) ownership of land and other assets; (3) control over the use of income; (4) access to and decisions on financial services; (5) work balance; and (6) visiting important locations.

Many projects in South Asia demonstrated significant impacts on instrumental agency indicators. In ANGeL, all treatments increased the number of types of credit sources over which women could make decisions (Table 7). The FAARM program also had significant positive impacts on women's number of types of productive decisions, the number of asset categories owned, and the number of kinds of decisions made on income (Waid et al., 2022). The qualitative work confirmed that ANGeL and FAARM respondents perceived women's participation in agricultural decision-making had increased over the course of the project (Dupuis et al., 2022). Impacts of AVC were weak and mixed; there were weakly significant positive impacts of NGO trainings and fertilizer promotions on the number of types of productive decisions and number of types of income decisions made by women, but both promotions and trainings plus promotions had a weakly significant negative impact on the number of important location categories visited. The AVC qualitative work confirmed that gender norms still favor masculine control over productive decisions. The WINGS nutrition-intensification program significantly increased the number of asset categories owned (single-difference estimates) consistent with findings that the program increased the number of small livestock owned by women (Raghunathan et al., 2022), but there was a negative impact on the number of types of credit sources of which a woman availed herself. Qualitative research revealed that women's participation in the self-help groups through which nutrition education was offered was not equally accessible to all participants. Attendance, and thus access to some benefits, was constrained by workloads and lack of spousal support (Nichols, 2021). The Heifer project demonstrated positive impacts for both direct and indirect (pay-it-forward) beneficiaries across different types of treatments. For direct beneficiaries, these included positive impacts on the number of categories of productive decisions made, the number of asset types owned, and the number of types of activities in which they controlled income. Women who were in the full package treatment also reduced the time spent in productive and reproductive tasks. Across the different pay-it-forward treatment arms, beneficiaries reported similar positive impacts on the number of types of activities in which they controlled income, the number of types of credit sources, and the number of asset types, as well as less time spent in productive and reproductive work (Janzen et al., 2018a, 2018b).

Turning to the Africa projects, the Grameen project, which was based on savings groups, had a positive impact on the number of types of productive decisions made, the number of types of credit sources a woman made decisions on, and the number of types of income decisions made. However, the program appears to have reduced the number of asset categories owned by women as well as increased their work hours. The reduction in the number of asset categories owned could, however, reflect consolidation of smaller, less valuable assets into one major asset, and is a limitation of the continuous version of this measure. The increase in work hours may reflect women taking on additional work, but seasonality should also be considered: the baseline was 6 months prior to harvest and endline was during harvest season. The Ethiopia JP RWEE program was also based on strengthening credit groups. Beneficiaries who maintained access to credit were able to increase the number of asset categories women owned, but beneficiaries who lost access to credit had fewer types of credit sources over which they made decisions and also increased their work hours. This result holds for all respondent women as well as in a subsample limited to the woman in the primary couple. The Maisha Bora program, which did not report any significant impacts on aggregate

indicators, found positive impacts on the number of types of income decisions made by women in the program (Krause et al., 2020). The WorldVeg enhanced homestead food production program in Mali had insignificant ITT effects, but significant positive impacts on the number of types of income decisions made and weakly significant positive impacts on the number of types of credit sources in TOT (Benali et al., 2020).

Table 7: Summary of project impacts on women's empowerment, by pro-WEAI indicator (continuous)

Panel A: Instrumental agency

	No. of types of productive activities with input in decisions		Number of asset types (including agricultural land) solely or jointly owned		Number of types of credit sources, plus access to financial account		No. of types of activities with control over use of income		Time spent on paid and unpaid work, plus .5 x time spent on childcare		Number of important location types visited	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
						South Asia						
ANGeL												
Control	3.45		4.86		0.85		3.53		10.58		0.35	
	(1.42)		(2.40)		(0.84)		(1.75)		(2.43)		(0.59)	
T-N		-0.01		-0.02		0.23***		0.04		0.03		0.02
		(0.04)		(0.05)		(0.03)		(0.05)		(0.05)		(0.04)
T-A		0.05		-0.02		0.26***		0.07		0.01		0.04
		(0.04)		(0.05)		(0.04)		(0.05)		(0.05)		(0.04)
T-AN		-0.01		-0.01		0.21***		0.00		-0.00		0.05
		(0.04)		(0.05)		(0.03)		(0.05)		(0.04)		(0.04)
T-ANG		-0.00		0.05		0.23***		0.03		-0.03		0.06
		(0.05)		(0.05)		(0.03)		(0.05)		(0.04)		(0.04)
AVC												
Control	4.09		3.84		0.95		3.84		10.84		0.58	
	(1.34)		(1.98)		(0.95)		(1.34)		(4.29)		(0.69)	
NGO trainings only		0.01		0.09		0.07		0.11		0.11		0.12
		(0.18)		(0.39)		(0.08)		(0.19)		(0.58)		(0.08)
NAAFCO promotions only		-0.13		0.22		-0.02		-0.06		0.07		-0.16*
		(0.16)		(0.33)		(0.1)		(0.20)		(0.59)		(0.07)
Trainings + promotions		0.24*		0.20		-0.06		0.29*		-0.09		-0.14*
		(0.19)		(0.39)		(0.09)		(0.21)		(0.64)		(0.05)
FAARM												
Control	3.46		3.35		1.39		3.68		14.50		0.62	
	(1.48)		(1.44)		(1.04)		(1.41)		(4.22)		(0.70)	
Intervention		0.14***		0.08***		0.05		0.13***		0.01		0.03
		(0.05)		(0.03)		(0.06)		(0.05)		(0.04)		(0.03)
WINGS												
Control	2.30		5.98		1.22		3.13		10.90		1.60	
	(1.43)		(2.35)		(0.87)		(1.70)		(3.31)		(0.78)	
NI (DD)		-0.01		0.04		-0.09**		-0.01		-0.03		0.02
		(0.04)		(0.04)		(0.04)		(0.04)		(0.05)		(0.04)
NI (SD)		0.04		0.07**		0.02		0.04		-0.03		0.01
		(0.03)		(0.04)		(0.04)		(0.04)		(0.04)		(0.04)

	No. of types of productive activities with input in decisions		Number of asset types (including agricultural land) solely or jointly owned		Number of types of credit sources, plus access to financial account		No. of types of activities with control over use of income		Time spent on paid and unpaid work, plus .5 x time spent on childcare		Number of important location types visited	
	Endline control mean	**Impact**	**Endline control mean**	**Impact**	**Endline control mean**	**Impact**	**Endline control mean**	**Impact**	**Endline control mean**	**Impact**	**Endline control mean**	**Impact**
Heifer (A-WEAI)												
					Direct Beneficiary							
Control	1.67		7.04		4.14		0.82		10.76			
	(0.07)		(0.18)		(0.29)		(0.05)		(0.29)			
Full treatment		0.11		0.00		-0.16*		-0.13		-0.20**		
		(0.07)		(0.02)		(0.09)		(0.09)		(0.09)		
Values-based training		0.13*		0.04**		-0.08		0.20**		0.07		
		(0.07)		(0.01)		(0.08)		(0.08)		(0.09)		
Goats		0.20***		-0.01		-0.03		0.17**		-0.07		
		(0.07)		(0.01)		(0.08)		(0.08)		(0.09)		
					Pay-it-forward beneficiary							
Control	1.62		6.83		3.06		0.67		11.26			
	(0.09)		(0.22)		(0.31)		(0.05)		(0.32)			
Full treatment		0.09		-0.00		0.09		0.40***		-0.17*		
		(0.08)		(0.02)		(0.10)		(0.10)		(0.10)		
Values-based training		0.09		0.06***		0.21**		0.32***		0.00		
		(0.08)		(0.02)		(0.10)		(0.10)		(0.10)		
Goats		0.07		-0.02		0.12		0.19*		-0.17*		
		(0.08)		(0.02)		(0.09)		(0.10)		(0.10)		
					West Africa							
Grameen												
Control	6.19		0.08		3.56		6.89		2.33		2.82	
	(2.09)		(0.28)		(1.58)		(3.78)		(1.19)		(1.36)	
Intervention		0.57***		-0.63***		0.44***		0.46***		1.24***		0.12
		(0.15)		(0.14)		(0.15)		(0.15)		(0.14)		(0.15)
SELEVER												
Control	8.43		4.12		0.22		7.95		13.05		1.35	
	(6.60)		(1.89)		(0.48)		(6.39)		(5.75)		(1.02)	
SE LEVER		-0.04		-0.01		0.03		-0.03		-0.02		0.03
		(0.04)		(0.03)		(0.03)		(0.03)		(0.04)		(0.03)

	No. of types of productive activities with input in decisions		Number of asset types (including agricultural land) solely or jointly owned		Number of types of credit sources, plus access to financial account		No. of types of activities with control over use of income		Time spent on paid and unpaid work, plus .5 x time spent on childcare		Number of important location types visited	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
iDE												
Control 1	2.16		4.33		0.52		3.87		10.04			
	(1.32)		(2.65)		(0.52)		(2.16)		(3.99)			
Motor pump (control group 1, DD)		-0.07		0.87**		-0.04		0.02		0.02		n.c.
		(0.05)		(0.05)		(0.05)		(0.04)		(0.01)		
Control 2	2.25		4.38		0.52		4.02		10.01			
	(1.30)		(2.52)		(0.51)		(2.19)		(2.49)			
Motor pump (control group 2, DD)		-0.06		0.14**		0.01		-0.03		0.00		n.c.
		(0.06)		(0.06)		(0.08)		(0.06)		(0.01)		
Motor pump spillover effects, DD)	2.25	-0.11	4.38	-0.01	0.52	0.11	4.02	-0.07	10.01	-0.00		n.c.
	(1.30)	(0.08)	(2.52)	(0.07)	(0.51)	(0.07)	(2.19)	(0.06)	(2.49)	(0.09)		
Control 1	2.72		4.40		0.48		3.03		7.97		1.86	
	(1.68)		(2.74)		(0.52)		(1.91)		(3.15)		(1.04)	
Motor pump (control group 1, SD)		0.07		0.11		-0.03		0.07*		-0.05		0.01
		(0.05)		(0.08)		(0.04)		(0.04)		(0.05)		(0.05)
Control 2	2.82		4.44		0.47		3.13		7.84		1.86	
	(1.69)		(2.66)		(0.52)		(1.92)		(3.23)		(1.11)	
Motor pump (control group 2, SD)		0.02		0.18		-0.06		-0.13		0.21**		-0.17
		(0.10)		(0.16)		(0.14)		(0.09)		(0.10)		(0.10)
Motor pump spillover effects, SD)	2.82	0.121	4.44	-0.37***	0.47	0.09	3.13	-0.07	7.84	0.17	1.86	-0.22*
	(1.69)	(0.15)	(2.66)	(0.12)	(0.52)	(0.13)	(1.92)	(0.15)	(3.23)	(0.11)	(1.11)	(0.13)
WorldVeg												
Control	4.12		9.08		1.25		4.10		10.71		1.62	
	(1.75)		(2.77)		(1.27)		(2.18)		(3.10)		(1.12)	
Intervention (ITT)		-0.05		-0.09		0.01		0.03		-0.04		-0.02
		(0.10)		(0.08)		(0.10)		(0.09)		(0.08)		(0.08)
Intervention (TOT)		0.08		-0.06		0.15*		0.19**		-0.07		0.05
		(0.70)		(0.06)		(0.08)		(0.09)		(0.07)		(0.06)

	No. of types of productive activities with input in decisions		Number of asset types (including agricultural land) solely or jointly owned		Number of types of credit sources, plus access to financial account		No. of types of activities with control over use of income		Time spent on paid and unpaid work, plus .5 x time spent on childcare		Number of important location types visited	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
						East Africa						
JP-RWEE												
						All women						
Control	3.34 (1.15)		6.10 (1.70)		0.46 (0.65)		3.70 (1.29)		9.77 (3.78)		3.68 (9.91)	
With access to credit		-0.02 (0.04)		0.10** (0.04)		-0.03 (0.05)		-0.03 (0.04)		0.02 (0.04)		0.01 (0.03)
Lost access to credit		-0.05 (0.05)		-0.02 (0.05)		-0.26*** (0.05)		-0.05 (0.05)		0.17*** (0.05)		0.05 (0.04)
						Women in primary couple						
Control	3.42 (1.10)		6.22 (1.67)		0.47 (0.67)		3.76 (1.23)		10.16 (3.69)		3.83 (10.90)	
With access to credit		-0.03 (0.05)		0.09* (0.05)		-0.07 (0.06)		-0.04 (0.05)		0.03 (0.05)		-0.05 (0.04)
Lost access to credit		-0.02 (0.05)		-0.00 (0.07)		-0.22*** (0.06)		-0.02 (0.05)		0.20*** (0.06)		0.03 (0.05)
Maisha Bora												
Control	3.49 (0.51)		0.66 (0.45)		0.88 (0.79)		1.57 (1.16)		18.12 (8.40)		2.05 (1.11)	
Intervention		0.10 (0.15)		-0.18 (0.11)		0.09 (0.15)		0.26* (0.13)		1.59 (1.75)		0.12 (0.17)

Notes: * $p < 0.10$, ** $p < 0.05$, *** p <0.01. Standard errors in parentheses. See notes to Table 6 for details on estimation method. DD=double difference; SD=single difference

