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Does the UN Joint Program for Rural Women's Economic Empowerment (JP RWEE) Deliver on its Empowerment Objectives?

Findings from Four Countries

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ABSTRACT

This paper compares the empowerment impacts of the UN Joint Program for Rural Women's Economic Empowerment (JP RWEE) in Ethiopia, Niger, Nepal, and Kyrgyzstan using the Abbreviated Women's Empowerment in Agriculture Index (A-WEAI). We assess the extent of empowerment and gender parity, and decompose the sources of disempowerment, separately for men and women and for beneficiary and control groups. We then estimate program impacts on A-WEAI and its component indicators and assess whether estimated impacts are consistent with the activities implemented by the program. We interpret the quantitative results in the light of the qualitative studies undertaken as part of the impact evaluation.

Despite the diversity in country and cultural contexts, in all four countries, women are more disempowered than men, although large proportions of men are themselves disempowered. Excessive workload is the most common major contributor to disempowerment, and so is lack of group membership. The program had positive impacts on aggregate empowerment measures for program participants in Niger, Nepal, and Kyrgyzstan. Nevertheless, gender parity improved only in Nepal. The group-based approach was a clear contributor to women's empowerment in Ethiopia, Nepal, and Kyrgyzstan. In Kyrgyzstan, the GALS/BALI approach contributed to impacts across almost all indicators of empowerment. The positive impact of GALS and GALS/BALI on men and women alike in Kyrgyzstan is consistent with emerging evidence that involving both men and women in gender transformative approaches, rather than focusing on women alone, may be key to effective and sustainable programs. Although impacts on time use were insignificant in the quantitative study, the qualitative work pointed out negative impacts, emphasizing the unintended consequences of increased workload for women who participate in livelihood interventions.

Keywords: women's empowerment, gender parity, program impacts, Ethiopia, Kyrgyzstan, Nepal, Niger

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ACRONYMS

5DE	5 Domains of Empowerment
A-WEAI	Abbreviated Women's Empowerment in Agriculture Index
FAO	Food and Agriculture Organization of the United Nations
GAAP2	Gender, Agriculture, and Assets Project, Phase 2
GALS	Gender Action Learning System
GALS/BALI	Gender Action Learning System/Business Action Learning for Innovation
GPI	Gender Parity Index
IFAD	International Fund for Agricultural Development
JP RWEE	Joint Programme for Rural Women's Economic Empowerment
Pro-WEAI	Project-level Women's Empowerment in Agriculture Index
RBET	Reach, Benefit, Empower, Transform
RUSACCO	Rural savings and credit cooperative
R-WEAI	Reduced Women's Empowerment in Agriculture Index
UN	United Nations
WEAI	Women's Empowerment in Agriculture Index
WFP	World Food Programme
VDC	Village Development Committee

1. Introduction

In 2012, the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), the World Food Programme (WFP), and UN Women launched a Joint Programme called "Accelerating Progress towards the Economic Empowerment of Rural Women" (UN JP RWEE) in seven countries: Ethiopia, Guatemala, Kyrgyzstan, Liberia, Nepal, Niger, and Rwanda. The JP RWEE adopted a holistic approach to women's economic empowerment, working towards four interrelated outcomes: (1) improved food and nutrition security, (2). increased income to sustain livelihoods, (3) enhanced participation in decision-making, and (4) a more gender-responsive policy environment for rural women in agriculture (FAO, IFAD, UN Women, WFP 2021). These outcomes were to be achieved through several different but mutually reinforcing interventions, all designed to improve the overall conditions for advancing rural women's empowerment. The program built on the expertise and comparative advantage of the four implementing agencies that were each in charge of a portion of the interventions in each country's program. Program activities took place between October 2014 and September 2021, with financial allocations from each of the implementing agencies and the governments of Sweden and Norway, for a total cost of 35 million US dollars.[1]

By 2021, the program reached almost 80,000 women and over 400,000 members of their households through interventions to support women's empowerment (FAO, IFAD, WFP, and UN Women 2020a, cited in FAO, IFAD, UN Women, WFP and Mokoro 2021). The program also targeted two key groups of rural women: the most vulnerable, poorest, and illiterate women, who are often bypassed by conventional economic empowerment programs; and women entrepreneurs already organized in Producer Organizations, including cooperatives, with the "highest potential" to boost local economic activities that could benefit community members directly (FAO, IFAD, WFP, and UN Women 2020b).

Given JP RWEE's focus on women's empowerment, women's empowerment metrics were central to the program's monitoring and evaluation framework. Impact assessments commissioned by the program

[1] The program ended in June 2021 in four countries, August 2021 in two countries, and September 2021 in one country.

included metrics based on the Women's Empowerment in Agriculture Index (WEAI) (Alkire et al. 2013).[2] The WEAI, a survey-based index, measures who is empowered in the household (men, women or both) and the specific areas of their empowerment, according to five domains (decisions about agricultural production, access and decision-making over productive resources, control and use of income, leadership in the community, and time allocation). Since 2012, several versions of the WEAI have been developed in response to users' needs. In 2014, a shorter version of the WEAI, the abbreviated WEAI (A-WEAI), was developed to shorten interview time and address some issues with the phrasing of questions that led to difficulties in implementing the survey (Malapit et al. 2017). In 2017, IFAD also developed a reduced version of the WEAI, or the R-WEAI, to measure progress towards gender equality and women's empowerment in IFAD supported projects, reduce the data requirements, and consequently the cost of surveys and survey fatigue, and produce a measure of women's empowerment comparable to the full WEAI (Garbero and Perge 2017). Additionally, the pro-WEAI (project-level WEAI) was developed by a portfolio of 13 agricultural development projects through the Gender, Agriculture, and Assets Project, Phase 2 (GAAP2) (Malapit et al. 2019). A key difference between the pro-WEAI and previous WEAI versions is the former's stricter standards for defining adequacy, reflecting its design for and use by projects that aim to empower women. Four out of the seven JP RWEE countries undertook impact evaluations using slightly different versions of the WEAI, with Ethiopia, Kyrgyzstan, and Nepal using pro-WEAI and Niger using R-WEAI (Hillesland et al. 2022 for Ethiopia, Rosso 2021a for Niger, Andriano 2021 for Nepal, and Rosso 2021b for Kyrgyzstan).[3] Although the different WEAI versions are not directly comparable, we use the A-WEAI, which can be computed from the data used to the WEAI versions used in all four countries, to make comparisons across the portfolio. Because JP RWEE aims to empower women, we use the pro-WEAI thresholds for each of the component indicators to establish whether an individual is adequate with respect

[2] The WEAI, launched in 2012, was developed by the International Food Policy Research Institute (IFPRI), the Oxford Poverty and Human Development Initiative (OPHI), and the U.S. Agency for International Development (USAID).

[3] An impact evaluation was also planned in Guatemala, where a baseline survey was conducted. Plans to carry out the WEAI endline did not materialize due to operational issues in country and delays caused by the catastrophic storm Eta in the project area.

to a specific empowerment indicator. The pro-WEAI thresholds impose a higher standard for adequacy because they were developed for projects with women's empowerment objectives.[4]

This paper aims to compare the empowerment impacts of JP RWEE across four case study countries—Ethiopia, Niger, Nepal, and Kyrgyzstan—using comparable indicators. We compute A-WEAI using the data collected from the impact evaluations conducted for each country, assess the extent of empowerment and gender parity, and decompose the sources of disempowerment, separately for men and women and for beneficiary and control groups. We then estimate program impacts on A-WEAI and its component indicators using the same methods as the original case studies and assess whether estimated impacts are consistent with the activities implemented by the program. We consider the qualitative studies conducted in all countries to interpret our results. We summarize the results across the portfolio and conclude with lessons learned from the case studies.

This paper is organized as follows. Section 2 presents the conceptual framework that we use to frame and interpret the JP RWEE's activities according to whether they reach, benefit, and empower women, or transform gender relations. Section 3 provides an overview of the program's activities in the four study countries and maps the activities to the framework. Section 4 discusses the methodology, while Section 5 presents descriptive statistics, empowerment diagnostics, and impact estimates. Section 6 summarizes and concludes.

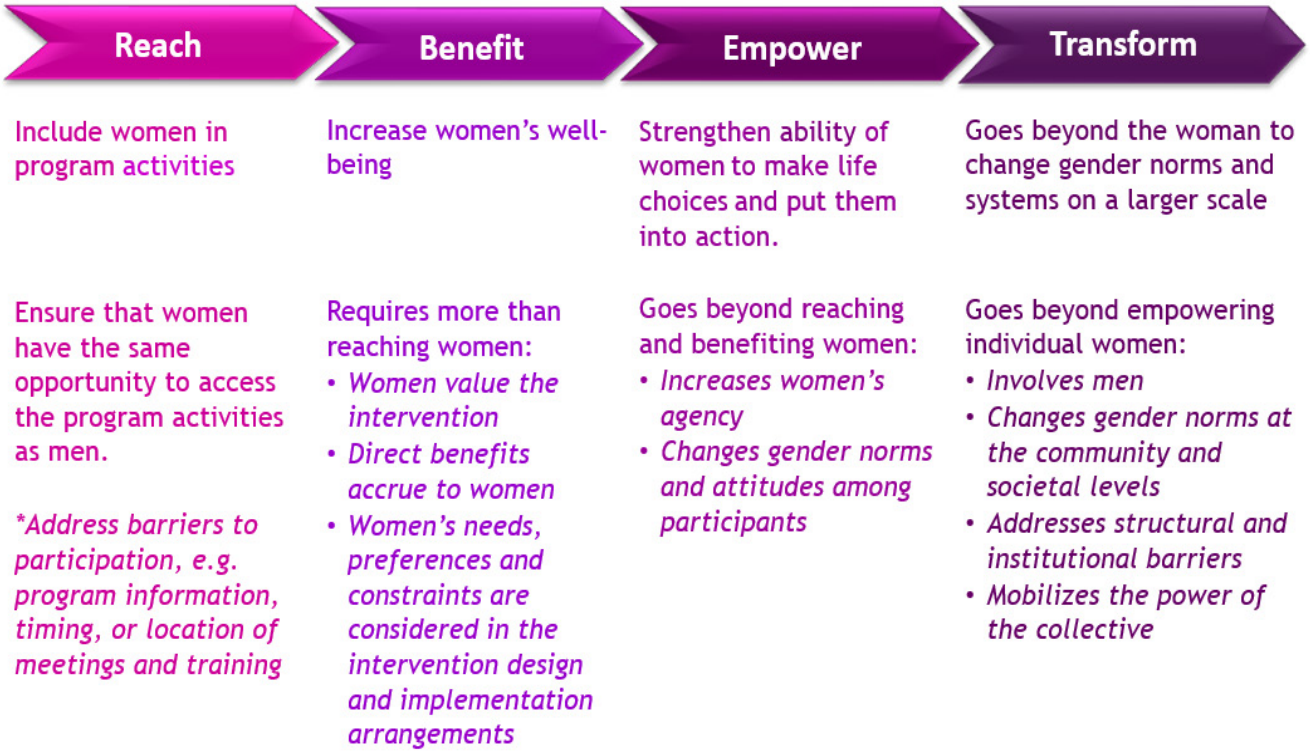
2. The Reach, Benefit, Empower, and Transform Framework

It is useful to view the four key outcomes of JP RWEE— improved food and nutrition security, increased incomes, enhanced participation in decision-making, and a more gender-responsive policy environment—using the "Reach, Benefit, Empower" framework (Johnson et al. 2018) (Figure 1). The framework classifies projects according to their objectives: projects that aim to reach women include them in program activities,

[4] See Appendix Table 1 for a comparison of the thresholds for WEAI, A-WEAI, and pro-WEAI.

and those that seek to benefit them attempt to improve women's well-being outcomes, including income, health, and nutrition. Typical indicators for "reach" include the number of women and men attending training or extension programs; "benefit" indicators include income earned by women or women's nutritional status indicators. But neither "reach" nor "benefit" objectives explicitly include increasing women's agency, their ability to make strategic life choices (Kabeer 1999) and to act on them, and many projects that claim to empower women only seek to reach or benefit them. Recently, the push towards gender-transformative approaches has prompted modifications of the RBE framework to emphasize interventions that aim to transform constraining gender norms, attitudes, and behaviors towards those that support gender equality (CGIAR Research Program on Fish Agri-food systems, 2017, quoted in Pyburn and van Eerdewijk 2021). Projects that aim to transform gender relations go beyond the woman and her household to change gender norms and attitudes on a larger scale and to change systems that reinforce gender inequality. Such approaches go beyond empowering individual women: they involve men; they attempt to change gender norms at the community and societal levels, address structural and institutional barriers, and mobilize the power of the collective.

Figure 1. The Reach, Benefit, Empower, and Transform Framework



Source: Adapted from Johnson et al. (2018)

The JP RWEE approach is relatable to the Reach, Benefit, Empower, and Transform Framework. The program aimed to address key structural barriers to gender equality and women's economic empowerment through an integrated, multidimensional approach targeting the multiple constraints women face. This approach has led to a conducive environment in which the productive activities of rural women are recognized and valued, and their rights to decent work met (Chiarini 2017). Gender transformative objectives were not explicitly formulated at the project onset, but specific interventions developed during implementation attempted to change gender norms at household and community level.

In the next section, we describe the activities undertaken by JP RWEE in the four countries and use the RBET lens to classify the activities according to whether they aim to reach, benefit, or empower women, or whether they aim to transform gender relations.

3. Program description and programming in case study countries

Owing to different socio-economic conditions in the countries and in their specific regions of implementation, JP RWEE interventions varied across countries. Moreover, the four agencies were not equally involved in all aspects of implementation in all countries. A brief description of the projects' interventions implemented in each country follows below; key program components are summarized in Table 1.