Panel B: Intrinsic agency and collective agency

	Intrinsic agency								Collective agency			
	Relative autonomy index score (range: 3 to -3)		Self-efficacy scale score (range: 8 to 40)		Number of situations in which intimate partner violence is not justified		Number of conditions met defining respect		Number of types of groups to which respondent belongs		Number of types of groups regarded as influential to which respondent belongs	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
South Asia												
ANGeL												
Control	1.67		30.09		4.09		3.54		0.52		0.24	
	(1.81)		(5.64)		(1.41)		(0.84)		(0.64)		(0.51)	
T-N		0.05		0.06		0.03		-0.03		0.04		0.02
		(0.04)		(0.05)		(0.04)		(0.04)		(0.04)		(0.04)
T-A		0.01		0.08*		0.04		0.01		0.00		-0.02
		(0.04)		(0.04)		(0.04)		(0.04)		(0.04)		(0.04)
T-AN		0.00		0.04		0.01		0.02		0.02		0.03
		(0.04)		(0.05)		(0.04)		(0.04)		(0.03)		(0.04)
T-ANG		0.08*		0.02		0.08*		0.02		0.09**		0.04
		(0.04)		(0.05)		(0.04)		(0.04)		(0.04)		(0.04)
AVC												
Control	1.43		31.95		4.27		3.39		0.43		0.13	
	(2.06)		(4.04)		(1.16)		(0.83)		(0.58)		(0.34)	
NGO trainings only		-0.05		-0.05		-0.05		-0.10		0.06		0.11
		(0.56)		(0.56)		(0.19)		(0.15)		(0.09)		(0.05)
NAAFCO promotions only		0.10		-0.05		0.01		-0.02		-0.08		-0.07
		(0.37)		(0.50)		(0.15)		(0.17)		(0.09)		(0.04)
Trainings + promotions		0.00		0.13		0.08		-0.20		-0.10		-0.06
		(0.35)		(0.48)		(0.17)		(0.15)		(0.08)		(0.05)
FAARM												
Control	1.31		27.92		4.43		1.14		0.33		0.00	
	(1.84)		(4.57)		(1.05)		(1.29)		(0.52)		(0.10)	
Intervention		0.11***		0.30***		0.19***		0.06		0.40***		0.44***
		(0.04)		(0.04)		(0.04)		(0.05)		(0.04)		(0.05)
WINGS[5]												
Control	-0.12		16.41		4.54		3.43		0.37		0.17	
	(1.82)		(16.07)		(1.04)		(0.79)		(0.53)		(0.39)	
NI (DD)		n.c.		n.c.		-0.11**		0.09*		-0.02		0.01
						(0.04)		(0.05)		(0.04)		(0.05)

	Intrinsic agency								Collective agency			
	Relative autonomy index score (range: 3 to -3)		Self-efficacy scale score (range: 8 to 40)		Number of situations in which intimate partner violence is not justified		Number of conditions met defining respect		Number of types of groups to which respondent belongs		Number of types of groups regarded as influential to which respondent belongs	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
NI (SD)		0.04 (0.04)		-0.08** (0.04)		-0.15*** (0.04)		-0.02 (0.04)		0.10*** (0.04)		0.06 (0.04)
Heifer (A-WEAI)												
Direct beneficiary												
Control							5.95 (0.13)					
Full treatment		n.c.		n.c.		n.c.		-0.11 (0.09)				n.c.
Values-based training		n.c.		n.c.		n.c.		0.03 (0.08)				n.c.
Goats		n.c.		n.c.		n.c.		-0.03 (0.08)				n.c.
Pay-it-forward Beneficiary												
Control							5.74 (0.15)					
Full treatment		n.c.		n.c.		n.c.		-0.08 (0.10)				n.c.
Values-based training		n.c.		n.c.		n.c.		0.08 (0.10)				n.c.
Goats		n.c.		n.c.		n.c.		-0.09 (0.10)				n.c.
West Africa												
Grameen												
Control	0.80 (2.03)				3.85 (1.52)		3.17 (1.65)		2.71 (1.39)		3.96 (0.21)	
Intervention		-0.79*** (0.15)				-0.65*** (0.14)		0.12 (0.15)		0.81*** (0.14)		0.44*** (0.14)
SELEVER												
Control	0.20 (2.12)		30.11 (4.61)		3.66 (1.71)		3.41 (0.87)		0.61 (0.72)		0.50 (0.68)	
SELEVER		0.03 (0.04)		-0.03 (0.03)		-0.02 (0.04)		-0.03 (0.03)		-0.02 (0.03)		-0.00 (0.03)

	Intrinsic agency								Collective agency			
	Relative autonomy index score (range: 3 to -3)		Self-efficacy scale score (range: 8 to 40)		Number of situations in which intimate partner violence is not justified		Number of conditions met defining respect		Number of types of groups to which respondent belongs		Number of types of groups regarded as influential to which respondent belongs	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
iDE												
Control 1									1.41 (1.11)			
Motor pump (control group 1, DD)		n.c.		n.c.		n.c.		n.c.		-0.06 (0.05)		n.c.
Control 2									1.50 (1.20)			
Motor pump (control group 2, DD)		n.c.		n.c.		n.c.		n.c.		-0.03 (0.06)		n.c.
Motor pump spillover effects, DD)		n.c.		n.c.		n.c.		n.c.	1.50 (1.20)	-0.04 (0.05)		n.c.
Control 1			27.72 (7.69)		3.63 (1.70)				1.40 (1.18)		0.76 (0.81)	
Motor pump (control group 1, SD)		n.c.		0.02 (0.05)		0.00 (0.06)		n.c.		0.07 (0.06)		0.05 (0.05)
Control 2			27.84 (7.79)		3.67 (1.66)			n.c.	1.48 (1.30)		0.84 (0.85)	
Motor pump (control group 2, SD)				-0.27 (0.17)		0.02 (0.12)				0.10 (0.15)		-0.06 (0.14)
Motor pump spillover effects, SD)			27.84 (7.79)	0.10 (0.13)	3.67 (1.66)	-0.27* (0.14)			1.48 (1.30)	0.16 (0.13)	0.84 (0.85)	0.01 (0.16)
WorldVeg												
Control	-0.10 (1.66)		31.55 (3.41)		3.26 (1.77)		3.20 (1.13)		1.61 (1.38)		1.20 (1.12)	
Intervention (ITT)		0.06 (0.08)		-0.02 (0.07)		0.17** (0.08)		-0.03 (0.07)		-0.03 (0.09)		-0.07 (0.08)
Intervention (TOT)		0.07 (0.07)		0.01 (0.05)		0.01 (0.08)		-0.07 (0.07)		0.06 (0.07)		0.08 (0.06)

	Intrinsic agency								Collective agency			
	Relative autonomy index score (range: 3 to -3)		Self-efficacy scale score (range: 8 to 40)		Number of situations in which intimate partner violence is not justified		Number of conditions met defining respect		Number of types of groups to which respondent belongs		Number of types of groups regarded as influential to which respondent belongs	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
						East Africa						
JP-RWEE												
Control	1.43				3.96				1.12			
	(1.55)				(1.65)				(0.82)			
						All women						
With access to credit		0.04		n.c.		-0.05		n.c.		0.07*		
		(0.05)				(0.04)				(0.04)		
Lost access to credit		-0.16***		n.c.		-0.12**		n.c.		-0.16***		
		(0.05)				(0.05)				(0.05)		
						Women in primary couple						
	1.40				3.96		3.16		0.99		0.47	
	(1.55)				(1.64)		(1.20)		(0.81)		(0.67)	
With access to credit		0.02		n.c.		-0.07		0.05		0.11**		0.10*
		(0.06)				(0.05)		(0.05)		(0.05)		(0.06)
Lost access to credit		-0.20***		n.c.		-0.21***		-0.04		-0.14***		-0.10**
		(0.06)				(0.06)		(0.05)		(0.05)		(0.05)
Maisha Bora												
Control	0.33		31.43		1.13				0.48			
	(1.84)		(6.43)		(1.67)				(0.61)			
Intervention		0.09		-0.02		-0.08		0.12		0.12		
		(0.40)		(1.00)		(0.26)		(0.21)		(0.10)		

Notes: * $p < 0.10$, ** $p < 0.05$, *** p <0.01. Standard errors in parentheses. See notes to Table 6 for details on estimation method. DD=double difference; SD=single difference

The iDE program had a positive impact on the number of asset categories owned by women (double difference estimates), which is unsurprising because it involved the purchase of small-scale irrigation pumps. However, it also seems to have increased the number of work hours (relative to control group 2, single difference). Spillover effects indicate a negative impact on the number of types of asset categories owned by non-beneficiary women from treatment villages.

Intrinsic agency

Pro-WEAI's intrinsic agency domain corresponds to Rowlands's "power within," and comprises four indicators: (1) autonomy in income decisions; (2) self-efficacy; (3) attitudes towards IPV against women; and (4) respect among household members.

There are many fewer significant impacts on intrinsic agency indicators. ANGeL had weakly positive impacts on self-efficacy (agriculture arm), autonomy in income decisions (gender sensitization arm), and the number of instances in which IPV was considered unjustifiable (gender sensitization arm). FAARM reported positive and significant impacts on autonomy in income, self-efficacy, and attitudes towards IPV (Waid et al., 2022). WINGS reported a reduction in the number of instances in which IPV was deemed unjustifiable, and a weakly significant positive impact on respect, using the double-difference estimates. Single difference estimates show negative impacts on the continuous indicators for self-efficacy and the number of instances in which IPV was deemed unjustified.

The JP RWEE study found that the program had a positive impact on intrinsic agency for the beneficiaries with continued access to credit through the RUSACCOs between the baseline and endline. For this group of beneficiaries, the program seemed to increase the trust and respect between spouses. However, the fact that a second group of beneficiaries appeared to have dropped out of the program or lost access to credit suggests the existence of problems with the program or possible resistance by spouses or community members. The JP RWEE women participants who lost access to credit also felt IPV was unjustified in fewer circumstances (Hillesland et al., 2022). The Grameen project estimated negative impacts on autonomy in income and the number of circumstances in which IPV was unjustified, and apart from largely insignificant impacts, iDE reported a weakly significant negative impact on the number of instances IPV was unjustified. The decrease in the number of situations where IPV is deemed unjustified is an indicator of greater disempowerment.

The qualitative work elicited a broad range of examples from participants about how their self-confidence increased, which they directly attributed to the program activities. ANGeL participants noted that their increased knowledge stemming from the training activities more confident asking for help from agricultural extension agents, and others in the community would seek them out for advice. FAARM beneficiaries reported greater confidence and motivation when they saw their gardens becoming productive (Dupuis et al., 2022). In JP RWEE, the opportunity for women to earn money helped women develop a positive self-image and be proactive about their rights and responsibilities. SELEVER beneficiary women said raising poultry increased their self-confidence in their skills and capacities. For these women beneficiaries, gaining financial independence was critical, as they no longer needed to rely on their husbands' permission or direction for how to spend money (Eissler et al., 2020).

Collective agency

Finally, the third pro-WEAI domain, collective agency, corresponds to Rowlands's "power with." This domain comprises two indicators: (1) group membership and (2) membership in influential groups.

Reflecting their use of group-based approaches, several projects reported positive impacts on collective agency indicators, notably the number of types of groups to which the woman belonged (ANGeL gender

sensitization arm, FAARM, WINGS, Grameen, and JP RWEE for those with retained access to credit). A smaller subset of projects reported positive impacts on the number of types of influential groups to which the woman belonged (FAARM, Grameen, and JP RWEE for those who maintained access to credit) (Waid et al., 2022). The qualitative work confirms these positive associations across the portfolio, even in projects where the respective quantitative findings did not find a positive association for that project – perhaps because of context-specific constraints. For example, it may take time for a group to form, and even longer for it to be seen as influential.

For instance, qualitative findings for Maisha Bora find that women perceive group membership as key to empowerment, though lack of spousal support prevents women from participating (Krause et al., 2018). AVC participants perceive group membership as offering many benefits, though inconvenient timings and locations make group participation challenging for some (Rubin et al., 2018). Qualitative work associated with Heifer shows that, because groups reproduce power relations and exclusion from broader Nepali society, women with less education or status may lack the confidence to speak in groups or fully benefit from them (Nepā School of Social Sciences and Humanities, 2017). Qualitative research on WINGS found that groups with stronger existing relationships with the implementing organization were better able to engage and benefit their members. Past associations with PRADAN that led to benefits helped to build trust and strengthen participation not seen in newly formed groups (Nichols, 2021).

Interlinkages among types of agencies

The qualitative data further shows how instrumental, intrinsic, and collective agency are interlinked for many women. Freedom of movement, work balance, and intrahousehold respect are all important for women to be able to participate in groups (e.g., Heifer—Nepā School of Social Sciences and Humanities, 2017), while fear of IPV constrains women from participating (e.g., in Maisha Bora—Krause et al., 2018). Participation in microfinance groups provides access to credit and enables women to contribute to household income and gives them confidence to speak in public (a form of intrinsic agency not captured in the index). Nor is this only at the individual level: women in the Grameen program mentioned their role in their savings group as contributing substantially to both changing norms regarding women's ability to contribute to household income as well as their own empowerment (Kieran et al., 2018).

3.2.3 Empowerment impacts for men

Only 8 of the 11 projects collected pro-WEAI or A-WEAI information on men; estimated coefficients are presented in Table 8. All in all, a smaller proportion of estimated coefficients are significant, whether positive or negative, reflecting the women-focused nature of programming.

Table 8: Summary of project impacts on men's empowerment, by pro-WEAI indicator (continuous), projects that collected data on men

Panel A. Instrumental agency

	No. of types of productive activities with input in decisions		Number of asset types (including agricultural land) solely or jointly owned		Number of types of credit sources, plus access to financial account		No. of types of activities with control over use of income		Time spent on paid and unpaid work, plus .5 x time spent on childcare		Number of important location types visited	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
						South Asia						
ANGeL												
Control	3.32		7.72		1.26		4.13		9.66		1.56	
	(1.29)		(1.95)		(0.97)		(1.46)		(3.30)		(0.88)	
T-N		-0.01		-0.02		0.23***		0.04		0.03		0.02
		(0.04)		(0.05)		(0.03)		(0.05)		(0.05)		(0.04)
T-A		0.05		-0.02		0.26***		0.07		0.01		0.04
		(0.04)		(0.05)		(0.04)		(0.05)		(0.05)		(0.04)
T-AN		-0.01		-0.01		0.21***		0.00		-0.00		0.05
		(0.04)		(0.05)		(0.03)		(0.05)		(0.04)		(0.04)
T-ANG		-0.00		0.05		0.23***		0.03		-0.03		0.06
		(0.05)		(0.05)		(0.03)		(0.05)		(0.04)		(0.04)
AVC												
Control	4.55		7.8		1.58		4.42		9.11		1.79	
	(1.16)		(2.21)		(1.06)		(1.22)		(3.37)		(0.98)	
NGO trainings only		0.16		0.08		0.12		0.21		0.35***		-0.25
		(0.18)		(0.45)		(0.14)		(0.19)		(0.38)		(0.17)
NAAFCO promotions only		0.03		0.16		-0.09		0.09		0.04		-0.09
		(0.16)		(0.43)		(0.12)		(0.19)		(0.32)		(0.16)
Trainings + promotions		0.39***		0.25		-0.12		0.42***		0.22**		-0.25
		(0.16)		(0.38)		(0.15)		(0.18)		(0.36)		(0.14)
FAARM												
Control	4.57		7.55		1.49		4.37		10.55		1.88	
	(1.39)		(1.82)		(0.10)		(1.50)		(3.48)		(0.96)	
Intervention		0.09**		0.01		0.14**		0.05		0.01		0.10***
		(0.05)		(0.03)		(0.06)		(0.05)		(0.04)		(0.03)
WINGS												
Control	2.66		6.97		1.20		3.57		7.83		2.06	
	(1.36)		(2.01)		(0.94)		(1.48)		(3.47)		(0.77)	
NI (DD)		-0.03		-0.05		-0.02		-0.03		0.03		-0.05
		(0.04)		(0.05)		(0.04)		(0.04)		(0.04)		(0.04)

	No. of types of productive activities with input in decisions		Number of asset types (including agricultural land) solely or jointly owned		Number of types of credit sources, plus access to financial account		No. of types of activities with control over use of income		Time spent on paid and unpaid work, plus .5 x time spent on childcare		Number of important location types visited	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
NI (SD)		-0.01 (0.03)		-0.03 (0.04)		0.04 (0.04)		-0.02 (0.04)		-0.01 (0.04)		0.00 (0.04)
						West Africa						
Grameen												
Control	8.25 (1.56)		0.19 (0.39)		4.36 (0.91)		4.68 (3.74)		2.27 (1.32)		1.85 (1.38)	
Intervention		0.03 (0.14)		0.28* (0.15)		0.19 (0.15)		0.26* (0.15)		0.81*** (0.14)		0.09 (0.15)
SELEVER												
Control	16.44 (7.17)		7.70 (2.10)		0.43 (0.64)		16.08 (6.84)		7.75 (4.34)		1.80 (1.13)	
SELEVER		-0.04 (0.03)		-0.00 (0.05)		0.06 (0.05)		-0.03 (0.03)		0.00 (0.05)		0.02 (0.03)
WorldVeg												
Control	4.71 (1.13)		10.21 (1.73)		1.63 (1.36)		5.18 (1.43)		7.25 (3.10)		2.25 (1.10)	
Intervention (ITT)		0.02 (0.09)		-0.10* (0.05)		-0.00 (0.05)		0.03 (0.06)		0.10 (0.08)		-0.16* (0.09)
Intervention (TOT)		0.05 (0.06)		-0.14** (0.06)		-0.07 (0.09)		-0.04 (0.09)		0.01 (0.09)		-0.03 (0.10)
						East Africa						
JP-RWEE												
Control	3.43 (1.10)		6.47 (1.57)		0.70 (0.71)		3.85 (1.17)		7.34 (2.89)		15.37 (42.18)	
						Men in primary couple						
With access to credit		-0.06 (0.05)		0.04 (0.06)		-0.10 (0.07)		-0.07 (0.05)		0.02 (0.05)		-0.03 (0.04)
Lost access to credit		0.00 (0.05)		-0.02 (0.06)		-0.21*** (0.06)		-0.02 (0.05)		0.20*** (0.06)		0.02 (0.05)

Notes: * $p < 0.10$, ** $p < 0.05$, *** p <0.01. Standard errors in parentheses. See notes to Table 6. DD=double difference; SD=single difference

Panel B. Intrinsic agency and collective agency

	Intrinsic agency								Collective agency			
	Relative autonomy index score (range: 3 to -3)		Self-efficacy scale score (range: 8 to 40)		Number of situations in which intimate partner violence is not justified		Number of conditions met defining respect		Number of types of groups to which respondent belongs		Number of types of groups regarded as influential to which respondent belongs	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
	South Asia											
ANGeL												
Control	2.59		31.82		4.38		3.75		0.37		0.20	
	(0.90)		(4.55)		(1.18)		(0.64)		(0.64)		(0.48)	
T-N		0.05		0.06		0.03		-0.03		0.04		0.02
		(0.04)		(0.05)		(0.04)		(0.04)		(0.04)		(0.04)
T-A		0.01		0.08*		0.04		0.01		0.00		-0.02
		(0.04)		(0.04)		(0.04)		(0.04)		(0.04)		(0.04)
T-AN		0.00		0.04		0.01		0.02		0.02		0.03
		(0.04)		(0.05)		(0.04)		(0.04)		(0.03)		(0.04)
T-ANG		0.08*		0.02		0.08*		0.02		0.09**		0.04
		(0.04)		(0.05)		(0.04)		(0.04)		(0.04)		(0.04)
AVC												
Control	2.54		34.02		4.38		3.7		0.2		0.11	
	(0.95)		(3.94)		(1.24)		(0.64)		(0.46)		(0.34)	
NGO trainings only		0.06		0.16		-0.14		-0.02		0.02		0.04
		(0.26)		(0.61)		(0.20)		(0.11)		(0.06)		(0.04)
NAAFCO promotions only		0.10		-0.05		0.13		0.25*		0.09		-0.05
		(0.19)		(0.50)		(0.14)		(0.09)		(0.06)		(0.04)
Trainings + promotions		-0.12		0.06		-0.18		0.09		-0.11		-0.19*
		(0.19)		(0.52)		(0.21)		(0.09)		(0.04)		(0.03)
FAARM												
Control	2.42		30.00		4.85		1.56		0.91		0.06	
	(1.03)		(3.42)		(0.45)		(1.37)		(1.09)		(0.26)	
Intervention		0.05		0.14***		-0.01		0.09**		0.02		0.02
		(0.04)		(0.04)		(0.04)		(0.05)		(0.04)		(0.05)
WINGS												
Control	0.42		31.76		4.65		3.41		0.27		0.20	
	(1.86)		(5.30)		(0.94)		(0.86)		(0.58)		(0.53)	
NI (DD)		NA		NA		-0.05		-0.05		0.06		0.04
						(0.05)		(0.05)		(0.05)		(0.04)
NI (SD)		0.03		0.02		-0.01		0.00		0.02		0.03
		(0.04)		(0.04)		(0.05)		(0.05)		(0.04)		(0.04)

	Intrinsic agency								Collective agency			
	Relative autonomy index score (range: 3 to -3)		Self-efficacy scale score (range: 8 to 40)		Number of situations in which intimate partner violence is not justified		Number of conditions met defining respect		Number of types of groups to which respondent belongs		Number of types of groups regarded as influential to which respondent belongs	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
West Africa												
Grameen												
Control	1.33				4.52		2.42		1.78		3.98	
	(1.84)				(1.05)		(1.74)		(1.37)		(0.15)	
Intervention		-0.33**		n.c.		-0.47***		-0.02		0.91***		0.86***
		(0.15)				(0.15)		(0.15)		(0.13)		(0.13)
SELEVER												
Control	0.95		31.06		4.42		3.68		0.64		0.56	
	(1.91)		(5.06)		(1.24)		(0.64)		(0.81)		(0.76)	
SE LEVER		0.00		0.00		-0.02		-0.02		0.06*		0.07**
		(0.03)		(0.03)		(0.02)		(0.04)		(0.03)		(0.03)
WorldVeg												
Control	0.15		32.70		3.71		3.30		2.07		1.89	
	(1.80)		(3.42)		(1.51)		(1.25)		(1.59)		(1.56)	
Intervention (ITT)		-0.22***		-0.10		0.06		0.09		-0.01		0.03 (0.11)
		(0.06)		(0.10)		(0.07)		(0.08)		(0.11)		
Intervention (TOT)		-0.15***		-0.07		0.04		-0.05		0.05		0.08 (0.07)
		(0.05)		(0.08)		(0.07)		(0.07)		(0.07)		
East Africa												
JP-RWEE[5]												
Men in primary couple												
Control	1.35				4.20		3.16		1.27		0.67	
	(1.53)				(1.48)		(1.20)		(0.91)		(0.84)	
With access to credit		0.02		n.c.		-0.06		0.07		0.08		0.11*
		(0.07)				(0.05)		(0.06)		(0.05)		(0.06)
Lost access to credit		-0.19***		n.c.		-0.19***		-0.04		-0.17***		-0.12**
		(0.05)				(0.06)		(0.05)		(0.05)		(0.05)

Notes: * $p < 0.10$, ** $p < 0.05$, *** p <0.01. Standard errors in parentheses. See notes to Table 6. DD=double difference; SD=single difference

Instrumental agency

Similar to the results for women, men in all ANGeL treatments experienced increases in the number of types of credit sources over which they could make decisions. Men in the training + promotions treatment arm in AVC increased the number of types of productive decisions made and the number of types of income decisions made; impacts on women were positive but weakly significant; women also experienced a negative impact on the number of categories of places visited. This is consistent with the fact that, unlike the other projects, AVC did not have women-focused programming. However, in the AVC project these gains for men came at the expense of increased workload. Men beneficiaries in FAARM reported more types of productive decisions made, more types of credit sources over which they could decide, and more important types of locations visited.

The Grameen intervention seems to have contributed to men's empowerment, with weakly significant positive impacts on number of asset categories owned and kinds of income decisions made, but at the expense of increased workload. Impacts on men in the WorldVeg intervention seem to be negative, reducing the number of asset categories owned and the number of locations visited. Finally, in JP RWEE, negative impacts on number of types of credit sources and an increase in workload were reported by men in households that lost access to credit. This is consistent with qualitative findings from Grameen, JP RWEE, and Heifer that women and men perceived women as having greater access to credit relative to men because of the increasing popularity of microfinance groups targeting women. In Heifer and SELEVER, women take credit on behalf of their spouses.

Intrinsic agency

Although few projects collected data on men's intrinsic agency indicators, the findings reveal differences in the way South Asian and African projects affected men's intrinsic agency. The agriculture treatment arm of ANGeL increased men's self-efficacy score, while the gender sensitization arm increased men's relative autonomy score and the number of instances in which they felt IPV was not justified (both significant at $p<0.10$). FAARM increased men's self-efficacy score and the number of situations met defining respect. In contrast, in the Grameen project, the number of circumstances in which IPV was not justified decreased, and in the WorldVeg project, the relative autonomy score decreased. Among beneficiaries who lost access to credit in JP RWEE, both the relative autonomy score and the number of instances in which IPV was not justified decreased.

Collective agency

Many projects used women's groups as platforms for service delivery, so it is unsurprising that impacts on men's collective agency indicators were insignificant. The notable exceptions that reported positive impacts are Grameen and SELEVER; negative impacts were noted for AVC (trainings+ promotions treatment arm) and JP RWEE for those households that lost access to credit. But while there may have been few significant impacts on men's empowerment, there is no evidence (nor any logical reason for supposing) that there are tradeoffs in empowerment outcomes between women and men, i.e., that empowering women disempowers men.

4. LINKING STRATEGIES TO IMPACT

Can we link these estimated impacts to the strategies that projects implemented? We attempt to assess this relationship quantitatively by regressing the estimated standardized impact coefficients (effect size) from the continuous indicators regressions on dummy variables representing whether the project had a specific type of strategy targeting a specific empowerment indicator.