Table 1. JP RWEE program objectives and activities in case study countries classified according to the Reach, Benefit, Empower, and Transform (RBET) Framework

Program objectives	RBET classification	Ethiopia	Niger	Nepal	Kyrgyzstan
		Program activities and their classification in the RBET framework			
Improve household food security and nutrition	Reach, Benefit	*Agricultural training courses addressing control and management of local household food reserves, growing small*scale fodder, vegetable and crop production innovations, and small ruminant management practices (R) * Trainings on improved production techniques on post*harvest technologies, horticulture development, and improved crop production (R) *Community leaders trained on good nutrition practices, which were shared with the community (R) * Demonstration center on climate change adaptation and mitigation techniques established. *512 beneficiaries (212 women and 300 men) trained on the use of climate smart agricultural inputs (R) * 100 milk processing equipment tools were distributed (B) * 842 women beneficiaries provided with time and labor*saving technologies, such as milk processing machines, water pumps, maize sheller and beehives (B)	* Provided improved seeds to support agricultural technological advancement component (R, B) * Supplied farmers with livestock kits (i.e., the expertise and training needed to breed goats), improved seeds (R, B) * Support creation of multifunction platforms (simple diesel engine with various associated tools to complete household tasks like grinding grain, pumping water, or charging electric goods) (R, B) * 29 Farmer Field Schools (FFS)[5] installed; learning themes included climate smart practices. This knowledge was then multiplied at community level via the Dimitra Club model (R) * Labor*saving equipment, including 14 multifunctional platforms, 124 donkey and cattle carts, 27 kits for processing agricultural products, 7 standpipes and 9 pulleys installed on community wells (B) * Training of Trainers (ToT) sessions on food storage and conservation techniques held for community trainers (members of POs and Dimitra Clubs, government agricultural technicians and NGO implementing partners) (R)	*Groups of women farmers provided with technical and material support on kitchen gardening and commercial fresh vegetable production (B) *Group revolving fund for members to acquire needed agricultural inputs (B) * Behaviour change communication (SBCC)[6] methodologies used to sensitize 1,579 (772 women and 807 men) school feeding stakeholders on the importance of adequate, diversified, locally available and affordable ingredients for children, their parents, and communities (R) * Provision of irrigation equipment, leading to irrigation of 393 hectares of land belonging to 1,310 rural women. Provision of tubewells also reduced women's work burdens (B) * 3,002 women provided with access to agricultural equipment (B)	*Agro technology training and supervision (R) Nutrition training (R) Provision of food assistance (fortified wheat flour and vegetable oil) (B) * 3,731 beneficiaries (3,653 women and 78 men) trained in organic farming (R) * 300 beneficiaries (283 women and 17 men) received technical inputs and training for poultry farming (R, B) * 5 processing workshops established to reduce post*harvest losses and contribute to value chain development (B) * Inputs and tools provided for improved agricultural activities to 498 rural SHGs (B)

[5] Farmer Field School (FFS) is an approach based on people*centred learning. Participatory methods are used to create an environment conducive to learning: the participants exchange knowledge and experience. Practical field exercises use direct observation, discussion and decision making and encourage learning*by*doing.

[6] SBCC is a combination of communication approaches, activities and tools used to positively influence behavior to change discriminatory social norms.

Program objectives	RBET classification	Ethiopia	Niger	Nepal	Kyrgyzstan
		Program activities and their classification in the RBET framework			
Increase income and sustainable livelihoods; improve women's decisionmaking and control over income	Reach, Benefit, Empower	* Women's Rural Savings and Credit Cooperatives (RUSACCOs) supported and strengthened, in close collaboration with local government (B) *Provided revolving funds at low interest rates and provided additional training in financial literacy, entrepreneurship skills, and business development. (B) *3,430 women's group members trained on business development, financial literacy, loan management, cooperative management, basic business skills, entrepreneurship, revolving fund management, integrated pest management and vegetable market promotion (R)	*Provided kits and capacity development to start micro entrepreneurial activities (B) Supported the market access for producers and offered scholarships for students of primary and secondary school (B) *8,362 women and 2,747 men trained on business development, financial literacy, loan management, cooperative management, basic business skills, entrepreneurship, revolving fund management, integrated pest management and vegetable market promotion (R)	*2,003 rural women from 82 rural women's cooperatives enhanced their entrepreneurship skills and engaged in value chains to access markets for their products (R, B) *Marketing outlet established in one district; members trained (R) *98 women's group members trained on business development, financial literacy, loan management, cooperative management, basic business skills, entrepreneurship, revolving fund management, integrated pest management and vegetable market promotion (R) *2,034 rural women's households benefitted from conditional cash transfers for participating in the construction of harvest storage facilities as part of WFP's Food for Assets (FFA) modality (B)	*3.048 women's group members trained on business development, financial literacy, loan management, cooperative management, basic business skills, entrepreneurship, revolving fund management, integrated pest management and vegetable market promotion (R) * 172 self-help groups implemented innovative business plans and set up micro- enterprises (E) *Virtual platform established at national level; 1,159 women entrepreneurs marketed their businesses and products (B)
Strengthen women's participation and leadership in rural institutions and organizations	Reach, Benefit, Empower	*Strengthen technical capacity of women-run rural savings and credit cooperatives (RUSACCOs) that offer financial products to women farmers and pastoralists (R, E) *1,827 beneficiaries from Oromia and 79 from Afar enrolled in the Functional Adult Literacy (FAL) program to improve their reading and writing (R)	*Dimitra Clubs established as community-level groups to promote dialogue and a safe place where both men and women could openly talk about their challenges, ultimately increasing social empowerment (E) *Create network to support local farmer organizations (E) *Support to women's leadership and inclusion in decision making processes: 32 women respectively, became members of land committees (E)	*Leadership training program for women and family members (R, E) *Community radio used to reach rural women; 483 rural women able to express their concerns and priorities to local leaders and officials through an interactive voice response (IVR) system (E) *Women's groups formalized and registered (48 rural women's groups joined 5 cooperatives) (E)	*Social mobilization: establishing self-help groups (SHG) and village level associations of SHGs (E) *Support to group economic initiatives Establishment of and support to regional producer organizations (POs) (B) *Support to women's leadership and inclusion in decision making processes (T)

Program objectives	RBET classification	Ethiopia	Niger	Nepal	Kyrgyzstan
		Program activities and their classification in the RBET framework			
		*Women's groups formalized and registered (4,140 beneficiaries from 21 government recognized cooperatives) (E)	*Support to the establishment of women quotas in Pos (E) *2,075 beneficiaries (1,263 women and 812 men) learned to read and write through functional literacy and community-based literacy (R, B) *Women's groups formalized and registered (345 women's groups and 3 women's groups unions joined registered POs and 19 POs were formalized) (E)		*Adoption of gender sensitive policies for Pos (E, T) *Women's groups formalized and registered (1,715 beneficiaries from 223 SHGs joined 5 formally registered POs)
Change gender norms	Reach, Empower, Transform	*Community facilitators trained to conduct gender*focused community conversations directed at both men and women. Dialogues focused on awareness of gender norms and beliefs, rural women's access to and control over resources and agricultural productivity, and greater distribution and sharing of household responsibilities (E, T)	*Dimitra Club community listening model[7] served as an entry point to help tackle strong traditional social and cultural norms (T)	*593 households from nine rural women farmers' groups trained in Gender Action Learning System (GALS) (R, E, T)	*Application of Gender Action Learning System (GALS) (E, T) *Application of Business Action Learning for Innovation (BALI) *GALS/BALI implemented together aimed to improve women's business, upgrade livelihoods and enhance financial management skills of members of four Producers Organizations involved in the program (E, T)
Establish a gender responsive policy framework that provides an institutional environment for women's economic empowerment	Reach, Empower, Transform	*Organized 4 regional dialogues, including a forum on Gender and Agricultural Mechanization and a forum on Free Legal Provision for Rural Women (E). *JP RWEE beneficiaries represented in different formal and informal community leadership positions (E) *Advocated for Land Compensation Regulation to mainstream gender considerations (E, T) *Supported the Ministry of Agriculture to incorporate gender	* Technical support to develop and review the Land Policy, National Gender Policy and National Nutrition security policy (T) *Support to policy implementation: 26.5 percent of municipal budgets were allocated to programs for rural women's empowerment (T) *Training sessions on gender-responsive planning, budgeting, monitoring and evaluation for 97	*Established relationships with local government representatives, conducted workshop to promote dialogues and sensitize local leaders to promote change and address issues and challenges faced by rural women farmers (E, T) *Supported the MOA in the development and implementation of a Gender Equality and Social Inclusion (GESI) strategy (T)	*384 beneficiaries (365 women, 19 men) provided recommendations into the process of developing the National Gender Equality Strategy (NGES) for 2021-2030 and the National Action Plan (NAP) 2021-2023 (E, T) *Support to policy implementation at field level : 35 local development plans and budgets developed, including a

[7] Dimitra Clubs are groups of women, men, and young people in both mixed and single sex groups who regularly meet to discuss challenges and bring about change in their communities. They act as coordination mechanism at village level and as a driver for women and girls to develop their leadership skills.

Program objectives	RBET classification	Ethiopia	Niger	Nepal	Kyrgyzstan
		Program activities and their classification in the RBET framework			
		related targets into their policies and plans and to incorporate gender mainstreaming into their strategies (E, T) *Advocated for integration of legal provisions that protect the interests of women and vulnerable groups, in cooperation with the Ministry of Urban Development and Construction and the Ethiopian Women's Land Rights Task Force (EWLRTF) (E, T)	senior staff (40 women and 47 men) and 45 technicians from the decentralized technical services (including NGO staff) (R)	*Support to policy implementation: 38.65 percent of the federal government budget in 2018-2019 was allocated to programs benefitting rural women (T) *101 government officials (49 women and 52 men) enhanced their knowledge of gender equality and social inclusion, and gender responsive planning and budgeting through a series of workshops (R, T)	budget for gender sensitive activities (T) *521 local and national policy makers (394 women and 127 men) participated in learning and advocacy events on rural women's empowerment (R, T)

3.1 Ethiopia[8]

The JP RWEE in Ethiopia officially began in November 2014 and continued through 2021 with a total budget of USD 3,433,256. While the four United Nations agencies provided technical and financial support, the program was implemented by federal, regional, and district-level partners in the regions of Afar and Oromia.[9] The federal and regional partners chose eight beneficiary villages (kebeles) in four districts (woredas) in the two regions, with six beneficiary kebeles selected in Oromia and two in Afar. The program directly benefitted 4,700 rural women (3,500 in Oromia region, 200 in Gelan town, 200 in Sululta town, and 600 in Afar region) and indirectly benefitted 17,500 people in Oromia and 4,000 in Afar (members of the community in JP-RWEE implementing areas). Owing to difficulties in fielding the survey in Afar, only one round of data collection was completed there. This synthesis will therefore focus on the results from Oromia.

In Oromia, activities began in 2016 by strengthening the technical capacity of women-run rural savings and credit cooperatives (RUSACCOs) that offer financial products to women farmers. The RUSACCOs are self-governed by the all-female membership. Membership requires saving a fixed amount every month and participating in the required group activities. The JP RWEE increased the RUSACCOs' capacity to provide cash loans through revolving funds at low interest rates and provided additional training in financial literacy, entrepreneurship skills, and business development. The loans ranged from about 4,000 to 15,000 Ethiopian Birr (about 140 to 522 USD)[10] with interest rates ranging from two to three percent in one site and between five and 11 percent in another, because of varying local conditions. To qualify for credit through a RUSACCO, a woman must have lived in the kebele for at least two years; be over 18 years of age; be productively engaged in an income generation activity; have good credit history and no current debt; be willing to participate in all project activities; and be willing to share her experience with other women in the group. Beneficiaries can take out more than one loan. However, to qualify for additional

[8] This section draws heavily from Hillesland et al. (2022).

[9] The federal partners include the Ministry of Women and Children Affairs (MoWCA), the Ministry of Finance and Economic Cooperation (MoFEC), the Ministry of Agricultural and National Resources (MoANR), and the Federal Cooperative Agency (FCA).

[10] The average exchange rate for July 2019 was 1 ETB = 0.0349 USD.

loans, the previous loan must be fully repaid. Between 2016 and the end of 2018, 3,033 loans were disbursed in the Oromia woredas.

In 2017 and 2018, the beneficiaries in all three woredas in Oromia also received seeds, water pumps, and hoses. In addition, small ruminants were distributed to be fattened and bred. Communities in one of the woredas also received a farmer training center to support women's economic development, beehives and honey making equipment, and milk processing equipment.

Members of the RUSACCOs also had access to agricultural training courses. Depending on the needs of the community, the courses addressed control and management of local household food reserves, growing small-scale fodder, vegetable and crop production innovations and small ruminant management practices. In addition, community facilitators were trained to conduct gender-focused community conversations directed at both men and women. These dialogues focused on awareness of gender norms and beliefs, rural women's access to and control over resources and agricultural productivity, and greater distribution and sharing of household responsibilities. They encouraged greater awareness of social norms that constrained women's involvement in decision-making over economic resources and leadership and aimed to increase community receptiveness of gender equality. Development agents, kebele development community members, and woreda experts were also trained in good nutrition practices, including dietary diversity and complementary food preparation practices, which were shared with the community.

JP RWEE in Ethiopia was not conceptualized as a one- or two-pronged livelihood intervention. The program follows an integrated approach to economically empowering project beneficiaries, simultaneously incorporating multiple interventions at different levels in the beneficiary communities. The different interventions are provided to beneficiaries based not only on their eligibility, but also their choice, so there is some selection of the package of interventions received. Even so, the financial aspect, particularly access to credit, is a major component of the JP RWEE in Ethiopia.

3.2 Niger[11]

The JP RWEE in Niger had a total budget of USD 4,133,257. Activities were implemented from April 2015 to June 2021 in 20 villages in the most vulnerable regions of southern Niger: Dosso and Maradi . The program benefitted directly 17,477 poor rural people (15,837 women and 1,640 men) and indirectly 28,739 women and 19,087 men. The impact evaluation included in this synthesis report was conducted in the Dosso region.

The JP RWEE activities were developed to align with the five-year action plan (2018-2022) for the implementation of the national strategy for the economic empowerment of women, the common "convergence approach" of the 3N (Nigeriens Nourishing Nigeriens) Initiative, and the three strategic outcomes of UNDAF Niger 2019-2022 RS3-Social Development and Protection: RS2-Governance, Peace and Security and RS1-Resilience.

The program partnered with different government bodies, such as the Ministry for the Promotion of Women and Child Protection, Ministry of Agriculture and Livestock, the 3N Initiative High Commission, the University of Niamey, and the regional Directorates of Community Development and Spatial Planning of Dosso and Maradi. Government services supported the selection of the regions where JP RWEE activities would take place to align the program with the Nigerien government priorities (FAO, IFAD, UN Women & WFP 2021).