Our specification is:

IE = g (P strategy, S strategy, C strategy, G strategy, Region dummies) (1)

Where:

IE is the estimated impact of the project on the relevant continuous indicator; these are standardized coefficients estimated using each project's impact evaluation methodology.

Strategies: P=provide goods and services; S=strengthen organizations; C=build capacity (knowledge and skills); G= influence gender norms

Region dummies: East Africa, West Africa (South Asia is excluded category)

Our unit of observation is a treatment arm, so it is possible for projects to have more than one observation. Nevertheless, the sample size is small, particularly for intrinsic agency indicators. We also note that any relationships estimated are only associations, and do not imply causality. We hypothesize that the presence of a strategy would be associated with a larger estimated standardized coefficient size on pro-WEAI indicators if that strategy were effective. We include all estimated standardized coefficients, regardless of statistical significance. A standardized coefficient may not necessarily be "insignificant": it may well be sizable, but there is no evidence that it differs from zero, given the sample size. Having many such coefficients reported from various studies may well provide important evidence.

We also explored alternative definitions of the strategies according to which domain of agency they targeted, or whether they targeted specific indicators in pro-WEAI. For example, providing credit for motor pumps (P) in iDE could contribute to credit access and assets, while the Nurturing Connections program to influence gender norms (G) in ANGeL aimed to increase respect among household members and women's participation in decision-making. These alternative definitions were mapped ex post, after pro-WEAI was developed. However, the classification of strategies according to P, S, C, and G is more closely aligned to how the projects themselves defined the strategies, since these were defined prior to the development of pro-WEAI (Johnson et al, 2018).[12]

We then reviewed the qualitative studies from projects with each type of strategy to examine processes underlying the quantitative findings in more detail. The qualitative insights on how strategies affect empowerment are mixed, though this may be due to differences in when the qualitative work was conducted relative to quantitative data collection, project implementation, and implementation fidelity.

Table 9 shows that projects with a capacity building strategy are associated with larger estimated impacts on the number of types of credit sources and the number of location categories she can visit, but smaller estimated impacts on the number of asset types solely or jointly owned compared to other types of strategies.

[12] We also attempted to control for local differences in gender norms using the Gender Gap Index (GGI) (World Economic Forum, n.d.). However, the GGI is an imperfect measure of local gender norms because, as a country-level measure, it does not capture local norms in the study sites. We explored using subnational indicators computed from the Demographic and Health Surveys, but these are not available for all our study sites. We therefore rely on the regional dummies to capture geographic variation but acknowledge their limitations.

Table 9: Associations between project strategies and estimated impacts on women's continuous indicators

	Instrumental agency					
	No. of types of productive activities with input in decisions	**No. of asset types (including agricultural land) solely or jointly owned**	**No. of types of credit sources, plus access to financial account**	**No. of types of activities with control over use of income**	**Time spent on paid and unpaid work, plus .5 x time spent on childcare**	**No. of important location types visited**
Whether project has strategy to:						
Build capacity	0.028	-0.223*	0.147**	0.028	0.046	0.120**
	(0.065)	(0.110)	(0.063)	(0.077)	(0.180)	(0.046)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Change gender norms	0.067	-0.021	-0.078	0.017	0.082	0.066
	(0.058)	(0.099)	(0.056)	(0.069)	(0.161)	(0.046)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Strengthen organizations	0.025	0.023	-0.114	0.113	-0.105	-0.092
	(0.096)	(0.162)	(0.092)	(0.113)	(0.265)	(0.117)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Provide goods and services	0.040	0.007	-0.050	-0.062	-0.000	0.025
	(0.086)	(0.146)	(0.083)	(0.102)	(0.238)	(0.090)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Region (South Asia is excluded category)						
East Africa	-0.140*	0.001	-0.082	-0.097	0.425*	0.012
	(0.081)	(0.137)	(0.078)	(0.096)	(0.224)	(0.058)
West Africa	-0.024	-0.128	0.122*	-0.076	0.247	0.032
	(0.069)	(0.117)	(0.066)	(0.082)	(0.191)	(0.063)
Constant	-0.023	0.209*	0.081	0.045	-0.047	-0.098**
	(0.062)	(0.104)	(0.059)	(0.073)	(0.170)	(0.042)
Observations	31	31	31	31	31	22
Adjusted R-squared	-0.051	-0.008	0.252	-0.110	0.007	0.278

	Intrinsic Agency				Collective Agency	
	Relative autonomy index score	**Self-efficacy scale score**	**No. of situations in which intimate partner violence is not justified**	**No. of conditions met defining respect**	**No. of types of groups to which respondent belongs**	**No. of types of groups regarded as influential to which respondent belongs**
Whether project has strategy to:						
Build capacity	0.007	0.042	-0.015	0.096	0.134	0.066
	(0.192)	(0.081)	(0.108)	(0.060)	(0.105)	(0.089)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Change gender norms	-0.027	0.014	-0.024	-0.046	0.095	0.077
	(0.192)	(0.081)	(0.108)	(0.060)	(0.105)	(0.089)

	Intrinsic Agency				Collective Agency	
	Relative autonomy index score	**Self-efficacy scale score**	**No. of situations in which intimate partner violence is not justified**	**No. of conditions met defining respect**	**No. of types of groups to which respondent belongs**	**No. of types of groups regarded as influential to which respondent belongs**
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Strengthen organizations	0.314	0.020	0.090	0.025	-0.236	-0.058
	(0.360)	(0.219)	(0.276)	(0.108)	(0.278)	(0.228)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Provide goods and services	-0.255	0.030	-0.119	0.044	0.282	0.150
	(0.264)	(0.163)	(0.214)	(0.082)	(0.216)	(0.176)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Region (South Asia is excluded category)						
East Africa	-0.116	-0.124	-0.092	0.004	-0.165	-0.174
	(0.191)	(0.168)	(0.138)	(0.058)	(0.139)	(0.142)
West Africa	-0.295	-0.106	-0.120	-0.029	0.105	-0.023
	(0.209)	(0.131)	(0.149)	(0.058)	(0.150)	(0.123)
Constant	0.035	0.003	0.047	-0.079	-0.113	-0.063
	(0.184)	(0.074)	(0.098)	(0.057)	(0.094)	(0.081)
Observations	18	16	22	17	25	19
Adjusted R-squared	-0.208	-0.354	-0.181	0.201	0.024	-0.089

Marginal effects for discrete change of dummy variable from 0 to 1. Standard errors in parentheses.
* p < 0.10, ** p < 0.05, *** p <0.01; Anderson (2008) sharpened q-values in triangular brackets. These q-values correspond to p-values that have been adjusted for the False Discovery Rate (FDR). The FDR is the expected proportion of rejections that are type 1 errors (false rejections).

This is consistent with the capacity building strategies offering training, whereas providing goods and services can build assets more directly. The qualitative studies indicate that in many cases, when men saw the value of the training and other project interventions, they were more supportive of women leaving the homestead for a range of activities.

In the qualitative studies of the Grameen, JP RWEE, and Heifer projects, all of which had capacity building strategies, women and men perceived women as having greater access to credit relative to men due to the increasing popularity of microfinance groups targeting women, even though Heifer did not offer credit. The qualitative work sheds light on how this may happen: these three projects were not the only interventions in their respective areas and capacity building activities may have helped women tap into credit available from other sources. However, the qualitative work also finds that spousal approval, greater access to transportation, and lesser time required for travel enhances women's freedom of movement (to participate in community groups, including but not limited to credit groups) and women's access to credit (Meinzen-Dick et al., 2019).

Regarding freedom of movement, many women reported needing their husbands' permission for both travel and/or participation in community groups, ranging from sharing one's purpose for traveling (SELEVER)

to negotiating one's absence (Heifer, SELEVER, Grameen, WorldVeg). In an extreme case, Masaai women in the Maisha Bora project in Tanzania shared that their spouses may beat them to prevent them from traveling or participating in groups (Krause et al.,2018). Interestingly, though the Heifer project in Nepal did not offer credit as part of its program activities, beneficiaries attributed their greater freedom of movement to their involvement in a credit group, which is seen as a benefit for their families (Nepā School of Social Sciences and Humanities, 2017). In the qualitative studies for Grameen and SELEVER, women acknowledged they may take credit on behalf of their spouses with little input in how the credit is spent (Kieran et al., 2018; Eissler et al., 2020).

Despite the strong qualitative evidence on the links between freedom of movement and access to credit, in some contexts, the qualitative work also unexpectedly found that capacity building strategies may allow beneficiaries to avoid taking credit in specific circumstances. For instance, in the SELEVER project, which supported women's poultry raising, women reported they no longer needed to take credit to purchase meat to serve to visitors or during celebrations; they could slaughter one of their own chickens (Eissler et al., 2020). As such, reductions in women's credit sources may indicate that projects have helped women acquire the resources needed to leverage other, more preferable, choices around credit – which is not inherently disempowering.

Surprisingly, the regressions show that having strategies to change gender norms is not significantly associated with changes in instrumental, intrinsic, or collective agency indicators. Norm change is a process that may require months or years to yield a measurable difference (Bicchieri & Mercier, 2014). The qualitative findings provide insight on the processes through which these changes do or do not happen. The qualitative studies from Heifer, Grameen, SELEVER, WorldVeg, WINGS, and JP RWEE find that gender norms constrain women from participating in decisions about agricultural production overall. For instance, in Burkina Faso, focus groups showed that men are considered the head decision-makers around poultry production and marketing; it is unclear how SELEVER affected these attitudes in the long term. In some WINGS households, spousal expectations about how women should spend their time limited their participation in groups. However, participants in three studies (ANGeL, FAARM, and Heifer) noted some norm changes, resulting in a more egalitarian status for women, which they attributed to project activities. FAARM in Bangladesh found that participants reported a sustained change in decision-making among their household members (Dupuis et al., 2022). But the fact that normative changes were also reported in Heifer, which did not have an explicit gender sensitization strategy despite its emphasis on women's groups, indicates that normative change may occur as a result of other strategies, such as forming or strengthening groups. The mixed qualitative results align with the general knowledge that norm change is not straightforward, even for projects that have an explicit strategy to address gender norms, which likely explains the lack of association found in the quantitative studies.

Somewhat surprisingly, the presence of strategies to strengthen organizations and those that provide goods and services are not associated with the size of the impacts on any of the pro-WEAI indicators. The lack of a statistical association between strategies to strengthen associations and the indicators may be explained by the fact that all projects except ANGeL and AVC had some form of strategies to strengthen organizations. There is thus very little variation in the quantitative indicator, whereas there is considerable variation in the nature and intensity of interventions in terms of what kinds of organizations they sought to strengthen (whether self-help groups, credit groups, marketing groups, irrigation groups, and the like), and the methods and effectiveness of strategies employed. There was a great deal of heterogeneity in the goods and services delivered, from goats (Heifer Project) to irrigation pumps (iDE) to seeds and technical advice (WorldVeg) to credit services (Grameen, JP RWEE) and discounts on fertilizers (AVC). Even within the JP RWEE, which provided credit services, some women lost access to credit. In the face of all this

heterogeneity, finding statistical relationships would require a much larger sample of projects and more refined classification of the goods and services to include not only the monetary value (intensity of treatment) but the way it meets the needs of project participants.

Although the quantitative results do not show significant impact from any of the strategy types on the intrinsic agency indicators, findings from seven qualitative studies (ANGeL, FAARM, Heifer, Grameen, SELEVER, WorldVeg, JP RWEE), reveal that beneficiaries perceive capacity building projects as having a strong, positive influence on their self-efficacy. Overall, many women beneficiaries described feeling more confident, and directly attributed their increased confidence to the program activities. Notably, women beneficiaries in the Grameen project shared that their participation in a savings group encouraged norm change around women's ability to contribute to household income at the community level (Kieran et al., 2018). Additionally, ANGeL participants noted that due to their increased knowledge stemming from the training activities, others in the community would seek them out for advice (Quisumbing et al., 2021). This matches the emic notions of women's empowerment of being able to do things for others (Meinzen-Dick et al. 2019).

None of the strategies show any significant impact on the size of the impact estimates on the collective agency indicators. The qualitative data provide more nuanced insights on aspects of collective agency that are not necessarily captured in the indicators of group membership and membership in influential groups. The qualitative studies that examined perceptions of group membership (FAARM, Heifer, JP RWEE, and Maisha Bora) affirm the improvements in collective agency, and the interlinkages with other aspects of empowerment. In select cases, women's experiences spoke directly to the benefits of collective agency. For instance, in Nepal (Heifer), one woman shared a story about how her fellow group members came to her home to humiliate her husband for having beat her, an event which halted any potential future violence (Nepā School of Social Sciences and Humanities. 2017). In Bangladesh (FAARM), beneficiaries who experienced the greatest gains in agency attributed it, at least in part, to support from other women – fellow group members (Dupuis et al., 2022). In some cases, women's group members shared surplus agricultural inputs amongst themselves in lieu of selling them, affirming their social relationships and demonstrating how the benefits of collective agency could facilitate women's input into productive decisions or control over income generated from future yields. Indeed, because so many projects use groups to deliver programs, there are the two-way relationships between collective agency and program effectiveness. The JP RWEE, Maisha Bora, and WINGS qualitative studies showed that constraints to participation in groups, such as a lack of spousal support, transportation, or time poverty (which are aspects of instrumental and intrinsic agency) limited the participation of some women in the overall project.