JP RWEE delivered a set of program interventions through Dimitra Clubs, or community listener clubs, which were used as entry points for program implementation and beneficiary targeting. This modality, which was pioneered by FAO in West Africa, uses rural radio stations to disseminate information and to raise awareness on themes that have been identified and requested by the clubs themselves (agricultural practices, food security, gender-based unequal workload, access to water, land, sanitation, health, etc.).[12] Dimitra Clubs became a platform for community-level groups to promote dialogue and a safe place where

[11] This draws from Rosso (2021a).

[12] FAO: Good Practice Example 1: Dimitra Project: Community Listeners' Clubs in Niger and the Democratic Republic of Congo: https://www.un.org/womenwatch/feature/ruralwomen/fao-good-practice.html

both men and women could openly talk about their challenges. The program also provided improved seeds and training on agricultural technologies. JP RWEE supplied vulnerable women farmers with livestock kits (i.e., red goats and the training needed to breed them), ensuring the rotation of the animals to the benefit of the whole community, and support to start micro entrepreneurial activities in the field of agriculture (e.g., hardware and technical support for production and management of peanut oil). The program also supported the creation of multifunction platforms, which are simple diesel engines with various associated tools that can be used to complete tasks like grinding grain, pumping water, or charging electric goods, and created a network to support local farmer organizations. Finally, JP RWEE supported market access for producers and offered scholarships for students of primary and secondary school.

3.3 Nepal

The JP RWEE in Nepal officially began in March 2015. However, due to delays in field activities owing to the 2015 earthquake[13], the fully-fledged implementation of the program began at the end of February 2016 and continued through 2021, with a total budget of USD 3,322,774. Under the leadership of the Ministry of Agriculture and Livestock Development (MoALD) and with the support of the four UN agencies, the program was implemented by federal-level and civil society partners in ten municipalities of the Sarlahi and Rautahat districts in Madhesh Province, in the south eastern part of the country. [14,15] These areas were selected because of their low women's empowerment index,[16] high prevalence of harmful traditional socio-cultural practices and the devastation caused by flooding in the region. Moreover, these regions have substantial ethnic, religious, and caste diversity: the program worked with Madheshis, Janajatis, Dalits,

[13] Nepal faced a devastating earthquake on 25 April and 12 May 2015 followed by continuous aftershocks.

[14] The federal partners include the Ministry of Agriculture and Livestock Development (MoALD) in close coordination with municipality and rural municipality at the local level.

[15] The JP RWEE implementation started in the three districts of Sindhuli, Sarlahi and Rautahat; however, due to financial constraints, the geographic coverage was narrowed down to the two districts of Sarlahi and Rautahat.

[16] This data was shared in the JP RWEE Work Plan of 2018/2019.

Brahmins, Chhetris and Muslims. In 2020-2021, the two districts were also severely impacted by the COVID-19 pandemic and related restrictions on mobility.

The program benefitted 3,002 rural women farmers and their 16,381 household members. It supported the formation and strengthening of 122 women's groups, which served as the entry point for the implementation of program interventions. Each group consists of 20–25 members, all of them program beneficiaries, and reflects the ethnic and religious diversity of the implementation regions. To qualify as members, women must have one katha (338.63 m^2) of land for kitchen gardening, one katha for cereal production, and at least six katha for commercial vegetable production; have their own or rented land; have some basic knowledge of kitchen gardening; not be a member of another group of the same type; have spare time for kitchen gardening or commercial vegetable production; and be willing to participate in these activities.

All women farmers were given technical and material support on kitchen gardening and commercial fresh vegetable production. Some farmers also received training on nutrition. The JP RWEE also provided support to establish a 'group revolving fund scheme', a finance scheme that enables members to acquire the needed agricultural inputs (e.g., seeds, chemical fertilizer, pesticides, and agriculture tools) and other essential goods and services when they are needed most. Access to their own financial resources has enabled rural women to avoid taking loans from local money lenders and financial institutions, which generally charge a high interest rate, require complex legal application processes, and impose rules that are often difficult for women to follow.

JP RWEE also helped to improve the market access of more than 2,000 smallholder rural women farmers. The program piloted Home-Grown School Feeding in 56 community schools in collaboration with the Government of Nepal's cash-based National School Meals Programme. Rural women's groups also received training on vegetable production, integrated pest management, entrepreneurial skills, and value chains.

Two market management committees were formed and trained on marketing management in collaboration with the relevant local municipalities. These market outlets facilitated market linkages for rural women farmers that were expected to lead to market-oriented agriculture, sustained local economic activity, and a sustainable source of income for rural women. To enhance leadership and participation of rural women in their communities, women farmers and their family members were engaged in a six-week training program to enhance their leadership skills such as effective communication, self-awareness, knowledge about their rights. The leadership manual was also refined to incorporate inputs related to COVID-19, with attention to an increase in violence against women and girls, loss of income, health concerns and the added workload of women during the lockdown and 'eased-lockdown' contexts.

Between 2019 and 2021 a total of 1,569 individuals (1,020 women and 549 men) in the program districts were trained on the Gender Action learning System (GALS), which aimed to enhance their self-esteem; improve planning, decision making and collaboration in the household; strengthen relationships, and increase the income and overall well-being of households. GALS intended to help households adopt more diversified livelihoods and increase women's economic activities. GALS encouraged family members to reflect on their aspirations, thinking, behavior, and actions, so that family members' shared goals lead to changes in their behavior and actions.

Finally, the program supported a more gender-responsive policy environment for the economic empowerment of rural women through the endorsement of the Gender Equality and Social Inclusion (GESI) strategy of the Agriculture Development Strategy and review of the gaps and challenges for the implementation of the GESI strategy in the federal and humanitarian context. The review also provided recommendations to the MoALD for the effective implementation of the GESI strategy. The GESI strategy for ADS was developed with technical and funding support of the JP RWEE in 2016 and 2017 and was endorsed by the MoALD in June 2017. A gender responsive policy environment was further promoted at the district level, as demonstrated in commitments to allocate budgets to programs that increase women's

access to agricultural development activities, particularly for women from marginalized communities.[17] These commitments were made publicly by representatives of local government bodies. Moreover, members of women's groups advocated for their collective priorities through constructive engagement with local government institutions and authorities.

3.4 Kyrgyzstan

The JP RWEE in Kyrgyzstan was implemented in 159 villages across the five regions (oblast) of Osh, Jalal-Abad, Batken, Naryn, and Chui. Similar to the other case study countries, the four participating UN agencies implemented the program with the support of local partners, such as NGOs and service providers. With a total budget of USD 4.2 million, it directly benefitted 5,817 rural poor (4,547 women, 1,270 men) and indirectly 19,184 (9,468 women and 9,716 men).

The program focused on mobilizing and strengthening women's Self-Help Groups (SHG) by providing them with access to revolving funds to be used as seed capital for small economic activities. The program also supported women's activism at the community level, as well as public speaking skills for candidates to local councils. It aimed to improve the production-related skills of rural women and their families in the agricultural sector and build their capacity on business planning, market analysis and financial literacy. The intervention also stimulated public advocacy and local partnership by promoting the active contribution of rural women in rural development processes, including standing for election in local councils, contributing to budget hearings and participating in community advocacy meetings.

The JP RWEE aligned its work with Kyrgyzstan's national priorities, specifically the National Strategy on Sustainable Development of the Kyrgyz Republic of 2013-2017 and 2018-2040, and with the National Strategy on Gender Equality 2012-2020. The JP RWEE was also aligned with the priorities specified in the National Action Plans for GEWE 2015-2017 and 2018-2020. Through its commitment to increasing the

[17] Reported in the JP RWEE's Annual Report 2018.

income opportunities and food security of vulnerable rural households, the JP RWEE also aligned itself with the National Food Security and Nutrition Programme and the Social Development Programme for the 2015-2017 and 2019-2023 periods.

Beneficiaries were identified through the following eligibility criteria: a) female headed households living below the poverty line, single mothers, and families with persons with disabilities; b) income per member of the household not exceeding 1,354 KGS (approximately USD 16) per month in accordance with the government's eligibility criteria for social allowances; c) families with a large number of children (three or more) below the age of 14; and d) families with access to 3-8 acres of land.

Beneficiaries were divided into three cohorts that received different intervention packages (see Rosso 2021 for details). All villages received a set of core interventions: social mobilization; trainings on agro-technology, value-chains, and nutrition; provision of food assistance; and support to group economic initiatives. Only some villages benefitted from the establishment of and support to regional producer organizations, the GALS, and the joint GALS and Business Action Learning for Innovation (GALS/BALI) program. GALS activities began in 2016 with a subset of beneficiaries. Because of its success, in 2018 IFAD developed GALS/BALI, which upgraded GALS tools for business development. These two household methodologies (GALS and GALS/BALI), which were developed and implemented by IFAD, promoted behavioral change for gender justice, planning of livelihood strategies, the fair distribution of workload within households, the management of income-generating activities, and increased agricultural productivity.

The JP RWEE also focused on local government capacity development along with enhancing the capacities of rural women leaders and communities to ensure that rural women's rights and priorities were reflected in local development plans and budgets. Suggested improvements in the local governance system included, but were not limited to, local planning/budgeting, support to local planning on agricultural extension services, and cooperatives.

To create a gender-sensitive policy environment, 35 gender-sensitive local development workplans with associated budgets were designed. The costs of implementing gender-sensitive activities were shared between 12 municipalities and the JP RWEE budget. To further define funding from government budgets and donors, the JP RWEE supported development of the National Gender Equality Strategy 2021-2030, however, the process of its approval by the government, along with costing exercises has been suspended due to the ongoing government restructuring process.

Moreover, 521 local and national policy makers (394 women and 127 men) enhanced their capacities on innovative methods in stakeholder consultations. This changed the practice of holding consultative discussions and elaborating decisions and recommendations.

3.5 The JP RWEE in the Reach, Benefit, Empower, and Transform Framework

JP RWEE underwent an evaluation when the program ended in 2021 (FAO, IFAD, UN Women, WFP 2021). According to the final report (FAO, IFAD, UN Women, WFP and Mokoro 2021), significant achievements were realized across outcomes related to improved food and nutrition security, increased income to sustain livelihoods, and enhanced participation in decision-making and, to a lesser extent, a more gender-responsive policy environment for rural women in agriculture. In all countries[18], dietary diversity and food consumption habits amongst the targeted beneficiaries improved, and agricultural production increased, contributing to enhanced household food security and nutrition. Transformative changes in social norms and behavior related to cultural practices around food consumption contributed to these improvements. Substantial increases in the incomes of rural women were achieved and improved not only livelihoods but also women's role in household decision making on finance. The program also documented changes in gender roles at household and community levels: the number of women in leadership positions in groups and POs increased and, in some countries, women were elected to local councils. At the national

18 Data for Guatemala was unavailable.

level, key technical support provided to national governments by the JP RWEE included the development of gender mainstreaming strategies into agricultural policies, critical to the establishment of a more gender responsive policy environment for rural women's economic empowerment.

Although the evaluation report focused on several aspects of the program, it did not include empowerment metrics, as that portion of the evaluation had not been completed. The RBET framework can help assess the effectiveness of the program with respect to its empowerment objectives. Although the RBET framework was developed long after JP RWEE was first designed and implemented, and JP RWEE was implemented following its own theory of change, viewing the joint program through this lens offers important insights that may be helpful to other development practitioners. For example, it is useful to see what objectives and activities correspond to which section of the framework. It is possible that an outcome or activity may correspond to more than one goal in RBET, as indicated in Table 1.

4. Methods and data

4.1 Women's empowerment measures

The Women's Empowerment in Agriculture Index (WEAI) is a survey-based index that measures the empowerment and gender parity of women who work in agriculture and to identify key areas in which empowerment needs to be strengthened (Alkire et al. 2013). The WEAI was initially developed for population-based monitoring of USAID Feed the Future programs but has also been used by many other organizations and researchers seeking to collect standardized empowerment indicators. It is the weighted sum of two subindexes: the Five Domains of Empowerment (5DE) and the Gender Parity Index (GPI). The 5DE assesses the degree to which women are empowered in five domains: (1) agricultural production decisions; (2) access to, and decision-making power over, productive resources; (3) control over use of income; (4) leadership roles within the community; and (5) time allocation. The 5DE is constructed from individual-level empowerment scores, which reflect each person's achievements in the five domains as

measured by 10 indicators, with their corresponding weights. Each indicator measures whether an individual has surpassed a given threshold or has adequate achievement with respect to each indicator. For example, a respondent who is an active member of at least one community group is considered adequate in group membership. A woman is defined as empowered if she has adequate achievements in four of the five domains or has achieved adequacy in 80 percent or more of the weighted indicators. The GPI compares the achievements of women and men within the same households.

Following the roll out of WEAI to the 19 Feed the Future Initiative countries in 2012, WEAI users expressed a demand for a shorter survey instrument that still accurately reflected the content and coverage of the original index and dropped sections that were difficult to administer. The A-WEAI survey instrument (Malapit et al. 2017) reflects all five domains of empowerment in agriculture but collects only 6 out of the 10 original indicators. The indicators that were retained are: 1) Input in Productive Decisions; 2) Ownership of Land and other Assets; 3) Access to and Decisions on Credit; 4) Control over use of Income; 5) Group Membership; and 6) Workload. Additional changes were made to shorten the questionnaire, such as dropping the collection of secondary activities from the time use module and streamlining the sequence of decisionmaking questions to minimize repetition. Although the A-WEAI indicator weights have been adjusted to reflect the reduced number of indicators, the methodology for calculating the index and the thresholds for identifying an empowered individual remains the same as the WEAI.

The reduced version of the WEAI, or the R-WEAI, was developed by IFAD (Garbero and Perge 2017) to provide a cost-effective women's empowerment metric for IFAD-supported project monitoring systems. R-WEAI aimed to reduce data requirements, survey costs, and respondent fatigue while ensuring comparability to the full WEAI. R-WEAI retained all the WEAI indicators but reduced the number of survey questions required to compute each indicator. The selection of questions to be retained was based on a multiple correspondence analysis for each indicator in the survey, drawing on multi-country WEAI datasets.

The project-level Women's Empowerment in Agriculture Index (pro-WEAI) was developed to assess impacts and evaluate outcomes of projects with women's empowerment objectives (Malapit et al. 2019). There are several critical differences between pro-WEAI and the previous versions of WEAI. First, instead of the five domains of empowerment, pro-WEAI measures empowerment in three domains: intrinsic agency (power within), instrumental agency (power to), and collective agency (power with). Second, the pro-WEAI is made up of 12 equally weighted indicators mapped to the three domains, which use higher thresholds for adequate achievement. This reflects the purpose of the pro-WEAI as an impact assessment tool for projects that have explicit empowerment objectives. Additionally, although the indicators map to different domains, six of the 12 pro-WEAI indicators are based on the A-WEAI indicators. Third, because of structure of the pro-WEAI domains and indicators, an individual is identified as empowered if she has adequate achievements in 75 percent, or 9 out of the 12 indicators. Apart from these differences, pro-WEAI follows the same methodology for constructing the index, taking a weighted average of the three domains of empowerment (3DE) and the GPI.

Given that three of the countries collected the pro-WEAI and Niger implemented the R-WEAI, we needed a measure that was comparable across all four countries. The six indicators in A-WEAI can be constructed from all WEAI versions, so we computed the A-WEAI, but used the pro-WEAI thresholds, because the higher thresholds for adequate achievements are appropriate for projects with women's empowerment objectives.

4.2 Survey descriptions

Ethiopia[19]

The baseline survey was administered from December 2016 to January 2017 after the program had begun, while the endline survey took place from February to March 2019. The delay in the baseline survey was

19 The survey description draws from Hillesland et al. (2022).

due to conflict and social unrest in the region. The treatment sample was randomly drawn from the RUSACCO members in the beneficiary communities at baseline. For the comparison group, a sample was randomly drawn from two comparable kebeles in each of the three woredas. These comparison kebeles are adjacent communities in which JP RWEE does not operate but are similar in size, agricultural systems, livelihoods, and cultural norms. The baseline survey was administered to 750 households, in which the female respondent and her spouse or partner were interviewed separately and privately. There are 723 households with complete data from the same female respondent at both the baseline and endline. The comparison group consists of 350 women; 281 have data from the spouse. The beneficiary group consists of 373 women; 247 have data from the spouse.

The data reveal two levels of participation in the program. One group of beneficiaries started in the program before baseline and maintained good standing in the RUSACCO between the two survey rounds. These beneficiaries reported being a member of a RUSACCO at the endline and having access to credit (meaning they took out a loan or could take out a loan) through a RUSACCO between baseline and endline. A second group of beneficiaries also participated in the RUSACCOs before baseline but either left the group or failed to maintain good standing, thus losing access to credit through the RUSACCO early in the program. By endline, these beneficiaries stated they did not have access to credit through a RUSACCO in the last two years (between baseline and endline). The change in participation does not appear to result from defaulting on the initial loans from the RUSACCOs but could be because the beneficiaries chose not to continue or did not meet the other requirements of the group, including the commitment to participate in meetings and the savings requirements. While this group did not have access to credit, they may have benefitted from the other program activities in the community. Given the heterogeneity among these two groups, the analysis is conducted for both groups separately.

Niger[20]

20 The survey description is taken from Rosso (2021a).

Baseline data were collected in ten villages of the area in 2016, equally divided into intervention and control villages. Similar to Ethiopia, baseline data collection took place after the program had started in the intervention villages: program implementation began in mid-2014, while data collection started at the beginning of 2016. The baseline survey collected data in ten villages, five in the control area and five in the treatment area. In total, 580 households were interviewed – 290 from the control villages and 290 from the treatment villages. The control villages had to be from the same commune, located far enough from the intervention villages to avoid spillover effects between the two groups, with similar socio-economic characteristics, agricultural conditions, and condition of women. Women's condition was defined by the project team in terms of economic vulnerability, livelihood strategies, gender-based power dynamics (e.g., lack of voice and decision-making power), literacy rates, polygyny rates, and limited presence of community-based organizations.

The endline data were collected in October-November 2020. As during baseline data collection, 580 households were interviewed, equally divided between the treatment and control villages. Because of sample attrition, households that attrited were replaced by other households with similar observable characteristics. Within each village, the replacement household/individual was randomly selected but had to reflect the original gender composition of the household. Potential bias owing to attrition was considered in the analysis.

Nepal

Only one round of data collection took place in Nepal, from January to February 2021, towards the end of the program. The sample was randomly drawn from the 93 Women's Groups' members in fifteen beneficiary village development committees (VDCs) within the ten Palikas, and from 30 comparable clusters in ten VDCs within the ten Palikas. Beneficiary households, rather than the whole VDC, were sampled to ensure that the sample included enough program participants. The comparison VDCs were villages from the same Palika, but in which the UN JP RWEE does not operate, and were chosen to have similar socio-demographic composition to the population of the beneficiary VDC in terms of sex, marital

status, level of education, caste/ethnicity, religion, and age structure.[21] Importantly, when selecting a control in each Palika, VDCs adjacent to the treatment VDCs were excluded to minimize possible spillover effects of the program. The survey was administered to 1,300 households, 980 households in the treatment and 320 households in the control. The beneficiary woman, or equivalent in the comparison groups, was interviewed in each household, and a male respondent, typically the spouse, was also interviewed when possible. Because baseline data were not collected, attempts to reduce selection bias involved retrospectively constructing individual- and household-level baseline information from the endline survey data (i.e., age at baseline, marital status at baseline, number of children under the age of 16 years old in the household at baseline, educational attainment, caste/ethnicity, religion, etc.).

Kyrgyzstan[22]

The survey was administered between January to February 2021.The intervention was rolled out to include three cohorts, and the sample was designed to comprise three groups: a control group with the standard JP RWEE intervention but no GALS/BALI (8 villages), a group with GALS only (13 villages), and a group with GALS/BALI (33 villages). These groups were sampled from the first and third cohorts in 54 villages with 1,946 survey participants: 45 villages in the first cohort and 9 villages in the third cohort. For the control group, 400 households were chosen from 20 villages that were identified based on distance to the pilot villages, population size, distance to water bodies, altitude, travel time to big cities, and night-time light intensity. Although the intervention included three cohorts, the survey included only the first and third cohorts because the second cohort had a very limited timeframe of implementation (from December 2016 to December 2017) and reduced implementation intensity, which did not make it comparable to the other two cohorts. In addition, while the intervention packages were the same, the group mobilization process occurred in less than a year and was subsequently discontinued. Neither did cohort two beneficiaries benefit

21 This selection is based on the 2011 census data.

22 The survey description is based on Rosso (2021b).

from continuous and long-term coaching, nor did they access revolving funds to support the startup of businesses.

Similar to Nepal, the evaluation of the Kyrgyzstan JP RWEE intervention did not include a baseline survey. While control villages with similar characteristics were found for this endline study, JP RWEE was not randomly assigned to beneficiaries in intervention villages as individuals decided to participate on a voluntary basis and villages were not randomly assigned to interventions but instead selected by participating agencies. To correct for possible selection biases, the Kyrgyzstan study team used a statistical matching technique, with treatment and control households matched based on individual-level information at baseline constructed from the 2021 data (*i.e.,* age at baseline, number of underage children at baseline, number of children under the age of 5 at baseline ethnicity, religiosity, etc.).

4.3 WEAI measures collected in each of the surveys and common measures across all projects

As mentioned above, the six A-WEAI indicators are nested within both the original WEAI, the R-WEAI, and the pro-WEAI, which allows us to construct comparable empowerment measures across the four JP RWEE case studies.

In Niger, data collection included all 10 WEAI indicators: 1) input in productive decisions; 2) autonomy in production; 3) ownership of assets; 4) purchase, sale, or transfer of assets; 5) access to and decisions on credit; 6) control over use of income; 7) group membership; 8) speaking in public; 9) workload; and 10) leisure.

In Kyrgyzstan and Nepal, all 12 pro-WEAI indicators were collected: 1) autonomy in income; 2) self-efficacy; 3) attitudes about intimate partner violence against women; 4) respect among household members; 5) input in productive decisions; 6) ownership of land and other assets; 7) access to and decisions on financial services; 8) control over use of income; 9) work balance; 10) physical mobility (ability to visit important locations); 11) group membership; and 12) membership in influential groups.

In Ethiopia, only 11 of the 12 pro-WEAI indicators were collected – self-efficacy was not collected.[23]

The six A-WEAI indicators are available from all four JP RWEE countries are: 1) input in productive decisions in agriculture; 2) ownership of land and other assets; 3) access to and decisions on financial services; 4) control over use of income; 5) work balance; and 6) group membership. Because the goal of this work is to examine the impact of a project that explicitly aims to empower women, we calculated the indicators using the pro-WEAI definitions and adequacy cutoffs, which are stricter than the A-WEAI definitions and cutoffs. To maintain the comparability across projects, we use the structure and weights of the A-WEAI to calculate the 5DE, GPI, and the overall empowerment threshold. See Table 2 for the comparison of names, definitions, and weights of the six indicators included in the analysis.

Table 2. Comparison of Indicators in common across pro-WEAI, WEAI and AWEAI

Pro-WEAI indicator name	**Pro-WEAI definition**	**WEAI & A-WEAI indicator name**	**WEAI definition**	**A-WEAI definition**
Input in livelihood decisions	Meets at least ONE of the following conditions for ALL of 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*	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 least two agricultural activities* *Weight = 1/10*	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*
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*	Ownership of assets	Adequate if individual owns at least one major asset or at least two minor assets *Weight = 1/15*	Adequate if individual owns at least one major asset or at least two minor assets *Weight = 2/15*

[23] Ethiopia conducted its baseline survey when pro-WEAI was being developed, and self-efficacy was considered an optional indicator. It was added to the list of required indicators after data collection was completed. This does not affect the calculation of A-WEAI since self-efficacy is not included as a component indicator.

Pro-WEAI indicator name	Pro-WEAI definition	WEAI & A-WEAI indicator name	WEAI definition	A-WEAI definition
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*	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*	Adequate if individual makes decisions about at least one source of credit accessed by her/his household *Weight = 1/15*
Control over use of income	Has input in decisions related to how to use BOTH income and output from ALL of 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*	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*	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*
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*	Workload	Adequate if individual worked fewer than 10.5 hours during the previous day *Weight = 1/10*	Adequate if individual worked fewer than 10.5 hours during the previous day *Weight = 1/5*
Group membership	Active member of at least ONE group *Weight = 1/12*	Group member	Adequate if individual is an active member of at least one group *Weight = 1/10*	Adequate if individual is an active member of at least one group *Weight = 1/5*

4.4 Adjustments to ensure comparability of outcome variables

Due to small differences in how each country project collected and calculated their data, some adjustments were made to allow for all countries to be compared using the same standards and definitions. These adjustments resulted in small to moderate changes in the sample sizes and empowerment outcomes, as compared to each project's self-reported outcomes. For example, because R-WEAI data was collected in

Niger, the time use module collected data on all types of secondary activities. For comparability with the pro-WEAI data, we recalculated the indicator to reflect only childcare as a secondary activity.[24] Appendix 2 lists the adjustments made to improve accuracy and comparability.

4.5 Impact estimation

Outcome variables

The outcome variables include three aggregate empowerment measures:

- Whether the individual is empowered (binary): An individual is defined as empowered if they achieved at least an empowerment score of 80%)
- Empowerment score (continuous): This is the proportion of indicators in which a respondent is adequate.
- Whether the household achieves gender parity (binary): A household achieves gender parity if the woman's empowerment score is greater than or equal to the empowerment score of the male decision maker in her household.

In addition, we analyze both binary and continuous versions of the A-WEAI indicators. The six binary indicators assess whether the individual is adequate with respect to: (1) input in livelihood decisions, (2) ownership of land and other assets, (3) access to and decisions on financial services, (4) control over use of income, (5) group membership, and (6) work balance. Because binary indicators may be sensitive to the choice of thresholds or cutoffs, we analyze impacts on the underlying continuous variables used to determine adequacy. These are: (1) the number of types of livelihood decisions made; (2) the number of asset categories owned, including land; (3) the number of types of financial services/credit sources the person has access to and makes decisions on; (4) the number of types of income decisions made; (5) the

[24] This change resulted in less time on secondary activities included in the workload indicator but did not significantly change the proportion of individuals achieving adequacy.

number of types of groups to which a person belongs; and (6) the number of hours worked. Because the scale and range of the continuous variables is different for each indicator, we estimate standardized coefficients (also known as effect sizes), which involves scaling each coefficient by the standard error of the dependent variable.

Impact estimation

This synthesis paper replicates the analyses conducted by each country project. We perform regressions using the specific econometric model and controls used by each respective country case study. Although the exact specification varies across countries, there are some commonalities in the estimation procedure for Ethiopia and Niger (both use difference-in-difference estimators) and for Ethiopia, Nepal, and Kyrgyzstan, which use propensity scores for weighting (Ethiopia) or for matching (Nepal, Kyrgyzstan). We use a slightly revised notation for comparability in this synthesis paper. See Hillesland (2021) for Ethiopia, Rosso (2021a, 2021b) for Niger and Kyrgyzstan, respectively, and Andriano (2021) for Nepal for details.

Ethiopia

The Ethiopia study (Hillesland et al. 2022) uses a difference-in-difference estimator to account for time invariant differences between the treatment and comparison groups, with inverse probability weighting (IPW) following Hirano et al. (2003). The estimated propensity scores, p, which is the probability of being in the treatment group based on observed characteristics, are used to create the weights. Given that assignment to the treatment group is non-random, the propensity score weights, which match individuals in the treatment group to individuals in the comparison group, help to eliminate selection bias and to ensure greater comparability between the groups (Rosenbaum and Rubin, 1983). The beneficiary respondents are weighted with $1/p$, and the respondents in the comparison group are each weighted with $1/1\text{-}p$, so that the weights will be small when the probability of being in the treatment group is high and large when the probability of being in the treatment group is low. The propensity scores are estimated as a probit regression using the baseline data:

$$p(\boldsymbol{x}_{bi}, \boldsymbol{n_i}) = \Pr(Program_i = 1 | \boldsymbol{x}_{bi}, \boldsymbol{n_i}), \quad (1)$$

where the probability of being in the program, *Program*, is based on a set of observable characteristics, $\boldsymbol{x}$ is a vector of individual and household characteristics of individual, *i*, at baseline, *b*, and $\boldsymbol{n}$ are the woredas. The probability of being treated is expressed as a function of the following baseline characteristics: age, household demographics, marital status, educational attainment, wealth index, land holdings, household distance from services (minutes to commute to a primary school), and participation in agriculture on the household farm as the primary income earning activity. Hillesland et al. (2022) also include membership in a RUSACCO in or prior to 2015 to account for the existence of RUSACCOs prior to the baseline survey, other variables that proxy for household being impacted by conflict and by natural events, and woreda fixed effects. They estimate the propensity scores for the full female sample, married women, and married men for the two treatment groups separately. The estimates for married women and men also include the age, education, and land holdings of both spouses as regressors.