Regional dummies, a rough measure of differences in gender norms across contexts, show that East African projects tend to have higher impact coefficients on the time spent on paid and unpaid work—a negative effect on empowerment—relative to projects in South Asia. Projects in East Africa have larger impact coefficients on the number of types of credit sources. These regional effects, however, are only weakly significant.

Table 10 presents corresponding regressions for men's impact estimates. Similar to the women's estimates, projects that build capacity are associated with a higher coefficient on the number of types of credit sources over which a man makes decisions and the number of location categories visited, but smaller coefficients on the number of types of activities in which they report input in decisions and control over income. The observed discordance between men's reduced decisionmaking and the lack of a complementary increase among women's decisionmaking may be due to gendered norms around intrahousehold dynamics that are not fully captured by the existing quantitative measure. Qualitatively, there is strong evidence that joint decisionmaking is desirable among women and men, though the meaning of jointness varies across contexts

(Meinzen-Dick et al., 2019). Additionally, in some contexts, women's decisionmaking is perceived as threatening to masculinity though women report their spouses consulting them before taking a decision (Meinzen-Dick et al., 2019).

Table 10: Associations between project strategies and estimated impacts on men's continuous indicators

	Instrumental agency					
	No. of types of productive activities with input in decisions	**No. of asset types (including agricultural land) solely or jointly owned**	**No. of types of credit sources, plus access to financial account**	**No. of types of activities with control over use of income**	**Time spent on paid and unpaid work, plus .5 x time spent on childcare**	**No. of important location types visited**
Whether project has strategy to:						
Build capacity	-0.140*	-0.148	0.279***	-0.162*	-0.162	0.213**
	(0.070)	(0.100)	(0.083)	(0.087)	(0.185)	(0.066)
	<1.000>	<1.000>	<0.324>	<1.000>	<1.000>	<0.324>
Change gender norms	0.110	0.038	0.041	0.102	0.092	-0.063
	(0.070)	(0.100)	(0.083)	(0.087)	(0.185)	(0.066)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Strengthen organizations	-0.145	-0.066	-0.188	-0.221	-0.365	0.074
	(0.127)	(0.181)	(0.151)	(0.158)	(0.334)	(0.119)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Provide goods and services	0.074	0.017	-0.023	0.111	0.303	-0.051
	(0.096)	(0.137)	(0.114)	(0.120)	(0.254)	(0.090)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Region (South Asia is excluded category)						
East Africa	-0.051	0.032	-0.208**	-0.042	0.099	-0.025
	(0.076)	(0.108)	(0.090)	(0.095)	(0.201)	(0.071)
West Africa	0.015	0.034	-0.013	0.080	0.296	-0.051
	(0.068)	(0.097)	(0.081)	(0.085)	(0.180)	(0.064)
Constant	0.120	0.138	-0.057	0.172*	0.142	-0.155**
	(0.067)	(0.096)	(0.080)	(0.084)	(0.177)	(0.063)
Observations	16	16	16	16	16	16
Adjusted R-squared	0.394	-0.077	0.551	0.356	-0.072	0.476

	Intrinsic Agency				Collective Agency	
	Relative autonomy index score	Self-efficacy scale score	No. of situations in which intimate partner violence is not justified	No. of conditions met defining respect	No. of types of groups to which respondent belongs	No. of types of groups regarded as influential to which respondent belongs
Whether project has strategy to:						
Build capacity	0.009	0.016	0.058	-0.139*	0.026	0.086
	(0.077)	(0.057)	(0.135)	(0.065)	(0.215)	(0.195)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Change gender norms	-0.029	0.054	-0.108	-0.091	-0.026	0.004
	(0.077)	(0.057)	(0.135)	(0.065)	(0.215)	(0.195)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Strengthen organizations	0.260	0.072	0.125	0.058	-0.234	-0.246
	(0.145)	(0.110)	(0.245)	(0.118)	(0.390)	(0.354)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Provide goods and services	-0.235*	-0.087	-0.105	0.021	0.252	0.252
	(0.106)	(0.083)	(0.186)	(0.090)	(0.296)	(0.269)
	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>	<1.000>
Region (South Asia is excluded category)						
East Africa	-0.120	0.000	-0.101	0.003	-0.079	-0.033
	(0.092)	(.)	(0.147)	(0.071)	(0.234)	(0.212)
West Africa	-0.273**	-0.162*	-0.102	-0.010	0.281	0.293
	(0.084)	(0.068)	(0.131)	(0.063)	(0.209)	(0.190)
Constant	0.033	0.021	0.009	0.167**	0.018	-0.069
	(0.074)	(0.054)	(0.129)	(0.062)	(0.206)	(0.187)
Observations	15	12	16	16	16	16
Adjusted R-squared	0.488	0.251	-0.244	-0.000	-0.199	-0.071

Marginal effects for discrete change of dummy variable from 0 to 1. Standard errors in parentheses.
* p < 0.10, ** p < 0.05, *** p <0.01; Anderson (2008) sharpened q-values in triangular brackets. These q-values correspond to p-values that have been adjusted for the False Discovery Rate (FDR). The FDR is the expected proportion of rejections that are type 1 errors (false rejections).

Projects with capacity building strategies have smaller coefficients on respect among household members. As established previously, spousal approval moderates women's access to credit, whether seeking permission to participate in a community credit group or in decisions on how funds from credit should be spent. Given that several capacity building projects included a credit component, men may have inadvertently enjoyed greater decision-making control over credit because under these projects, access to credit improved for women while men retained control over how women's credit would be spent. Further, women may have respected masculine control over credit as intrahousehold harmony is valued in many project contexts.

Projects that attempt to change gender norms seem to have lower impact coefficients on respect among household members. Our qualitative findings on respect among household members affirm that intrahousehold dynamics are complex and vary from context to context and may be a constraint to changing

gender norms. For instance, in Burkina Faso, we found that both women and men believe women should be "submissive" to their husbands to show appropriate deference though women and men both perceive "emancipated" women positively. If such projects target their messages mainly to women, they could weaken the potential to change men's attitudes. Our qualitative findings take this concept further by imploring us to consider household structures beyond the nuclear structure and take an intersectional approach. For instance, in polygynous contexts like the Maisha Bora project, women may perceive that their husband treats them differently than he does a co-wife, which may lead to tension among women in the household. In Nepal, we found that women who live with their mothers-in-law have little control over their time and responsibilities, as their lower social status in the household disallows them from exercising greater autonomy. Overall, such findings demonstrate that accounting for men and women based on their social position relative to other adults in the household is key to successfully changing gender norms.

Surprisingly, projects that provide goods and services are associated with lower impact coefficients on men's relative autonomy index score. If these goods and services are targeted to women, they may reduce men's autonomy with respect to income decisions; the qualitative work finds that, overall, women maintain control over the income they generate (Meinzen-Dick et al., 2019). The quantitative finding about men's relative autonomy index score result is consistent with the smaller impact coefficients on productive activities and control over the use of income. The FAARM project, which provided women with gardening materials and trainings, found that women often sold the surpluses of the vegetables they produced and maintained control over the income generated, either saving it or spending it on personal needs, family needs, additional food, or their children's education (Dupuis et al., 2022). However, results are not always as clear. In Ghana, iDE beneficiaries, who received irrigation technology, acknowledged that women's control over the income they generate varies from family to family (Bryan & Mekonnen 2022). Some ambivalence is evident in the Maisha Bora context, where women typically have little control over decision-making of any kind. Having a business bolsters women's control over income but may threaten some notions of masculinity, as women need permission from their spouses on nearly everything (Krause et al. 2018). Household dialogues such as in JP RWEE, introduce ideas of sharing decisions on income, which may reduce men's feelings of autonomy in decision-making.

Regional dummies show that projects in East Africa tend to have smaller impacts on the number of types of credit sources that men have access to or decide over. However, seemingly less access to credit may not necessarily indicate disempowerment; for instance, one may have satisfactory access to credit from a single source and not need more sources or may have enough capital to not need credit in the first place. With respect to intrinsic agency indicators, projects in West Africa have smaller impacts on men's relative autonomy score with respect to income decisions and the self-efficacy score.

A common concern when many outcomes are being examined simultaneously is that standard statistical techniques will tend to over-reject the null hypothesis. Many of the individual studies in the GAAP2 study corrected for multiple hypothesis testing. While this concern may not be valid for the composite indicators (the empowerment score, whether the woman or man is empowered, and the likelihood of the household achieving gender parity), concerns about over-rejecting the null hypotheses may be higher when we consider the twelve individual indicators in pro-WEAI. We therefore adjust for multiple testing in these regressions by controlling the false detection rate (FDR) and constructing sharpened q-values following Benjamini et al. (2006) and Anderson (2008) in Tables 9 and 10.

Adjustment for multiple hypothesis testing shows that none of these estimated impacts are significant. This may arise for several reasons. First, our sample sizes are small, particularly for the intrinsic agency indicators, which some projects did not collect, and even smaller for impacts on men, since not all projects collected data on men. Second, projects typically implement bundled strategies, for example, providing

goods and services while also building capacity (Table 11). While almost all treatments involved one of the four types of strategies, about 6-7 out of 32 treatment arms involved any two or any three strategies, and about 12 out of 32 treatment arms implemented all four strategies. Our alternative specifications using dummy variables for the type of agency targeted fared even worse, because almost all projects in the portfolio targeted instrumental agency. Only two treatment arms out of 32 did not target instrumental agency as an outcome. Moreover, as discussed previously, the mapping of strategies to indicators was done ex-post and was never exact.

Table 11: Strategies employed by projects

Project	Treatment	Project has strategy to: Build capacity	Change gender norms	Strengthen organizations	Provide goods and services
ANGeL	T-A	Yes	No	No	No
ANGeL	T-AN	Yes	No	No	No
ANGeL	T-ANG	Yes	Yes	No	No
ANGeL	T-N	Yes	No	No	No
AVC	NAAFCO promotions only	No	No	No	No
AVC	NGO trainings only	No	Yes	No	No
AVC	Trainings + promotions	No	Yes	No	No
FAARM	Homestead food production	Yes	Yes	Yes	Yes
WINGS	Nutrition-intensification - DiD	Yes	Yes	Yes	Yes
WINGS	Nutrition-intensification - SD	Yes	Yes	Yes	Yes
Heifer	Full treatment - Direct beneficiaries	Yes	Yes	Yes	Yes
Heifer	Full treatment – Pay-it-forward beneficiaries	Yes	No	Yes	Yes
Heifer	Goats - Direct beneficiaries	Yes	No	Yes	Yes
Heifer	Goats – Pay-it-forward beneficiaries	Yes	No	Yes	Yes
Heifer	Values based training - Direct beneficiaries	Yes	Yes	Yes	No
Heifer	Values based training – Pay-it-forward beneficiaries	No	No	Yes	No
Grameen	Intervention	Yes	Yes	Yes	Yes
SE LEVER	SELEVER	Yes	Yes	Yes	No
SE LEVER	SELEVER+	Yes	Yes	Yes	No
iDE	Motor pump - control group 1 - DiD	No	No	Yes	Yes
iDE	Motor pump - control group 1 - SD	No	No	Yes	Yes
iDE	Motor pump - control group 2 - DiD	No	No	Yes	Yes
iDE	Motor pump - control group 2 - SD	No	No	Yes	Yes
iDE	Motor pump - spillover - DiD	No	No	Yes	Yes
iDE	Motor pump - spillover - SD	No	No	Yes	Yes
WorldVeg	Intervention ITT	Yes	Yes	Yes	Yes
WorldVeg	Intervention ToT	Yes	Yes	Yes	Yes
JP-RWEE	Oromia - All women/men - Beneficiaries who lost access to credit	Yes	Yes	Yes	Yes
JP-RWEE	Oromia - All women/men - Beneficiaries with access to credit	Yes	Yes	Yes	Yes
JP-RWEE	Oromia - Married women/men - Beneficiaries who lost access to credit	Yes	Yes	Yes	Yes
JP-RWEE	Oromia - Married women/men - Beneficiaries with access to credit	Yes	Yes	Yes	Yes
Maisha Bora	Intervention	Yes	Yes	Yes	Yes
No. of treatment arms with strategy (% of 32)		22 (68.8)	18 (56.3)	25 (78.1)	21 (65.6)
No. of treatment arms with at least one strategy (% of 32)		31 (96.9)			
No. of treatment arms with any two strategies (% of 32)		7 (21.9)			
No. of treatment arms with any three strategies (% of 32)		6 (18.8)			
No. of treatment arms with all four strategies (% of 32)		12 (37.5)			

Source: Project documents

5. DISCUSSION AND CONCLUSIONS

Pro-WEAI was developed as a measure of women's empowerment for agricultural development projects to use to diagnose key areas of women's (and men's) disempowerment, design appropriate strategies to address deficiencies, and monitor project outcomes related to women's empowerment. This paper synthesizes the findings from GAAP2's mixed-methods impact evaluations of 11 agricultural development projects that used the pro-WEAI. We wanted to know whether pro-WEAI could detect project impacts in the 2–3-year time frame in which agricultural development projects are typically implemented.