Hillesland et al. (2022) then estimate a weighted least squares regression using the difference of the outcome and covariates between the two time periods. The estimates are the same as a difference-in-difference estimator, but with some loss of efficiency. This allows the authors to consider initial characteristics of the program sites and control villages, including shocks faced by households related to the conflict and agricultural shocks prior to the baseline that may influence program placement and aid in the different communities at baseline and over time. Woreda fixed effects are also included to control for distance from the capital, differences in agroclimatic factors, and the slight variations in the program across woredas. Specifically, they estimate:

$$y_{mi} - y_{bi} = Program_i'\beta_{Impact} + (\boldsymbol{x}_{mi} - \boldsymbol{x}_{bi})'\boldsymbol{\beta_i} + \boldsymbol{x}_{bi}'\boldsymbol{\theta_i} + \boldsymbol{n_i}'\boldsymbol{\gamma_i} + \omega_i + \varepsilon_{mi} - \varepsilon_{bi}, \quad (2)$$

where y is the outcome variable of individual, *i*, at the midline, *m*, and baseline, b; $Program$ indicates whether the individual, *i*, is a beneficiary in the program or in the comparison group; $\boldsymbol{x}$ is a vector of individual and household characteristics as defined in equation (1); $\boldsymbol{n}$ is a vector containing the woredas; ω

is the weight using the propensity scores estimated in equation (1); and ε is the error term. β_{Impact} is the estimated impact of the program (JP RWEE) for the treatment group, $\boldsymbol{\beta_i}$ is the vector of coefficient estimates for the change in household and individual characteristics from baseline to midline, and $\boldsymbol{\theta_i}$ is the vector of coefficient estimates for the baseline characteristics, and $\boldsymbol{\gamma_i}$ is the vector of estimates of woreda fixed effects.

Niger

Rosso (2021a) estimates the impact of JP RWEE using the following regression model:

$$Y_{itv} = \beta_0 + \beta_1 Year_{itv} + \beta_2 Program_{iv} + \beta_3 Program_{itv} \times Year_{itv} + u_{itv} \qquad (3)$$

This model is estimated for each individual *i*, in time *t* (2016 and 2020), in the program or control group *v*. $Year_{itv}$is a dummy taking the value of 1 in 2020 and 0 in 2016, $Program_{iv}$is a dummy equal to 1 for all the villages where JP RWEE was implemented and 0 for the control villages.

The coefficient of interest β_3 shows the estimated effect of JP RWEE on the treated group. Unlike the other studies, the Niger study did not use matching methods to control for observable characteristics. Instead, to estimate the average treatment effect on the treated (ATT), Rosso (2021a) assumes that in absence of the program, the two groups would have the same unobservable trends in the outcome variables (*i.e.,* common trend assumption). She also assumes that the choice of villages included in the program was random, and specifically, that it was not driven by any idiosyncratic shocks affecting the outcomes of interest. [25] She runs a series of regressions controlling for: (1) individual level observable characteristics, both at the individual and household level: gender, age, education, marital status, number of children in the household and type of accommodation; (2) individual fixed effects (dropping the variable *Program*). These checks would allow us to control for all possible differences in the two groups and obtain a close to an unbiased

[25] *t*-tests on individual characteristics collected at the baseline between control and intervention villages, also broken down by gender, show there are very few statistically significant differences in the average age- they are older in the intervention villages- and they are more likely to have completed primary school and less likely to have no schooling in the villages. Results controlling for these characteristics are qualitatively similar to those without controls (Rosso 2021a).

estimate of the effect of the intervention. Finally, she also controls for any possible sample selection by estimating the model only on those individuals that are also interviewed at the baseline.

Nepal

Unlike Ethiopia and Niger, the Nepal study only had one round of data, which was collected for treatment and control groups after the program ended. Because individual and household characteristics are likely to affect participation in the program, Andriano (2021) uses a single difference matching estimator to construct comparable treatment and comparison groups. The specific technique is nearest-neighbor matching (NNM) (Abadie et al., 2004; Abadie and Imbens, 2009), which estimates the counterfactual outcomes for the treatment group by constructing a statistical comparison group of households that did not get the treatment with similar observable characteristics at baseline. In the absence of baseline data, she uses baseline information derived retrospectively from the survey, other characteristics that have not changed over time (i.e., caste/ethnicity and religion), or that are unlikely to have changed over time (i.e., number of sleeping rooms in the house, household distance from services, and educational attainment). The baseline characteristics derived from the survey include age at baseline, marital status at baseline, and number of children under the age of 16 years old in the household at baseline. These individual and household characteristics could have influenced the probability of being selected for participation in the program, thus controlling for these characteristics should help avoid bias due to differences that may have prompted women to participate in the program. Additionally, she includes district fixed effects.

NNM estimates the impact as the average of the difference in the outcome for each beneficiary from a weighted average of outcomes for matched non-beneficiaries using a distance measure to construct the weights. Control households that are closer to the treated households receive a larger weight than those that are further away. Following equation (1), Andriano (2021) estimates the probability of being in the treatment or control group, or the propensity score, based on observable characteristics. She then identifies and drops all observations that are outside the region of common support, separately for men and women. Having constructed a comparison group, she then estimates the following regression model:

$$y_{id} = \beta_0 + \beta_1 Program_i + \boldsymbol{x_i}'\boldsymbol{\theta_i} + \boldsymbol{n_i}'\boldsymbol{\gamma_i} + \omega_i + \varepsilon_i \quad (4)$$

where y is the outcome variable of individual *i*, from district *d*; $Program$ indicates whether the individual, *i*, is a beneficiary in the program or in the comparison group; $\boldsymbol{x}$ is a vector of individual and household characteristics; $\boldsymbol{n}$ is a vector of district dummies; and ε is the error term. β_{Impact} is the estimated impact of the program (JP RWEE) for the treatment group, $\boldsymbol{\theta_i}$ is the vector of coefficient estimates for individual and household characteristics, and $\boldsymbol{\gamma_i}$ is the vector of estimates of district fixed effects.

The vector $\boldsymbol{x_i}$ contains characteristics of individual (and household) *i*, specifically age, marital status, educational attainment, caste/ethnicity, religion, number of children under the age of 16 years old in the household, number of sleeping rooms in the house, and household distance from services (minutes to commute to public transportation). District fixed effects control for time-invariant differences across districts such as infrastructure, or differences in agro-climatic factors etc., and possible variation in the program across the two districts. The coefficient of interest β measures the effect of JP RWEE on the beneficiary group.

Kyrgyzstan

Similar to Nepal, the Kyrgyzstan study did not have baseline information, and thus followed a similar technique, using propensity score matching to create a comparison group based on observable characteristics. Recall that in Kyrgyzstan, three sets of interventions were implemented: the common JP RWEE intervention, GALS, and GALS/BALI. Rosso (2021b) regresses a dummy variable equal to 1 if the individual is a beneficiary of any of the interventions and zero if the individuals live in any of the control villages on the following characteristics: age at baseline, the number of children below the age of 5 at baseline, years of education, a dummy if the individual can read, one if she/he can write, ethnicity dummies, a dummy for being religious and region of residence dummies. These probit regressions, similar to equation (1), are run separately for women and men and are used to create the regions of common support.

Individuals in the program without an observationally equivalent individual in the control group are dropped from subsequent estimation. In this synthesis paper, we estimate the following regression model:

$$Y_{ir} = \beta_0 + \beta_1 Program_{ir} + \beta_2 GALS_{ir} + \beta_3 GALS/BALI_{ir} + \beta_{42} X_{ir} + \gamma_r + u_{ir} \qquad (5)$$

This model is estimated for each individual *i*, at endline in 2021, in intervention or control group. $Program_{ir}$ is a dummy equal to 1 for all the villages where JP RWEE was implemented and 0 for the control villages; *GALS* is a dummy variable for those included in the GALS intervention (in addition to the common program); and *GALS/BALI* is a dummy variable for the BALI program (in addition to the common program). We include a set of controls (X_{ir}) and 4 regional provinces (γ_r).[26] Standard errors are clustered at the village level, the unit at which the intervention was assigned. The coefficients of interest are β_1, $\beta_2, and\ \beta_3$, which show the estimated impact of the JP RWEE common intervention, BALS, and GALS/BALI respectively on our outcomes of interest.

Both the Nepal and Kyrgyzstan studies rely on matching methods to create a counterfactual. Given the non-random allocation of the intervention to villages and the self-selection of individuals into the program, our estimated impacts are valid only if selection based on unobservables is not an issue.

5. Results

5.1 Sample descriptive statistics

Table 3 presents selected descriptive statistics across the four country cases. For the two country cases that have two rounds of data collection, Ethiopia and Niger, we present descriptive statistics from the baseline round. The Ethiopia data analyzed in this paper come from Oromia, where the survey was implemented with higher fidelity than in Afar.

[26] The controls include 5 age categories, read and write dummies, religious dummy, financial understanding, presence of different types of illness, having tested positive for COVID19, ethnicity dummies, household wall and roof characteristics, distance from main road, market, townhall, school, pharmacy, cooking and bathing habits.

Table 3. Descriptive statistics of women and men, beneficiary and control households

	Beneficiaries		Control		Difference		Difference	
	Women (a)	Men (b)	Women (c)	Men (d)	(a) - (c)		(b) - (d)	
Ethiopia (baseline)								
Number of observations	373	247	350	281	23		-34	
Age	39.81	43.40	38.68	42.72	1.13		0.68	
Whether literate (%)	25.47	55.47	32.00	65.48	-6.53		-10.01	*
Primary education or higher (%)	27.35	56.28	35.14	66.90	-7.79	*	-10.62	*
Household size	6.00	6.42	6.10	6.43	-0.10		-0.01	
Marital status (% married)	78.28	100.00	83.71	99.64	-5.43		0.36	
Lives in dual-headed household (%)	79.89	100.00	87.71	100.00	-7.82	**	0.00	
Lives in woman-only household (%)	19.30	0.00	12.29	0.00	7.01	**	0.00	
Agricultural or farming household (%)	61.13	59.11	52.29	50.18	8.84	*	8.93	*
Works outside household for money (%)	3.75	37.25	5.14	40.21	-1.39		-2.96	
Niger (baseline)								
Number of observations	286	241	276	245	45		31	
Age	39.21	48.66	35.66	45.64	3.55	**	3.02	*
Whether literate (%)	18.00	33.00	9.00	11.00	9.00	**	22.00	***
Primary education or higher (%)	27.00	32.00	8.00	13.00	18.00	***	19.00	***
Household size	7.99	8.56	7.35	7.67	0.64	*	0.89	*
Marital status (% married)	91.00	98.00	96.00	100.00	-5.00	*	-1.00	
Lives in dual-headed household (%)	82.52	99.17	85.14	99.18	-2.00		0.00	
Lives in woman-only household (%)	17.48	0.83	14.86	0.82	2.00		0.00	
Agricultural or farming household (%)	45.00	29.00	69.00	44.00	-24.00	***	-15.00	***
Works outside household for money (%)	12.00	23.00	14.00	32.00	-2.00		-9.00	*
Nepal								
Number of observations	980	980	320	320	660		660	
Age	45.15	48.37	41.51	45.15	3.64	***	3.22	***
Whether literate (%)	25.13	60.67	17.00	56.01	8.13	**	4.65	
Primary education or higher (%)	9.89	24.54	4.54	21.64	5.35	**	2.90	
Household size	6.74	6.74	6.68	6.68	0.05		0.05	
Marital status (% married)	95.42	96.61	98.14	95.01	-2.72	*	1.60	
Lives in dual-headed household (%)	100.00	100.00	100.00	100.00	0.00		0.00	
Lives in woman-only household (%)	0.00	0.00	0.00	0.00	0.00		0.00	
Agricultural or farming household (%)	97.49	96.49	79.94	87.07	17.54	***	9.43	***
Works outside household for money (%)	18.49	36.23	18.57	50.78	-0.08		-14.55	***
Kyrgyzstan								
Number of observations	884	544	428	298	456		246	
Age	40.19	41.34	37.66	40.62	2.52	**	0.72	
Whether literate (%)	99.32	99.45	98.83	98.99	0.49		0.46	
Years of education	10.20	9.89	10.15	9.85	0.05		0.04	
Household size	4.94	4.68	4.74	4.61	0.20		0.06	
Marital status (% married)	76.13	89.52	80.61	92.62	-4.48		-3.10	
Lives in dual-headed household (%)	94.23	100.00	94.63	100.00	-0.40		0.00	
Lives in woman-only household (%)	5.77	0.00	5.37	0.00	0.40		0.00	
Works outside household for money (%)	15.05	7.72	10.75	8.72	4.30	*	-1.00	

Notes: *** difference significant at p<0.01; ** difference significant at p<0.05; * difference significant at p<0.10

Across the four countries, women are younger than their male counterparts within the same household and have significantly lower literacy rates, except for Kyrgyzstan, which has universal literacy for women and men. The four countries differ markedly in terms of basic education. In Ethiopia, only 27.35% of beneficiary women (35.14% of control women) have completed primary school; in Niger, the corresponding percentages are 27% for beneficiary and 8% for control. In Nepal, only 9.89% of beneficiary women and 4.54% of control women have completed primary school. A higher proportion of men have completed at least primary education in all countries except in Kyrgyzstan, where both men and women respondents have universal primary completion and women have slightly higher years of schooling. The systematic differences between treatment and control groups by country imply that these will have to be accounted for in estimating program impacts.

Household sizes are smallest in Kyrgyzstan (around 4.8) and largest in Niger (around 7.8). All the households in the Nepal sample are dual-headed households, while close to 95% of households in Kyrgyzstan are dual-headed. In contrast, about 80% of households in both Ethiopia and Niger are dual-headed, with correspondingly higher percentages of woman-only households—about a fifth of the sample.

5.2 A-WEAI Composite Measures: A-WEAI Score, 5DE, GPI

Table 4 presents aggregate measures of empowerment for all four country cases. We focus on the empowerment score (5DE), the gender parity index (GPI), and the overall A-WEAI score.

In general, empowerment scores (5DE) are higher among women and men in beneficiary households, and, while men typically have higher empowerment scores, regardless of beneficiary status, the gap between men and women tends to be smaller among beneficiary households. A notable exception is Nepal, where the difference between women's and men's 5DE scores is indistinguishable in the beneficiary sample, and a higher proportion of women beneficiaries are empowered compared to men beneficiaries. This may be a result of the intervention rather than a characteristic of the underlying population. We reiterate that the

project evaluation sample is not representative of the population, so we do not expect these comparisons to hold more generally. The gender parity index (GPI), a measure of intrahousehold differences in empowerment, is also higher among beneficiary households compared to control. Among beneficiary households, A-WEAI ranges from 0.67 (Kyrgyzstan) - 0.71 (Niger) to 0.89 (Ethiopia)-0.96 (Nepal); A-WEAI is lower for control households at 0.54 (Kyrgyzstan)-0.68 (Niger) to 0.79 (Nepal) and 0.83 (Ethiopia).

Table 4. Women's and men's empowerment, based on A-WEAI indicators

	Beneficiaries		**Difference**	**Control**		**Difference**
	Women	Men		Women	Men	
Ethiopia[a]						
Number of observations	373	267		350	293	
5DE score	0.89	0.89	0.01	0.82	0.88	0.06
Disempowerment score (1 – 5DE)	0.11	0.11	-0.01	0.18	0.12	-0.06
% achieving empowerment	0.72	0.75	0.03	0.57	0.71	0.13
% not achieving empowerment	0.28	0.25	-0.03	0.43	0.29	-0.13
Mean 3DE score for not yet empowered	0.59	0.57	-0.02	0.58	0.58	-0.00
Mean disempowerment score (1 – 5DE)	0.41	0.43	0.02	0.42	0.42	0.00
Gender Parity Index (GPI)	0.96			0.92		
Number of dual-adult households	267			293		
% achieving gender parity	0.86			0.69		
% not achieving gender parity	0.14			0.31		
Average empowerment gap	0.26			0.28		
A-WEAI score	0.89			0.83		
Niger[a]						
Number of observations	284	241		275	245	
5DE score	0.69	0.70	0.01	0.65	0.72	0.07
Disempowerment score (1 – 5DE)	0.31	0.30	-0.01	0.35	0.28	-0.07
% achieving empowerment	0.27	0.35	0.08	0.11	0.37	0.26
% not achieving empowerment	0.73	0.65	-0.08	0.89	0.63	-0.26
Mean 3DE score for not yet empowered	0.57	0.54	-0.03	0.61	0.56	-0.05
Mean disempowerment score (1 – 5DE)	0.43	0.46	0.03	0.39	0.44	0.05
Gender Parity Index (GPI)	0.88			0.90		
Number of dual-adult households	231			234		
% achieving gender parity	0.63			0.64		
% not achieving gender parity	0.37			0.36		
Average empowerment gap	0.32			0.27		
A-WEAI score	0.71			0.68		
Nepal						
Number of observations	886	885		278	287	
5DE score	0.96	0.86	-0.10	0.78	0.88	0.10
Disempowerment score (1 – 5DE)	0.04	0.14	0.10	0.22	0.12	-0.10
% achieving empowerment	0.87	0.65	-0.22	0.50	0.69	0.19
% not achieving empowerment	0.13	0.35	0.22	0.50	0.31	-0.19

	Beneficiaries		Difference	Control		Difference
	Women	Men		Women	Men	
Mean 3DE score for not yet empowered	0.65	0.60	-0.05	0.56	0.61	0.05
Mean disempowerment score (1 – 5DE)	0.35	0.40	0.05	0.44	0.39	-0.05
Gender Parity Index (GPI)	0.99			0.88		
Number of dual-adult households	885			278		
% achieving gender parity	0.93			0.60		
% not achieving gender parity	0.07			0.40		
Average empowerment gap	0.21			0.29		
A-WEAI score	0.96			0.79		
Kyrgyzstan						
Number of observations	884	544		428	298	
5DE score	0.65	0.71	0.06	0.52	0.62	0.11
Disempowerment score (1 – 5DE)	0.35	0.29	-0.06	0.48	0.38	-0.11
% achieving empowerment	0.35	0.43	0.08	0.20	0.32	0.13
% not achieving empowerment	0.65	0.57	-0.08	0.80	0.68	-0.13
Mean 3DE score for not yet empowered	0.46	0.49	0.03	0.40	0.44	0.04
Mean disempowerment score (1 – 5DE)	0.54	0.51	-0.03	0.60	0.56	-0.04
Gender Parity Index (GPI)	0.85			0.78		
Number of dual-adult households	544			298		
% achieving gender parity	0.63			0.56		
% not achieving gender parity	0.37			0.44		
Average empowerment gap	0.41			0.50		
A-WEAI score	0.67			0.54		

[a]Baseline values are reported for Ethiopia and Niger, which had two rounds of data collection.

5.3 Adequacy with respect to indicators: A-WEAI Binary Indicators

Another way to examine differences between individuals in beneficiary and control households is to look at the individual's empowerment score based on 5DE, whether he or she is empowered, and whether the household has achieved gender parity (Table 5). Across all countries, women in beneficiary households have significantly higher empowerment scores and a higher likelihood of being empowered. In Ethiopia, Niger, and Nepal, beneficiary households are also significantly more likely to achieve gender parity ($p<0.01$); in Kyrgyzstan, the difference is significant only at $p<0.10$

Table 5. A-WEAI aggregate empowerment outcomes and binary indicators of women and men, beneficiary and control households

	Beneficiaries		Control		Difference		Difference	
	Women (a)	Men (b)	Women (c)	Men(d)	(a)-(c)		(b)-(d)	
Ethiopia (baseline)								
Aggregate outcomes								
Empowerment score	0.78	0.81	0.73	0.80	0.05	***	0.01	
Whether individual is empowered	0.72	0.76	0.57	0.71	0.15	***	0.05	
Whether household achieves gender parity	0.86	0.87	0.69	0.69	0.17	***	0.18	***
Binary indicators								
Input in livelihood decisions	0.75	0.81	0.76	0.74	-0.01		0.07	
Ownership of land and other assets	1.00	1.00	1.00	1.00	0.00		0.00	
Access to and decisions to credit	0.97	0.96	0.90	0.94	0.07	***	0.02	
Control over the use of income	0.73	0.64	0.70	0.59	0.02		0.04	
Group membership	0.98	0.87	0.80	0.86	0.18	***	0.02	
Work balance	0.46	0.75	0.43	0.84	0.03		-0.09	*
Niger (baseline)								
Aggregate outcomes								
Empowerment score	0.69	0.72	0.65	0.73	0.05	***	-0.01	
Whether individual is empowered	0.29	0.44	0.10	0.45	0.19	***	-0.01	
Whether household achieves gender parity	0.56	0.56	0.39	0.39	0.18	***	0.18	***
Binary indicators								
Input in livelihood decisions	0.88	0.83	0.88	0.90	0.01		-0.06	*
Ownership of land and other assets	0.95	1.00	0.87	1.00	0.08	**	0.00	
Access to and decisions to credit	0.33	0.65	0.15	0.66	0.18	***	0.00	
Control over the use of income	0.98	0.95	0.99	0.98	-0.01		-0.03	
Group membership	0.39	0.54	0.15	0.48	0.25	***	0.06	
Work balance	0.64	0.63	0.67	0.70	-0.03		-0.08	
Nepal								
Aggregate outcomes								

	Beneficiaries		Control		Difference		Difference	
	Women (a)	Men (b)	Women (c)	Men(d)	(a)-(c)		(b)-(d)	
Empowerment score	0.85	0.75	0.72	0.76	0.13	***	-0.01	
Whether individual is empowered	0.86	0.65	0.52	0.69	0.34	***	-0.04	
Whether household achieves gender parity	0.92	0.92	0.63	0.61	0.29	***	0.31	***
Binary indicators								
Input in livelihood decisions	0.98	0.96	0.93	0.97	0.05	***	-0.01	
Ownership of land and other assets	1.00	1.00	1.00	1.00	0.00		0.00	
Access to and decisions to credit	0.85	0.88	0.78	0.86	0.07	**	0.01	
Control over the use of income	0.97	0.96	0.93	0.97	0.04	**	-0.01	
Group membership	0.95	0.17	0.44	0.16	0.52	***	0.02	
Work balance	0.41	0.70	0.37	0.75	0.04		-0.05	
Kyrgyzstan								
Aggregate outcomes								
Empowerment score	0.58	0.72	0.58	0.67	0.09	***	0.05	
Whether individual is empowered	0.22	0.48	0.22	0.38	0.16	***	0.10	
Whether household achieves gender parity	0.55	0.64	0.48	0.56	0.09	*	0.09	
Binary indicators								
Input in livelihood decisions	0.65	0.73	0.48	0.64	0.17	***	0.09	**
Ownership of land and other assets	0.69	0.75	0.54	0.64	0.15	***	0.11	***
Access to and decisions to credit	0.51	0.55	0.38	0.45	0.12	*	0.10	*
Control over the use of income	0.91	0.96	0.85	0.95	0.06	***	0.00	**
Group membership	0.74	0.67	0.62	0.66	0.12	***	0.02	**
Work balance	0.64	0.85	0.58	0.82	0.06	***	0.04	*

Notes: *** difference significant at p<0.01; ** difference significant at p<0.05; * difference significant at p<0.10

A-WEAI aggregate outcomes refer to the empowerment score (5DE, continuous), whether the individual is empowered (binary), whether the household achieves gender parity (binary). A-WEAI binary indicators indicate whether the individual is adequate with respect to the specific indicator.

The indicators that contribute to these differences in empowerment vary across countries. In Ethiopia, women in beneficiary households are significantly more likely to be adequate with respect to access to and decisions on credit and group membership; in contrast, men in beneficiary households are (weakly $p<0.10$) more likely to be inadequate with respect to work balance. In Niger, women in beneficiary households are more likely to achieve adequacy with respect to ownership of land and other assets, access to and decisions on credit, and group membership. There is a weak negative difference for men in beneficiary households in input in productive decisions relative to those in control households. In Nepal, women in beneficiary households are more likely to be adequate with respect to input in productive decisions, access to and decisions regarding credit, control over the use of income, and group membership. There are no significant differences in adequacy for men in beneficiary and control households. Finally, in Kyrgyzstan, both women and men in beneficiary households do better relative to their counterparts in control households with respect to all the binary indicators, albeit with weaker significant differences in adequacy with respect to access to and decisions on credit.

5.4 A-WEAI Continuous Indicators

Because adequacy with respect to an indicator may be sensitive to the cutoffs or thresholds used to determine adequacy, we also examine differences in the continuous indicators in Table 6. In general, the patterns are like those using binary indicators, except that more differences are significant (and positive) for men's outcomes. That is, men in beneficiary households also do better than their counterparts in control

Table 6. Continuous A-WEAI indicators of women and men, beneficiary and control households

	Beneficiaries		Control		Difference		Difference	
	Women (a)	Men (b)	Women (c)	Men (dd)	(a) - (c)		(b) - (d)	
Ethiopia (baseline)								
Input in livelihood decisions	3.47	4.08	3.37	3.74	0.11		0.35	**
Ownership of land and other assets	6.79	7.11	6.72	7.14	0.07		-0.03	
Access to and decisions to credit	2.37	2.27	0.83	1.17	1.54	***	1.09	***
Control over the use of income	3.51	3.70	3.29	3.46	0.22		0.24	
Group membership	2.29	1.85	1.54	1.66	0.75	***	0.19	
Work balance	10.75	6.90	11.29	6.62	-0.54		0.28	
Niger (baseline)								
Input in livelihood decisions	2.41	3.10	2.06	2.80	0.34		0.30	
Ownership of land and other assets	9.37	15.71	8.30	12.98	1.07	*	2.73	
Access to and decisions to credit	0.38	1.00	0.20	0.86	0.18	***	0.14	
Control over the use of income	2.22	2.74	1.97	2.58	0.25	**	0.16	*
Group membership	0.64	0.96	0.06	0.39	0.58	***	0.57	***
Work balance	8.15	5.67	8.45	5.50	-0.31		0.17	**
Nepal								
Input in livelihood decisions	4.21	4.43	3.71	3.94	0.50	***	0.49	***
Ownership of land and other assets	7.62	8.71	6.82	8.05	0.81	***	0.66	***
Access to and decisions to credit	1.65	1.67	1.26	1.43	0.40	***	0.24	***
Control over the use of income	4.19	4.43	3.70	3.93	0.49	***	0.49	***
Group membership	1.49	0.22	0.49	0.19	1.00	***	0.03	
Work balance	10.68	8.12	10.92	7.65	-0.24		0.46	
Kyrgyzstan								
Input in livelihood decisions	3.70	4.04	3.21	4.05	0.48	*	0.01	
Ownership of land and other assets	0.69	0.74	0.56	0.52	0.13	***	0.22	***
Access to and decisions to credit	0.20	0.12	0.16	0.13	0.04		0.00	
Control over the use of income	3.30	3.49	2.69	3.23	0.62	***	0.26	
Group membership	1.57	1.44	1.12	1.40	0.46	***	0.04	
Work balance	9.82	6.67	9.99	7.08	-0.18		-0.41	

Notes: *** difference significant at p<0.01; ** difference significant at p<0.05; * difference significant at p<0.10

A-WEAI continuous indicators are defined as: Number of types of productive decisions in which respondent has input, whether solely or jointly; Number of asset categories (including land) owned solely or jointly; Number of types of credit/financial service sources over which the respondent has decisions, whether solely or jointly; Number of types of income decisions made, whether solely or jointly; Number of types of groups to which the respondent belongs; Number of hours worked (productive and reproductive) + 0.5 (child care hours) if child care was done simultaneously.