We found that projects' impacts on aggregate indicators of women's empowerment (the continuous empowerment score, the binary indicator whether the woman was empowered) and gender equality (the intrahousehold inequality score) were mixed, and mostly insignificant. Projects in South Asia were more likely to show significant increases in empowerment than those in Africa, perhaps reflecting a longer history and more experience with designing programs to address particular forms of women's disempowerment.

Because pro-WEAI is an aggregate index whose components may move in different directions, reflecting tradeoffs in empowerment, we analyzed impacts on pro-WEAI's component indicators, which yields a more nuanced picture. We found many significant impacts on instrumental agency indicators, probably because these are what projects target. We also found significant impacts on collective agency indicators, reflecting the group-based approaches that most projects used. We found very few significant impacts on intrinsic agency indicators, with a few exceptions from the projects that adopted intentional approaches to addressing gender norms, such as ANGeL and FAARM in Bangladesh and JP RWEE in Ethiopia (for those beneficiaries who maintained access to credit). The "stickiness" of intrinsic agency indicators suggests that these may be harder to move in the short term. On the positive side, the WINGS study identified how prior relationships between project implementers and their beneficiaries can build trust and strengthen participation and benefits over time. Nevertheless, the large number of insignificant impact estimates highlights the needs for projects to focus more on empowerment, rather than assume that projects aiming to reach and benefit women would automatically empower them. The two cases with negative aggregate impacts (AVC trainings plus promotions arm, which had minimal gender content, and JP RWEE beneficiaries who lost credit access) underscore the importance of conscious strategies, even to "do no harm" to women's empowerment.

Our inability to generalize across the portfolio, in aggregate and in terms of individual indicators, reinforces the need to pay attention to both project implementation and context. The mixed results of projects on tolerance of IPV illustrate the importance of both. The three projects (ANGeL, FAARM, and WorldVeg) where beneficiaries reported an increase in the number of instances in which IPV was not justified indicate a heightened critical consciousness of what is (and is not) acceptable in spousal relationships. In the other projects where women identify fewer instances in which IPV is unjustified, it may indicate that women are willing to tolerate more instances of IPV in exchange for other types of freedoms. Qualitative findings from the Grameen project found that empowered women are perceived to be "autonomous" yet "submissive" to their husbands and families (Kieran et al., 2018). This is similar to reports from another project among the Afar in Ethiopia that women gain social status by submitting to IPV without protest, and that increase in status is associated with empowerment (Mosedale 2014:1121). The high levels of disempowerment on this indicator at baseline in the Maisha Bora case prompted the implementing organization to add an IPV reduction component to new project, illustrating the potential value of even baseline data for projects.

Our analysis does not show that any one of the four types of strategies that projects implemented had a consistent impact. The quantitative analysis showed limited positive associations between having a capacity building strategy and the number of important places that a woman can visit, the number of types of

credit/financial services sources that women decide on, and the number of types of credit sources over which a man makes decisions, perhaps because, as the qualitative work shows, women often take out loans on behalf of their husbands. However, projects with capacity building strategies seem less able to increase respect among household members, a possible indication of backlash as women enter nontraditional spheres. The lack of a statistical association between the other project strategies (i.e., influencing gender norms, strengthening organizations, and providing goods and services) and impact coefficients reveals the limitations of quantitative analysis, especially given the small number of projects and treatment arms involved. Rather than any one type of strategy always being effective, it may be more important that the strategy be adapted to local needs and be implemented well. We would recommend that projects that seek to empower women pay more attention to ensuring that they have strategies that go beyond reaching and benefitting women and think critically about what activities would contribute to different types of empowerment. Moreover, empowerment is also an ongoing and iterative process, in which each stage in the process contributes to further empowerment; if this process is interrupted, then women may have difficulty further empowering themselves (Dupuis et al., 2022). The negative outcomes for women who lost credit access in JP RWEE provides a cautionary note in this regard.

The qualitative studies provide more nuance and insight into how projects affected women's empowerment and linkages among the different types of agencies (Meinzen-Dick et al., 2019). For example, freedom of movement and work balance (instrumental agency) and respect among family members (intrinsic agency) are important for women to be able to be members of groups (collective agency); group membership, in turn, is reported to increase access to credit, control over income, and input into productive decisions (instrumental agency) as well as women's self-confidence (intrinsic agency). Thus, some base level and forms of agency may be necessary for women to be able to participate in project activities, to benefit or increase their empowerment. Identifying these linkages and baseline information about each of the aspects of empowerment can help projects to adapt their strategies, such as ensuring that women have freedom of movement if they are expected to attend group meetings or training.

In undertaking this exercise, we learned the value of having a common metric that allows comparisons of empowerment impacts across projects and contexts as well as qualitative work to understand and contextualize these impacts. We also acknowledge the possibility that the pro-WEAI indicators may be too coarse to pick up some project impacts. For example, the continuous indicator for group membership, defined as the number of types of groups to which a respondent belongs, will capture improvements that lead to membership in new types of groups but will not reflect improvements in the quality of the member's participation in an existing group. A similar argument could be made for the indicators for the input in productive decisions and control over use of income indicators, where these are defined as numbers of types of activities where a respondent demonstrates agency. Even the so-called "continuous" indicator of assets refers to the number of asset categories, rather than the value of assets. It is possible that women may acquire fewer types of assets, but more valuable ones.

While the qualitative data show a more positive picture of project impacts, the limited sample size and the fact that in most projects the qualitative studies were conducted in a few select communities does not allow us to identify how widespread the benefits are, and although we tried to include diverse respondents, it is possible that the more articulate, and empowered, respondents had greater voice. The standardized survey used in the quantitative index allows us to interview a larger and more representative sample of respondents, while the construction of an index allows us to look at impacts across a project portfolio. Using an additive, decomposable index also permits us to identify which aspects of empowerment are more directly affected by the project.

Our efforts also illustrate the importance of complementing quantitative impact evaluations with qualitative investigations and process evaluations. GAAP2 has used qualitative and quantitative methods since its inception. Qualitative methods (review of project documents) were used to identify the strategies that projects used to empower women as well as to inform the design of quantitative modules that were included in pro-WEAI. Partner projects participated in choosing the indicators to be tested in the pilot version of pro-WEAI; these indicators were then validated using the qualitative protocols that are part of the standard pro-WEAI toolkit and underwent further assessment using psychometric methods (Yount et al., 2019). Qualitative methods were used to "ground truth" the findings on the meaning of empowerment as well as the sources of disempowerment (Meinzen-Dick et al. 2019). Qualitative methods helped us to understand beneficiaries' experiences of empowerment (or lack thereof) associated with the projects, and can be used to contextualize and explain findings, such as whether data is from busy or slack seasons. Without the nuance provided by the qualitative results, we could have erred on the side of coming up with quantitative indicators that did not measure anything meaningful, as Tavenner & Crane (2022) have cautioned against.

The development of the quantitative instrument for pro-WEAI along with its suite of qualitative protocols allows us to have the best of both worlds: a quantitative, standardized instrument that is comparable across a project portfolio, and qualitative protocols that provide insights into the local, context-specific meanings of empowerment and the processes underlying empowerment (or disempowerment) associated with agricultural development projects.

Can agricultural development projects empower women? Our answer is a qualified "yes." The variability in project impacts on empowerment are consistent with the variability Lombardini and McCollum (2018) found across Oxfam projects, although they found a higher proportion of projects having overall positive impacts on the Women's Empowerment Index. Projects in our portfolio that succeeded in empowering women were intentional about their project strategies, had activities adapted to culture and context, and paid attention to unintended consequences (whether backlash from men or increased workload). These projects have clearly gone beyond "reach" and "benefit" to "empower."

For metrics like pro-WEAI to help these projects achieve their empowerment objectives, we have several recommendations and some words of caution. First, use both qualitative and quantitative tools and methods. This process begins with a review of project documents to identify the project's theory of change and impact pathways linking strategies to empowerment. Other qualitative instruments provide important understanding of how project staff as well as local women and men view women's empowerment, and how the project may (or may not) be contributing. Turning to the quantitative data, collecting survey data from both men and women is necessary to measure gender equality, and to identify whether women's disempowerment is primarily gender-based, or whether men in their households are also disempowered. The 3DE, GPI, and other aggregate components of pro-WEAI are useful for characterizing overall changes in empowerment, but it is also important to look at changes in individual indicators to identify where a project is having greatest (or least) success, and possible trade-offs, such as increased workloads accompanying women's increased participation in decision-making. In this regard, pro-WEAI can also be useful as a diagnostic, particularly if implemented early in the project cycle, to assess which aspects of agency are most important to address for women and for men. We caution project designers and implementors against setting targets based on specific levels of change in pro-WEAI or its indicators. We do not yet have enough evidence to guide decisions on what levels of change are meaningful for different project settings. Our findings suggest that pro-WEAI can detect changes in most aspects of agency over the course of a typical project timeline (for example, instrumental agency), but may not be capable of detecting change in aspects of agency, such as intrinsic agency, which are slower to change because of underlying norms and gender attitudes (Bicchieri & Mercier, 2014). Qualitative work may be better able to capture

subtle changes related to norms and attitudes, such as local meanings of empowerment (O'Hara and Clement 2018). Thus, we strongly recommend that qualitative work be conducted in tandem with quantitative evaluations.

Because of the project- and context-specificity of impact evaluation results, we cannot identify "best practices" or "proven strategies"; indeed, as Johnson (2021) notes, it may be advisable to replace these phrases with more nuanced language and approaches to supporting the design of more effective projects. Each project needs to use a solid diagnosis of gender relations and women's constraints to develop strategies that are appropriate to that context. With more consistent characterization and analysis of strategies, it may be possible for future GAAP2–like projects to identify patterns in how specific strategies work in different contexts to provide broader guidance on how they could be implemented or adapted.

Finally, it is important to recognize that pro-WEAI measures empowerment, but impact assessments should collect data on other benefits, such as increased productivity, incomes, nutrition, or environmental conditions. Such data is important not only for the projects themselves to assess their success, but also to build the evidence base about whether women's empowerment is associated with achieving other development objectives.

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APPENDIX TABLES

Appendix Table 1: Comparing Pro-WEAI and A-WEAI domains and indicators

Pro-WEAI domain	Pro-WEAI indicator name	Pro-WEAI definition	A-WEAI domain	A-WEAI indicator name	A-WEAI definition
Intrinsic agency	Autonomy in income	More motivated by own values than by coercion or fear of others' disapproval *Weight = 1/12*			
Intrinsic agency	Self-efficacy	"Agree" or greater on average with self-efficacy questions: *New General Self-Efficacy Scale* [C] score>=32 *Weight = 1/12*			
Intrinsic agency	Attitudes about intimate partner violence against women	Believes husband is NOT justified in hitting or beating his wife in all 5 scenarios: [D] 1) She goes out without telling him 2) She neglects the children 3) She argues with him 4) She refuses to have sex with him 5) She burns the food *Weight = 1/12*			
Intrinsic agency	Respect among household members	Meets ALL the following conditions related to their spouse, the other respondent, or another household member: 1) Respondent respects relation (MOST of the time) AND 2) Relation respects respondent (MOST of the time) AND 3) Respondent trusts relation (MOST of the time) AND 4) Respondent is comfortable disagreeing with relation (MOST of the time) *Weight = 1/12*			

Pro-WEAI domain	Pro-WEAI indicator name	Pro-WEAI definition	A-WEAI domain	A-WEAI indicator name	A-WEAI definition
Instrumental Agency	Input in productive decisions	Meets at least ONE of the following conditions for ALL the agricultural activities they participate in 1) Makes related decision solely, 2) Makes the decision jointly and has at least some input into the decisions 3) Feels could make decision if wanted to (to at least a MEDIUM extent) *Weight = 1/12*	Production	Input in productive decisions	Adequate if individual participates in and makes decisions, has input in decisions, or feels she could make decisions (if desired) about at one agricultural activity *Weight = 1/5*
Instrumental Agency	Ownership of land and other assets	Owns, either solely or jointly, at least ONE of the following: (updated March 2020) 1) Any three assets 2) Land *Weight = 1/12*	Resources	Ownership of assets	Adequate if individual owns at least one major asset or at least two minor assets *Weight = 2/15*
Instrumental Agency	Access to and decisions on financial services	Meets at least ONE of the following conditions: 1) Belongs to a household that used a source of credit in the past year AND participated in at least ONE sole or joint decision about it 2) Belongs to a household that did not use credit in the past year but could have if wanted to from at least ONE source 3) Has access, solely or jointly, to a financial account *Weight = 1/12*	Resources	Access to and decisions about credit	Adequate if individual makes decisions about at least one source of credit accessed by her/his household *Weight = 1/15*
Instrumental Agency	Control over use of income	Has input in decisions related to how to use BOTH income and output from ALL the agricultural activities they participate in AND has input in decisions related to income from ALL non-agricultural activities they participate in, unless no decision was made *Weight = 1/12*	Income	Control over use of income	Adequate if individual participates in and has input in decisions about income generated from an activity or she/he makes decisions, has input in decisions, or feels she/he could make decisions (if desired) about employment or major household expenditures *Weight = 1/5*