Similar to the results for binary indicators, women beneficiaries in Ethiopia are able to access and decide over more types of credit sources and belong to more kinds of groups relative to women in the control group; men in beneficiary households make more types of productive decisions and also have access to more types of credit sources. In Niger, women who are beneficiaries also have greater access to different types of credit sources, belong to more kinds of groups, and make more types of income-related decisions. They also own more types of land and other assets than control women, although this difference is only weakly significant. Men in beneficiary households do better with respect to types of group membership and work balance and do (weakly) better with respect to kinds of income decisions, relative to men in the control group. Both women and men in beneficiary households in Nepal do better across a range of indicators: the number of types of productive decisions, the number of land and asset categories owned, the number of kinds of credit sources to which they have access and make decisions over, and the number of types of income decisions made. Women—but not men—in beneficiary households also belong to more kinds of groups. Finally, in Kyrgyzstan, women in beneficiary households do better in terms of the number of asset categories owned, the number of types of income decisions made, and the number of types of groups to which they belong. Men in beneficiary households do better than their control counterparts in terms of ownership of land and other assets. Unsurprisingly, given that many of these programs work through women's groups, beneficiary women are likely to belong to more types of groups than their control counterparts.

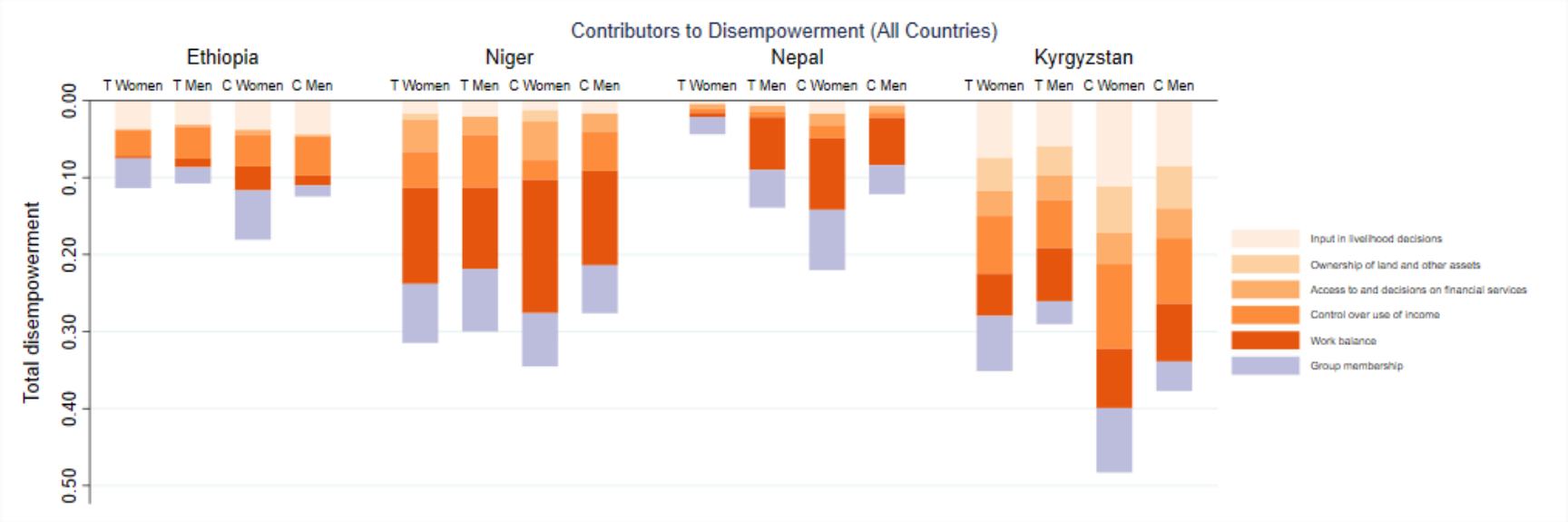
These comparisons do not control for other factors that may differ systematically between beneficiary and control households; we address this when we estimate program impacts.

5.5 Decomposition of contributions to disempowerment

We disaggregate A-WEAI to examine the proportional contributions of each indicator to disempowerment for those respondents identified as disempowered (Figure 2), for women and men, and separately by intervention and control group. The length of the bar indicates the extent of disempowerment, i.e., longer

bars imply that the group is more disempowered. Across all countries, women are more disempowered than men (empowerment bars are longer), and treatment women fare better compared to those in the control group. A notable exception is Nepal, where women in the treatment group are less disempowered relative to the men in the treatment group. Men in the treatment group are more disempowered compared to men in the control group for Ethiopia and Kyrgyzstan, whereas in Niger and Nepal the opposite pattern is observed, men in the control group are worse off.

Figure 2. Contributions of A-WEAI indicators to disempowerment

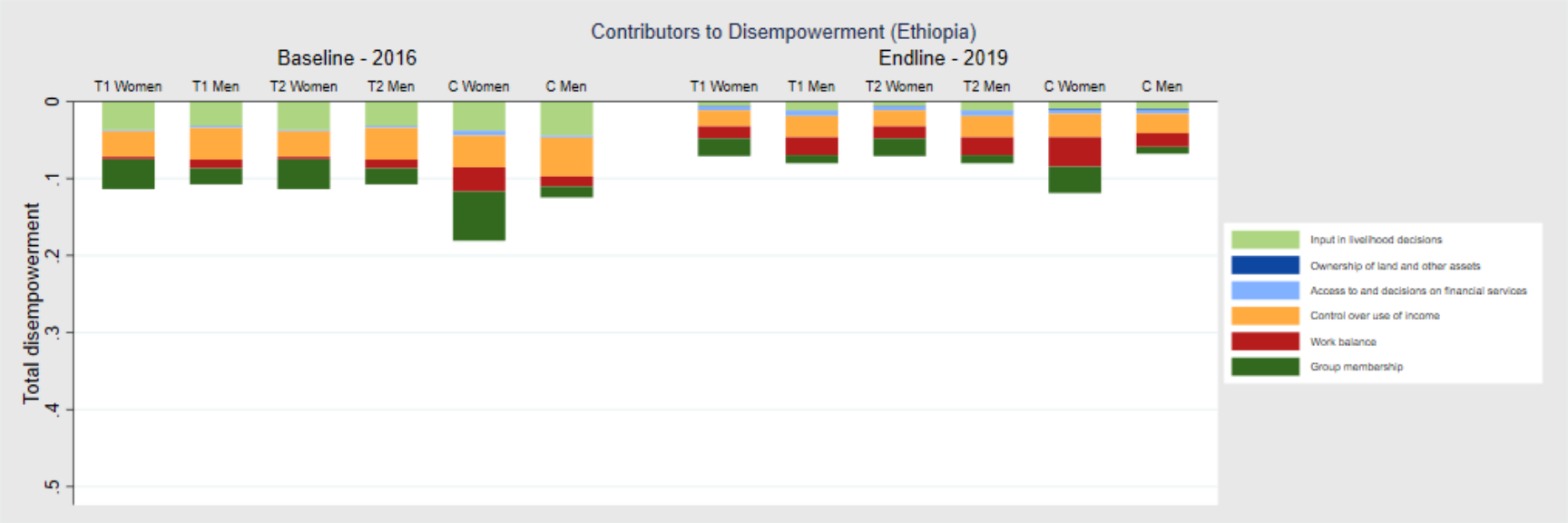


Note: T=treatment, C=control

This decomposition allows us to identify the sources of disempowerment. Excessive workload, reflected in inadequacy with respect to work balance, is a common source of disempowerment for women in all four countries. In Ethiopia, among women in the treatment and control groups, lack of work balance is the biggest contributor to disempowerment, with the extent of disempowerment greater among control women. In Niger, lack of ownership of land and other assets contributes most to the disempowerment of women, followed by work balance, and access to and decisions on credit/financial accounts. In Nepal, although lack of work balance continues to be the largest contributor to treatment women's disempowerment, this is substantially smaller compared to women in the control group. Finally, in Kyrgyzstan, lack of work balance, input in livelihood decisions, and ownership of land and other assets are the major contributors to the disempowerment of women in the treatment group, whose disempowerment is less severe compared to those in the control group.

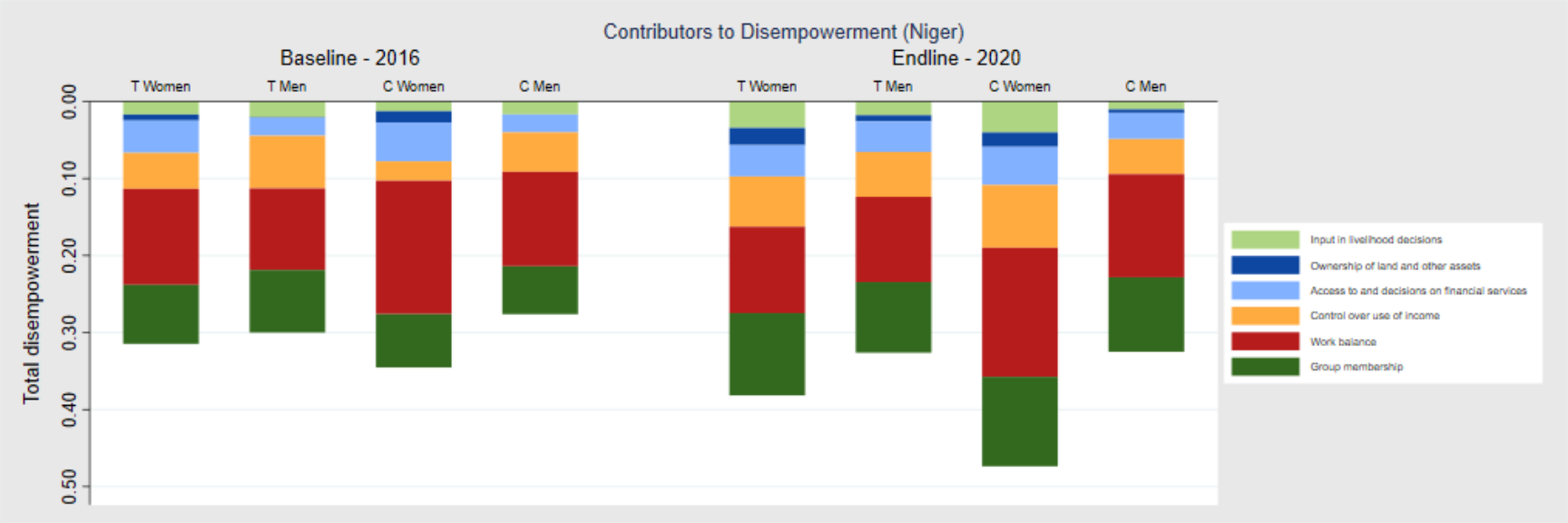
How do patterns of disempowerment change over time? We can examine this issue using data from the two countries that have both baseline and endline data—Ethiopia and Niger. In Ethiopia (figure 3), the proportion of those disempowered decreased over time for both treatment (program) and control groups. Recall that the treatment group can further be divided into those who retained access to credit and those who lost it. The reduction in disempowerment appears larger for those who retained access to credit (T1). However, lack of work balance became a bigger contributor to disempowerment at endline for treatment and control groups alike. In contrast, in Niger (figure 4), disempowerment increased from 2016-2020 in both treatment and control groups, owing to several factors. First, severe floods occurred during July-August 2020. Second, workloads may have been higher because the endline survey took place during the harvest season (October 2020). Finally, in 2020 the Government of Niger responded to the COVID-19 pandemic with several restrictions: ban on gatherings (meetings, training, workshops); closure of schools, land and air borders, places of worship, bars, restaurants, and nightclubs; ban on field missions; curfew; and confinement (Rosso 2021a). Given the importance of public gatherings in the JP RWEE programmatic strategy (*i.e.,* use of Dimitra clubs as entry points, incidence of in-person technical assistance, trainings, etc.), pandemic restrictions are likely to have curbed or reversed positive empowerment outcomes derived from the program.

Figure 3. Changes in patterns of disempowerment between baseline and endline, Ethiopia



Notes: T1=beneficiaries who maintained access to credit; T2=beneficiaries who lost access to credit; C=control

Figure 4. Changes in patterns of disempowerment between baseline and endline, Niger



5.6 Impact estimates: Aggregate measures

How has participation in JP RWEE affected aggregate measures of empowerment? As in the previous analysis, we use A-WEAI and the identical methodology used by the authors of the country case studies to estimate program impacts. Program impacts on whether the individual is empowered and the empowerment score (5DE) for both women and men are presented in Table 7. We also present program impacts on whether the household achieved gender parity.

Table 7. Impact of JP RWEE program on aggregate empowerment outcomes of women and men and household gender parity

	Women						Men						Whether household achieved gender parity		
	Whether empowered			Empowerment score			Whether empowered			Empowerment score					
	Control mean	Impact		Control mean	Impact		Control mean	Impact		Control mean	Impact		Control mean	Impact	
Ethiopia															
Control	0.723			0.810			0.840			0.886			0.751		
	(0.448)			(0.178)			(0.367)			(0.148)			(0.433)		
With access to credit		-0.006			-0.010			-0.081			-0.020			-0.014	
		(0.906)			(0.567)			(0.183)			(0.379)			(0.788)	
Lost access to credit or left RUSACCO		-0.196	***		-0.075	***		-0.251	***		-0.101	***		-0.147	*
		(0.003)			(0.001)			(0.006)			(0.000)			(0.715)	
Niger															
Control	0.071			0.573			0.274			0.684			0.374		
	(0.257)			(0.162)			(0.447)			(0.142)			(0.485)		
Intervention* Year		0.008			0.037	*		0.123	*		0.047	**		-0.028	
		(0.047)			(0.020)			(0.066)			(0.023)			(0.068)	
Nepal															
Control	0.522			0.717			0.678			0.759			0.633		
	(0.500)			(0.178)			(0.468)			(0.127)			(0.483)		
Intervention (ATT)		0.273	***		0.107	***		-0.080	**		-0.016			0.222	***
		(0.040)			(0.013)			(0.037)			(0.012)			(0.036)	
Kyrgyzstan															
Control	0.216			0.580			0.377			0.670			0.554		
	(0.412)			(0.230)			(0.484)			(0.208)			(0.498)		
Common intervention		0.156	**		0.089	***		-0.014			0.022			0.020	
		(0.065)			(0.021)			(0.056)			(0.024)			(0.062)	
GALS		0.100	**		0.048	*		0.232	***		0.096	***		-0.107	
		(0.044)			(0.024)			(0.074)			(0.024)			(0.071)	
GALS/BALI		0.155	***		0.079	***		0.145	**		0.083	***		0.044	
		(0.049)			(0.024)			(0.058)			(0.023)			(0.062)	

Notes: *** significant at p<0.01; ** significant at p<0.05; * significant at p<0.10

In Ethiopia, following Hillesland et al. (2021), we distinguish between beneficiaries who had access to credit and those who lost access to credit or left RUSACCO. JP RWEE did not have a significant impact on any of the aggregate indicators for men and women who maintained access to credit, but those women and men who lost access to credit or left RUSACCO experienced deteriorations in their empowerment scores and the probability of being empowered. Households were also less likely to have achieved gender parity if they lost access to credit (this is only significant at $p<0.10$). In Niger, the program was weakly positively associated with women's empowerment score. It was also positively weakly associated with whether men were empowered and significantly positively associated with the men's empowerment score. Interestingly, in Nepal, participation in the program increased the likelihood that women were empowered and the women's empowerment score. Nepal is the only country that showed a positive impact of JP RWEE on gender parity, which is unsurprising given the wide range of gender-responsive interventions implemented as part of the program. However, it is possible that the gains in women's empowerment—and gender equality-- came at the expense of men's empowerment: program participation is associated with a lower likelihood that men are empowered.