Pro-WEAI domain	Pro-WEAI indicator name	Pro-WEAI definition	A-WEAI domain	A-WEAI indicator name	A-WEAI definition
Instrumental Agency	Work balance	Works less than 10.5 hours per day: Workload = time spent in primary activity + (1/2) time spent in childcare as a secondary activity *Weight = 1/12*	Time	Workload	Adequate if individual worked fewer than 10.5 hours during the previous day *Weight = 1/5*
Instrumental Agency	Visiting important locations	Meets <u>at least ONE of the following</u> conditions: 1) Visits at least TWO locations at least ONCE PER WEEK of [city, market, family/relative], or 2) Visits least ONE location at least ONCE PER MONTH of [health facility, public meeting] *Weight = 1/12*			
Collective Agency	Group membership	Active member of at least ONE group *Weight = 1/12*	Leadership	Group member	Adequate if individual is an active member of at least one group *Weight = 1/5*
Collective Agency	Membership in influential groups	Active member of at least ONE group that can influence the community to at least a MEDIUM extent *Weight = 1/12*			

Source: Malapit et al. (2019, 2017)

Appendix Table 2. Summary of project impacts on women's empowerment, by pro-WEAI indicator (binary)

Panel A. Instrumental agency

	Input in productive decision		Ownership of land, assets		Access to/decision on financial services		Control over income		Work balance		Visiting important locations	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
						South Asia						
ANGeL												
Control	0.86		0.81		0.62		0.80		0.48		0.24	
	(0.02)		(0.03)		(0.02)		(0.03)		(0.03)		(0.03)	
T-N		0.04		0.03		0.20***		0.06*		-0.01		0.02
		(0.02)		(0.04)		(0.03)		(0.03)		(0.05)		(0.05)
T-A		0.01		-0.01		0.23***		0.02		0.00		0.08*
		(0.02)		(0.04)		(0.03)		(0.03)		(0.05)		(0.05)
T-AN		0.02		0.02		0.22***		0.03		-0.02		0.04
		(0.02)		(0.04)		(0.03)		(0.03)		(0.05)		(0.05)
T-ANG		0.03		0.07*		0.19***		0.06*		0.01		0.07
		(0.02)		(0.04)		(0.03)		(0.03)		(0.05)		(0.05)
AVC												
Control	0.79		0.70		0.60		0.74		0.50		0.32	
	(0.41)		(0.46)		(0.49)		(0.44)		(0.50)		(0.47)	
NGO trainings only		0.00		0.01		0.05		0.03		-0.02		0.09
		(0.06)		(0.08)		(0.06)		(0.05)		(0.06)		(0.07)
NAAFCO		-0.00		0.07		0.08		-0.02		-0.03		0.01
promotions only		(0.05)		(0.07)		(0.05)		(0.05)		(0.08)		(0.07)
Trainings +		-0.04		0.03		0.03		-0.01		0.05		-0.04
promotions		(0.05)		(0.08)		(0.06)		(0.06)		(0.06)		(0.07)
FAARM												
Control	0.70		0.73		0.98		0.78		0.17		0.47	
	(0.05)		(0.04)		(0.01)		(0.04)		(0.03)		(0.04)	
Intervention		0.17		1.11***		-0.21		0.55*		-0.43		0.17
		(0.30)		(0.30)		(0.72)		(0.31)		(0.30)		(0.24)
WINGS												
Control	0.79		0.95		0.98		0.87		0.36		0.89	
	(0.41)		(0.21)		(0.13)		(0.34)		(0.48)		(0.31)	
NI (DD)		0.02		0.02		-0.13***		-0.03		0.03		-0.04
		(0.05)		(0.03)		(0.04)		(0.05)		(0.06)		(0.03)
NI (SD)		0.02		0.01		-0.03		0.03		-0.00		-0.02
		(0.04)		(0.02)		(0.02)		(0.03)		(0.04)		(0.02)

	Input in productive decision		Ownership of land, assets		Access to/decision on financial services		Control over income		Work balance		Visiting important locations	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
Heifer (A-WEAI)												
					Direct beneficiary							
Control	0.92		0.92		0.42		0.92		0.49			
	(0.28)		(0.27)		(0.49)		(0.27)		(0.47)			
Full treatment		0.04**		0.05***		-0.04		0.01		0.04		
		(0.02)		(0.02)		(0.05)		(0.02)		(0.04)		
Values-based training		0.03		0.05***		-0.03		0.06**		-0.04		
		(0.02)		(0.02)		(0.06)		(0.02)		(0.04)		
Goats		0.03		0.05**		-0.02		0.03		-0.00		
		(0.02)		(0.02)		(0.05)		(0.03)		(0.03)		
					Pay-it-forward beneficiary							
Control	0.86		0.92		0.33		0.91		0.48			
	(0.35)		(0.28)		(0.47)		(0.28)		(0.46)			
Full treatment		0.09***		0.06***		0.03		0.03		0.08**		
		(0.03)		(0.02)		(0.04)		(0.03)		(0.04)		
Values-based training		0.09***		0.06**		0.09*		0.07**		-0.03		
		(0.03)		(0.02)		(0.05)		(0.03)		(0.04)		
Goats		0.08**		0.04**		0.07		0.04		0.01		
		(0.03)		(0.02)		(0.05)		(0.03)		(0.05)		
					West Africa							
Grameen												
Control	0.33		0.98		0.08		0.37		0.76		0.92	
	(0.47)		(0.13)		(0.28)		(0.48)		(0.43)		(0.28)	
Intervention		0.34**		0.33**		0.44***		0.16		-0.94***		0.27*
		(0.15)		(0.15)		(0.15)		(0.14)		(0.14)		(0.15)
SELEVER												
Control	0.78		0.88		0.20		0.63		0.31		0.46	
	(0.42)		(0.33)		(0.40)		(0.48)		(0.46)		(0.50)	
SELEVER		0.01		-0.01		0.03		-0.03		0.01		-0.01
		(0.03)		(0.02)		(0.02)		(0.04)		(0.03)		(0.03)
iDE												
Control 1	0.77		0.76		0.68		0.89		0.78			
	(0.42)		(0.43)		(0.47)		(0.31)		(0.42)			
Motor pump (control group 1, DD)		-0.17		0.61		0.25		1.32**		-0.45		n.c.
		(0.41)		(0.39)		(0.26)		(0.67)		(0.40)		

	Input in productive decision		Ownership of land, assets		Access to/decision on financial services		Control over income		Work balance		Visiting important locations	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
Control 2	0.81		0.81		0.67		0.91		0.78			n.c.
	(0.40)		(0.39)		(0.47)		(0.29)		(0.41)			
Motor pump (control group 2, DD)		-0.54		0.17		0.59*		1.03		-0.53		n.c.
		(0.59)		(0.40)		(0.35)		(0.84)		(0.48)		
Motor pump spillover effects, DD)		-1.28**		-0.88**		1.05***		-2.06***		-0.12		n.c.
		(0.55)		(0.42)		(0.40)		(0.71)		(0.41)		
Control 1	0.75		0.77		0.61		0.67		0.76		0.71	
	(0.43)		(0.42)		(0.49)		(0.47)		(0.43)		(0.45)	
Motor pump (control group 1, SD)		0.48*		0.85**		-0.03		0.11		-0.38		-0.25
		(0.29)		(0.43)		(0.20)		(0.26)		(0.28)		(0.22)
Control 2	0.76		0.81		0.59		0.66		0.75		0.71	
	(0.43)		(0.39)		(0.49)		(0.48)		(0.44)		(0.45)	
Motor pump (control group 2, SD)		0.68**		1.08		-0.12		-0.69**		-1.09***		-0.42
		(0.35)		(1.13)		(0.41)		(0.32)		(0.42)		(0.62)
Motor pump spillover effects, SD)		0.79		-1.24**		0.22		-0.11		-0.30		-0.92
		(0.74)		(0.61)		(0.61)		(0.64)		(0.77)		(0.67)
WorldVeg												
Control	0.68		0.98		0.70		0.50		0.47		0.65	
	(0.47)		(0.12)		(0.46)		(0.50)		(0.50)		(0.48)	
Intervention (ITT)		0.04		-0.02**		0.08		0.13		-0.06		0.05
		(0.07)		(0.01)		(0.11)		(0.13)		(0.08)		(0.10)
Intervention (TOT)		0.05		-0.04*		0.05		0.24**		-0.05		0.05
		(0.09)		(0.02)		(0.09)		(0.09)		(0.07)		(0.08)
East Africa												
JP-RWEE												
All women												
Control									0.62		0.88	
									(0.49)		(0.33)	
With access to credit				n.c.		n.c.				-0.03		0.01
										(0.55)		(0.77)
Lost access to credit		n.c.		n.c.		n.c.				-0.16*		0.00
										(0.04)		(0.96)

	Input in productive decision		Ownership of land, assets		Access to/decision on financial services		Control over income		Work balance		Visiting important locations	
	Endline control mean	**Impact**	**Endline control mean**	**Impact**	**Endline control mean**	**Impact**	**Endline control mean**	**Impact**	**Endline control mean**	**Impact**	**Endline control mean**	**Impact**
						Women in primary couple						
Control									0.58		0.90	
									(0.49)		(0.30)	
With access to credit		n.c.		n.c.		n.c.		n.c.		-0.05		-0.02
										(0.51)		(0.55)
Lost access to credit		n.c.		n.c.		n.c.		n.c.		-0.29**+		-0.03
										(0.00)		(0.54)
Maisha Bora												
Control	0.87		0.89		0.65		0.46		0.40		0.84	
	(0.33)		(0.31)		(0.47)		(0.50)		(0.49)		(0.36)	
Intervention		-0.07**		-0.13***		0.08*		0.00		-0.02		-0.01
		(0.04)		(0.05)		(0.05)		(0.05)		(0.04)		(0.05)

Notes: * $p < 0.10$, ** $p < 0.05$, *** p <0.01. Standard errors in parentheses. See notes to Table 6. DD=double difference; SD=single difference

Panel B. Intrinsic agency and collective agency

	Intrinsic agency								Collective agency			
	Autonomy in income		Self-efficacy		Attitudes towards IPV		Respect		Group membership		Influential membership	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
						South Asia						
ANGeL												
Control	0.76		0.50		0.62		0.71		0.45		0.21	
	(0.03)		(0.04)		(0.04)		(0.04)		(0.03)		(0.02)	
T-N		0.06*		0.03		0.01		-0.02		0.03		0.01
		(0.04)		(0.05)		(0.05)		(0.04)		(0.05)		(0.04)
T-A		0.00		0.07		0.05		0.01		-0.01		-0.03
		(0.04)		(0.05)		(0.05)		(0.04)		(0.04)		(0.04)
T-AN		-0.01		0.06		0.02		0.05		0.01		0.03
		(0.04)		(0.05)		(0.05)		(0.05)		(0.03)		(0.04)
T-ANG		0.07		0.05		0.09*		0.01		0.08**		0.03
		(0.04)		(0.05)		(0.05)		(0.04)		(0.04)		(0.04)
AVC												
Control	0.74		0.58		0.63		0.58		0.38		0.13	
	(0.44)		(0.50)		(0.48)		(0.50)		(0.49)		(0.34)	
NGO trainings only		-0.04		0.02		-0.03		-0.07		-0.01		0.03
		(0.10)		(0.07)		(0.09)		(0.10)		(0.07)		(0.05)
NAAFCO promotions only		0.07		0.08		-0.03		0.01		-0.04		-0.01
		(0.08)		(0.07)		(0.08)		(0.09)		(0.07)		(0.05)
Trainings + promotions		-0.01		0.04		0.06		-0.05		-0.06		-0.04
		(0.08)		(0.05)		(0.08)		(0.08)		(0.06)		(0.05)
FAARM												
Control	0.55		0.29		0.66		0.09		0.31		0.01	
	(0.05)		(0.05)		(0.05)		(0.03)		(0.04)		(0.01)	
Intervention		0.62**		1.31***		1.24***		0.20		2.61***		5.01***
		(0.28)		(0.27)		(0.29)		(0.42)		(0.29)		(0.84)
WINGS												
Control	0.28		0.32		0.75		0.61		0.29		0.14	
	(0.45)		(0.47)		(0.43)		(0.49)		(0.46)		(0.35)	
NI DD)		n.c.		n.c.		-0.11**		0.15**		-0.03		0.01
						(0.05)		(0.06)		(0.05)		(0.04)
NI (DD)		-0.01		-0.07*		-0.12***		0.02		0.09**		0.04
		(0.04)		(0.04)		(0.03)		(0.04)		(0.04)		(0.03)

	Intrinsic agency								Collective agency			
	Autonomy in income		Self-efficacy		Attitudes towards IPV		Respect		Group membership		Influential membership	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
Heifer (A-WEAI)												
						Direct beneficiary						
Control									0.65 (0.48)			
Full treatment		n.c.		n.c.		n.c.		n.c.		0.14*** (0.05)		n.c.
Values-based training		n.c.		n.c.		n.c.		n.c.		0.17*** (0.04)		n.c.
Goats		n.c.		n.c.		n.c.		n.c.		0.16*** (0.04)		n.c.
						Pay-it-forward Beneficiary						
Control									0.58 (0.50)			
Full treatment		n.c.		n.c.		n.c.		n.c.		0.14** (0.06)		n.c.
Values-based training		n.c.		n.c.		n.c.		n.c.		0.20*** (0.06)		n.c.
Goats		n.c.		n.c.		n.c.		n.c.		0.03 (0.06)		n.c.
						West Africa						
Grameen												
Control	0.58 (0.50)				0.52 (0.50)		0.96 (0.20)		0.95 (0.22)		0.95 (0.23)	
Intervention		-0.91*** (0.14)				-0.37*** (0.14)		0.29* (0.15)		0.95*** (0.14)		0.55*** (0.14)
SELEVER												
Control	0.42 (0.49)		0.54 (0.50)		0.534 (0.50)		0.63 (0.48)		0.49 (0.50)		0.40 (0.49)	
SELEVER		0.05 (0.03)		-0.01 (0.03)		-0.03 (0.04)		-0.05 (0.03)		-0.04 (0.03)		-0.02 (0.03)
iDE												
Control 1									0.77 (0.42)			
Motor pump (control group 1, DD)		n.c.		n.c.		n.c.		n.c.		-0.48 (0.38)		n.c.
Control 2									0.77			

	Intrinsic agency								Collective agency			
	Autonomy in income		Self-efficacy		Attitudes towards IPV		Respect		Group membership		Influential membership	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
									(0.42)			
Motor pump (control group 2, DD)		n.c.		n.c.		n.c.		n.c.		-0.40 (0.39)		n.c.
Motor pump spillover effects, DD)		n.c.		n.c.		n.c.		n.c.		0.23 (0.43)		n.c.
Control 1			0.40 (0.49)		0.52 (0.50)				0.77 (0.42)		0.58 (0.50)	
Motor pump (control group 1, SD)				0.05 (0.26)		0.18 (0.32)		n.c.		0.23 (0.41)		0.09 (0.30)
Control 2			0.40 (0.49)		0.52 (0.50)				0.78 (0.41)		0.61 (0.49)	
Motor pump (control group 2, SD)				-0.83** (0.39)		0.37 (0.72)				-0.09 (0.66)		-0.30 (0.63)
Motor pump spillover effects, SD)				-0.09 (0.62)		-1.22* (0.71)				1.27 (0.87)		-0.10 (0.63)
WorldVeg												
Control	0.27 (0.45)		0.61 (0.49)		0.37 (0.49)		0.49 (0.50)		0.76 (0.43)		0.67 (0.47)	
Intervention (ITT)		0.18* (0.10)		0.07 (0.13)		0.21**† (0.08)		0.23* (0.13)		0.06 (0.06)		0.04 (0.07)
Intervention (TOT)		0.16 (0.11)		0.01 (0.09)		0.11 (0.06)		0.12 (0.12)		0.05 (0.05)		0.05 (0.07)
East Africa												
JP-RWEE												
All women												
Control	0.57 (0.50)				0.63 (0.48)						0.40 (0.49)	
With access to credit		0.08 (0.23)				-0.05 (0.40)		n.c.				-0.01 (0.91)
Lost access to credit		-0.21**+ (0.01)				-0.18**+ (0.02)		n.c.				-0.12* (0.10)

	Intrinsic agency								Collective agency			
	Autonomy in income		Self-efficacy		Attitudes towards IPV		Respect		Group membership		Influential membership	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
Women in primary couple												
	0.57				0.63		0.56				0.40	
	(0.50)				(0.48)		(0.50)				(0.49)	
With access to credit		0.09		n.c.		-0.05		0.21**+		n.c.		0.03
		(0.27)				(0.51)		(0.0035)				(0.64)
Lost access to credit		-0.25**+		n.c.		-0.34**+		0.02		n.c.		-0.08
		(0.00)				(0.00)		(0.85)				(0.34)
Maisha Bora												
Control	0.44		0.68		0.10		0.67		0.39			
	(0.50)		(0.47)		(0.30)		(0.47)		(0.49)			
Intervention		0.02		-0.02		-0.02		0.00		0.36***		
		(0.05)		(0.05)		(0.02)		(0.06)		(0.06)		

Notes: * $p < 0.10$, ** $p < 0.05$, *** p <0.01. Standard errors in parentheses. See notes to Table 6. DD=double difference; SD=single difference

Appendix Table 3: Summary of project impacts on men's empowerment, by pro-WEAI indicator (binary), projects that collected data on men

Panel A. Instrumental agency

	Input in productive decision		Ownership of land, assets		Access to/decision on financial services		Control over income		Work balance		Visiting impact locations	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
						South Asia						
ANGeL												
Control	0.90		0.99		0.78		0.86		0.53		0.49	
	(0.02)		(0.00)		(0.02)		(0.02)		(0.02)		(0.03)	
T-N		-0.00		0.00		0.11***		-0.00		-0.05		0.09**
		(0.02)		(0.01)		(0.03)		(0.04)		(0.04)		(0.05)
T-A		-0.01		-0.01		0.10***		-0.03		-0.04		0.04
		(0.03)		(0.01)		(0.03)		(0.03)		(0.04)		(0.05)
T-AN		-0.03		-0.00		0.04		-0.03		0.02		0.03
		(0.03)		(0.01)		(0.03)		(0.03)		(0.04)		(0.05)
T-ANG		0.01		-0.00		0.07**		0.00		0.01		0.02
		(0.03)		(0.01)		(0.03)		(0.04)		(0.04)		(0.06)
AVC												
Control	0.11		0.02		0.15		0.16		0.44		0.42	
	(0.32)		(0.13)		(0.36)		(0.36)		(0.50)		(0.50)	
NGO trainings only		0.06		0.00		-0.08		0.06		0.05		0.05
		(0.07)		(0.02)		(0.06)		(0.07)		(0.06)		(0.08)
NAAFCO promotions only		-0.03		-0.02		-0.02		-0.02		-0.07		-0.03
		(0.04)		(0.02)		(0.05)		(0.06)		(0.06)		(0.08)
Trainings + promotions		0.03		-0.02		0.00		0.03		0.04		-0.00
		(0.04)		(0.02)		(0.06)		(0.05)		(0.07)		(0.07)
FAARM												
Control	0.83		0.99		1.00		0.68		0.39		0.60	
	(0.04)		(0.01)		(0.01)		(0.04)		(0.04)		(0.05)	
Intervention		-0.14		-0.04		-0.34		-0.45*		-0.06		0.55**
		(0.33)		(1.02)		(1.36)		(0.26)		(0.22)		(0.28)
WINGS												
Control	0.93		0.99		0.99		0.97		0.74		0.96	
	(0.25)		(0.07)		(0.11)		(0.18)		(0.44)		(0.20)	
NI (DD)		-0.06		-0.01		0.01		-0.02		-0.10*		-0.01
		(0.04)		(0.02)		(0.04)		(0.04)		(0.06)		(0.02)

	Input in productive decision		Ownership of land, assets		Access to/decision on financial services		Control over income		Work balance		Visiting impact locations	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
NI (DD)		-0.02 (0.02)		-0.00 (0.01)		0.02 (0.02)		-0.00 (0.02)		-0.04 (0.03)		-0.02 (0.02)
West Africa												
Grameen												
Control	0.21 (0.41)		1.00 (0.00)		0.19 (0.39)		0.61 (0.49)		0.91 (0.29)		0.80 (0.40)	
Intervention		0.37** (0.15)		0.20 (0.15)		0.19 (0.15)		0.31** (0.14)		-0.30** (0.15)		0.37** (0.15)
SELEVER												
Control	0.97 (0.18)		1.00 (0.05)		0.36 (0.48)		0.83 (0.38)		0.73 (0.45)		0.63 (0.48)	
SELEVER		-0.03 (0.01)		-0.01 (0.01)		0.03 (0.04)		0.00 (0.02)		-0.03 (0.03)		-0.02 (0.03)
WorldVeg												
Control	0.98 (0.15)		1.00 (0.00)		0.80 (0.40)		0.94 (0.24)		0.90 (0.29)		0.82 (0.38)	
Intervention (ITT)		0.01 (0.02)				-0.21** † (0.08)		0.13)*** †† (0.04		-0.03 (0.08)		-0.23** † (0.09)
Intervention (TOT)		-0.01 (0.03)				-0.13* (0.07)		-0.00 (0.06)		0.11 (0.07)		-0.07 (0.08)
East Africa												
JP-RWEE												
Men in primary couple												
Control									0.90 (0.30)		0.86 (0.35)	
With access to credit										-0.05 (0.51)		-0.04 (0.32)
Lost access to credit										-0.29**+ (0.00)		-0.01 (0.85)

Notes: * $p < 0.10$, ** $p < 0.05$, *** p <0.01. Standard errors in parentheses. See notes to Table 6. DD=double difference; SD=single difference

Panel B. Intrinsic agency and collective agency

	Intrinsic agency								Collective agency			
	Autonomy in income		Self-efficacy		Attitudes towards IPV		Respect		Group membership		Influential membership	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
						South Asia						
ANGeL												
Control	0.95		0.60		0.70		0.82		0.29		0.17	
	(0.01)		(0.04)		(0.03)		(0.03)		(0.03)		(0.02)	
T-N		0.01		0.06		0.09**		-0.01		0.07		0.02
		(0.02)		(0.05)		(0.04)		(0.05)		(0.04)		(0.03)
T-A		0.00		0.04		0.02		-0.02		0.01		-0.01
		(0.02)		(0.05)		(0.04)		(0.05)		(0.05)		(0.03)
T-AN		-0.03		0.01		0.02		-0.04		0.02		-0.02
		(0.02)		(0.05)		(0.04)		(0.05)		(0.04)		(0.03)
T-ANG		-0.02		-0.06		0.04		-0.06		0.06		-0.02
		(0.02)		(0.05)		(0.04)		(0.05)		(0.04)		(0.03)
AVC												
Control	0.06		0.22		0.29		0.21		0.83		0.90	
	(0.23)		(0.42)		(0.45)		(0.41)		(0.38)		(0.30)	
NGO trainings only		-0.03		-0.02		-0.05		0.01		0.01		0.00
		(0.03)		(0.08)		(0.06)		(0.08)		(0.05)		(0.04)
NAAFCO		-0.02		0.05		-0.15**		-0.11*		0.02		0.04
promotions only		(0.04)		(0.05)		(0.06)		(0.06)		(0.05)		(0.04)
Trainings +		0.01		0.05		-0.02		-0.06		0.07**		0.06**
promotions		(0.03)		(0.05)		(0.06)		(0.06)		(0.03)		(0.03)
FAARM												
Control	0.91		0.36		0.89		0.13		0.53		0.06	
	(0.02)		(0.04)		(0.02)		(0.03)		(0.05)		(0.02)	
Intervention		0.97**		0.83***		-0.03		0.30		0.41		0.32
		(0.48)		(0.26)		(0.36)		(0.38)		(0.26)		(0.57)
WINGS												
Control	0.44		0.65		0.83		0.56		0.17		0.12	
	(0.50)		(0.48)		(0.38)		(0.50)		(0.38)		(0.33)	
NI (DD)		n.c.		n.c.		-0.03		-0.05		0.07*		0.05
						(0.05)		(0.06)		(0.04)		(0.03)
NI (DD)		0.03		0.01		0.01		-0.03		0.02		0.03
		(0.04)		(0.04)		(0.03)		(0.04)		(0.03)		(0.03)

	Intrinsic agency								Collective agency			
	Autonomy in income		Self-efficacy		Attitudes towards IPV		Respect		Group membership		Influential membership	
	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact	Endline control mean	Impact
West Africa												
Grameen												
Control	0.70				0.76		0.99		0.82		0.80	
	(0.46)				(0.43)		(0.08)		(0.38)		(0.40)	
Intervention		-0.31**		n.c.		-0.31**		0.14		0.69***		0.59***
		(0.15)				(0.15)		(0.15)		(0.14)		(0.14)
SELEVER												
Control	0.54		0.68		0.76		0.78		0.49		0.44	
	(0.50)		(0.47)		(0.43)		(0.42)		(0.50)		(0.50)	
SELEVER		0.01		-0.03		-0.04		-0.01		0.05		0.04
		(0.03)		(0.03)		(0.02)		(0.03)		(0.04)		(0.04)
WorldVeg												
Control	0.34		0.74		0.44		0.65		0.81		0.78	
	(0.48)		(0.44)		(0.50)		(0.48)		(0.39)		(0.42)	
Intervention (ITT)		-0.17		0.04		-0.11		0.07		-0.18		-0.08
		(0.13)		(0.11)		(0.08)		(0.09)		(0.12)		(0.12)
Intervention (TOT)		-0.12		-0.09		0.11		-0.05		0.01		0.01
		(0.08)		(0.12)		(0.08)		(0.10)		(0.08)		(0.08)
East Africa												
JP-RWEE												
Men in primary couple												
Control	0.53				0.70		0.73				0.49	
	(0.50)				(0.46)		(0.44)				(0.50)	
With access to credit		0.12		n.c.		-0.05		0.28**+		n.c.		0.08
		(0.16)				(0.51)		(0.00)				(0.33)
Lost access to credit		-0.25**+		n.c.		-0.31**+		0.02		n.c.		-0.12
		(0.01)				(0.00)		(0.84)				(0.17)

Notes: * $p < 0.10$, ** $p < 0.05$, *** p <0.01. Standard errors in parentheses. See notes to Table 6. DD=double difference; SD=single difference

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www.ifpri.org

IFPRI HEADQUARTERS
1201 Eye Street, NW
Washington, DC 20005 USA
Tel.: +1-202-862-5600
Fax: +1-202-862-5606
Email: ifpri@cgiar.org