Finally, we look at different sets of interventions being implemented in Kyrgyzstan. Participation in the common intervention was associated with a higher likelihood of a woman being empowered and a higher empowerment score. Interestingly, participation in GALS is associated with a higher probability of being empowered and a higher empowerment score for both women and men, although the impact on women's empowerment score is only weakly significant ($p<0.10$). Participation in the GALS/BALI intervention had positive impacts for both women and men alike on the probability of being empowered as well as the empowerment score. This may be because the GALS approach involves the entire household and provides empowering opportunities to both husbands and wives. Neither the common intervention nor various combination of GALS and GALS/BALI had any significant impact on whether the household achieved gender parity.

5.7 Impacts on women's indicators

The aggregate indicators often mask movements in the individual indicators that make up A-WEAI, and changes in the individual indicators are more informative to program designers and implementors who often want to know what aspects of the program contributed to greater empowerment. It is also possible that changes in individual indicators may offset each other, contributing to absence of impact on the aggregate indicators. To further unpack program impacts, Table 8 presents impact estimates on women's A-WEAI binary indicators, and Table 9 presents the analogous estimates on the continuous indicators.

Table 8. Impact of JP RWEE on A-WEAI binary adequacy indicators, women

	Input in livelihood decisions		Ownership of assets		Access to and decisions on credit		Control over use of income		Group membership		Work balance	
	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact
Ethiopia												
Control	0.949		0.989		0.889		0.789		0.734		0.623	
	(0.221)		(0.106)		(0.315)		(0.409)		(0.442)		(0.485)	
With access to credit		0.022		0.006		0.008		-0.142 ***		0.098 ***		-0.033
		(0.625)		(0.319)		(0.711)		(0.001)		(0.002)		(0.549)
Lost access to credit or left RUSACCO		-0.108 *		0.002		-0.099 **		0.0623		-0.145 **		-0.155 **
		(0.088)		(0.808)		(0.015)		(0.181)		(0.011)		(0.041)
Niger												
Control	0.836		0.892		0.198		0.929		0.153		0.369	
	(0.371)		(0.311)		(0.399)		(0.257)		(0.361)		(0.484)	
Intervention*year		0.021		-0.073 *		0.007		0.051 **		0.037		0.154 **
		(0.042)		(0.037)		(0.053)		(0.022)		(0.054)		(0.060)
Nepal												
Control	0.928		0.996		0.781		0.928		0.439		0.371	
	(0.259)		(0.060)		(0.415)		(0.259)		(0.497)		(0.484)	
Intervention (ATT)		0.025		0.003		0.051 *		0.008		0.459 ***		0.022
		(0.016)		(0.003)		(0.027)		(0.014)		(0.037)		(0.037)
Kyrgyzstan												
Control	0.483		0.542		0.385		0.846		0.618		0.581	
	(0.498)		(0.500)		(0.487)		(0.362)		(0.487)		(0.494)	
Common intervention		0.167 ***		0.078		0.096		0.041		0.181 **		0.069
		(0.047)		(0.077)		(0.069)		(0.038)		(0.086)		(0.063)
GALS		0.148 **		0.087		0.105		-0.004		0.105		-0.047
		(0.061)		(0.061)		(0.065)		(0.039)		(0.072)		(0.068)
GALS/BALI		0.180 ***		0.156 ***		0.118 **		0.056 **		0.106 **		-0.006
		(0.053)		(0.054)		(0.050)		(0.024)		(0.051)		(0.046)

Notes: *** significant at p<0.01; ** significant at p<0.05; * significant at p<0.10

Table 9. Impact of JP RWEE on A-WEAI continuous indicators, women

	Input in livelihood decisions		Ownership of assets		Access to and decisions on credit		Control over use of income		Group membership		Work balance	
	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact
Ethiopia												
Control	3.695		6.100		0.694		3.229		1.118		9.767	
	(1.265)		(1.702)		(1.095)		(1.670)		(0.824)		(3.780)	
With access to credit		0.045		0.096 **		-0.034		-0.069		0.028		0.016
		(0.040)		(0.040)		(0.057)		(0.045)		(0.041)		(0.044)
Lost access to credit or left RUSACCO		-0.068		-0.017		-0.330 ***		0.014		-0.120 **		0.166 ***
		(0.051)		(0.052)		(0.045)		(0.049)		(0.050)		(0.054)
Niger												
Control	2.311		7.356		0.216		2.011		0.176		8.569	
	(1.168)		(4.866)		(0.598)		(1.125)		(0.539)		(4.110)	
Intervention*year		-0.077		0.073		0.070		0.008		-0.065		0.083
		(0.123)		(0.119)		(0.122)		(0.124)		(0.112)		(0.117)
Nepal												
Control	3.733		7.408		1.292		3.767		0.320		9.308	
	(1.281)		(1.957)		(0.928)		(1.287)		(0.559)		(4.076)	
Intervention (ATT)		0.283 ***		0.280 ***		0.378 ***		0.267 ***		1.123 ***		0.056
		(0.085)		(0.075)		(0.067)		(0.083)		(0.078)		(0.073)
Kyrgyzstan												
Control	3.214		0.558		0.159		2.686		1.117		9.993	
	(2.204)		(0.555)		(0.403)		(1.638)		(1.164)		(4.288)	
Common intervention		0.005		0.074		-0.004		0.054		0.135 **		0.001
		(0.054)		(0.051)		(0.043)		(0.038)		(0.054)		(0.041)
GALS		0.058		0.035		0.014		0.064		0.100 **		0.042
		(0.043)		(0.032)		(0.041)		(0.042)		(0.046)		(0.053)
GALS/BALI		0.051		0.140 ***		0.049		0.137 ***		0.143 ***		0.025
		(0.071)		(0.045)		(0.039)		(0.051)		(0.050)		(0.038)

Notes: *** significant at p<0.01; ** significant at p<0.05; * significant at p<0.10. See notes to Table 6 for the definition of A-WEAI continuous indicators.

For those beneficiaries who maintained access to credit, the Ethiopia JP RWEE program significantly improved women's adequacy with respect to access to and decisions on credit. While it did not increase the number of types of credit sources to which they had access (Table 9), JP RWEE weakly ($P<0.10$) increased the number of asset categories of women who had access to credit. However, the program seems to have reduced women's adequacy with respect to control over income (Table 8). Beneficiaries who lost access to credit or left the program fared worse in terms of adequacy across a range of indicators: access to and decisions on credit, group membership, and work balance. This is an expected result because credit was delivered through a group-based platform. The results using continuous indicators are consistent: women who lost access to credit had fewer types of credit sources to which they had access, fewer kinds of groups to which they belonged, and increased the number of total work hours.

In Niger, program participation was associated with higher probabilities of women's being adequate with respect to control over income and work balance, although there is a weak negative impact on adequacy with respect to control over land and assets (Table 8). Interestingly, none of the impacts on the continuous indicators is significant. While the program may have improved adequacy with respect to work balance, the gender gap in asset ownership, one of the areas of greatest disempowerment, remains.

In Nepal, JP RWEE significantly increased women's probability of being adequate with respect to group membership, which is expected given the group-based nature of the program. There is a weakly positive impact on adequacy with respect to decisions on credit. We estimate a range of significant impacts on the continuous indicators, however (Table 9). Participation in the program increases the number of types of livelihood decisions in which the woman has input, the number of asset categories owned, the number of types of credit sources to which she has access and decisionmaking ability, the number of types of income decisions made and the number of types of groups to which she belongs.

Finally, in Kyrgyzstan, the common set of interventions was associated with achieving adequacy with respect to input in livelihood decisions and group membership (which is expected, since it was a group-based program). The addition of the GALS intervention increased the probability of adequacy with respect

to input in livelihood decisions but adding both GALS and BALI intervention was associated with increases in adequacy in five out of the six A-WEAI indicators: input in livelihood decisions, ownership of assets, access to/decisions on credit, control over the use of income, and group membership—all dimensions except work balance. In terms of the continuous indicators, we observe positive impacts of the common intervention, GALS, and GALS/BALI on the number of types of groups that women joined (which is expected, since this was a group-based program), but only GALS/BALI had significant impacts on other indicators. GALS/BALI also increased the number of asset categories that women owned and the number of types of income decisions they made.

5.8 Impacts on men's indicators

Although many impact evaluations of gender-sensitive programs only look at impacts on women, it is also important to look at impacts on men because the program intends to promote in gender equality. Being aware of these impacts may also help ward off backlash against programs that attempt to change gender relations.

Table 10 presents impacts of the program on men's adequacy with respect to the A-WEAI binary indicators, and Table 11 shows the impacts on the corresponding continuous indicators.

Table 10. Impact of JP RWEE on A-WEAI binary adequacy indicators, men

	Input in livelihood decisions		Ownership of assets		Access to and decisions on credit		Control over use of income		Group membership		Work balance	
	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact
Ethiopia												
Control	0.954		0.996		0.886		0.772		0.840		0.904	
	(0.210)		(0.060)		(0.318)		(0.420)		(0.367)		(0.295)	
With access to credit		-0.021		0.010		0.016		-0.159 ***		0.121 **		-0.050
		(0.681)		(0.124)		(0.556)		(0.008)		(0.013)		(0.505)
Lost access to credit or left RUSACCO		-0.103 *		0.008		-0.081		0.072		-0.166 **		-0.289 ***
		(0.081)		(0.248)		(0.101)		(0.212)		(0.026)		(0.000)
Niger												
Control	0.909		0.971		0.481		0.986		0.389		0.534	
	(0.289)		(0.168)		(0.501)		(0.120)		(0.489)		(0.500)	
Intervention*year		0.106 **		-0.007		0.021		0.041 *		0.056		0.127 *
		(0.041)		(0.018)		(0.067)		(0.023)		(0.068)		(0.066)
Nepal												
Control	0.969		1.000		0.850		0.969		0.153		0.753	
	(0.174)		0.000		(0.358)		(0.174)		(0.361)		(0.432)	
Intervention (ATT)		-0.007		0.000 ***		-0.004		-0.010		0.013		-0.075 **
		(0.019)		0.000		(0.027)		(0.019)		(0.029)		(0.032)
Kyrgyzstan												
Control	0.637		0.634		0.447		0.956		0.663		0.813	
	(0.482)		(0.483)		(0.498)		(0.205)		(0.474)		(0.391)	
Common intervention		-0.047		0.010		-0.021		0.019		0.029		0.050
		(0.038)		(0.061)		(0.051)		(0.021)		(0.084)		(0.047)
GALS		0.150 *		0.172 **		0.194 ***		0.033		0.174 **		0.145 **
		(0.080)		(0.068)		(0.076)		(0.023)		(0.074)		(0.066)
GALS/BALI		0.128 **		0.178 ***		0.125 **		0.041 **		0.054		0.013
		(0.049)		(0.049)		(0.059)		(0.016)		(0.059)		(0.046)

Notes: *** significant at p<0.01; ** significant at p<0.05; * significant at p<0.10

Table 11. Impact of JP RWEE on A-WEAI continuous indicators, men

	Production		Resources				Income		Leadership		Time	
	Input in livelihood decisions		Ownership of assets		Access to and decisions on credit		Control over use of income		Group membership		Work balance	
	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact
Ethiopia												
Control	3.861		6.473		1.021		3.367		1.317		7.339	
	(1.148)		(1.568)		(1.201)		(1.567)		(0.896)		(2.894)	
With access to credit		-0.083 *		0.044		-0.117		-0.123 **		0.036		0.021
		(0.050)		(0.057)		(0.081)		(0.057)		(0.054)		(0.052)
Lost access to credit or left RUSACCO		-0.036		-0.021		-0.288 ***		0.019		-0.159 ***		0.196 ***
		(0.051)		(0.064)		(0.053)		(0.058)		(0.056)		(0.058)
Niger												
Control	2.672		11.797		0.472		2.473		0.387		5.706	
	(1.085)		(6.028)		(0.698)		(1.016)		(0.780)		(4.429)	
Intervention*year		0.107		-0.204		-0.060		0.127		0.099		0.252
		(0.133)		(0.125)		(0.124)		(0.136)		(0.128)		(0.130)
Nepal												
Control	3.940		8.052		1.429		3.933		0.188		7.654	
	(1.288)		(1.947)		(0.905)		(1.299)		(0.465)		(3.725)	
Intervention (ATT)		0.267 ***		0.216 ***		0.183 **		0.265 ***		0.042		0.168 **
		(0.076)		(0.068)		(0.073)		(0.072)		(0.075)		(0.077)
Kyrgyzstan												
Control	4.048		0.520		0.128		3.227		1.403		7.076	
	(2.466)		(0.527)		(0.407)		(1.776)		(1.486)		(3.891)	
Common intervention		-0.037		0.048		0.006		-0.072 *		-0.023		-0.026
		(0.056)		(0.036)		(0.044)		(0.039)		(0.056)		(0.044)
GALS		-0.024		0.013		-0.017		0.051		0.111 **		-0.116 **
		(0.045)		(0.058)		(0.033)		(0.051)		(0.045)		(0.049)
GALS/BALI		0.030		0.169 ***		0.025		0.080		0.033		-0.002
		(0.067)		(0.053)		(0.049)		(0.058)		(0.065)		(0.051)

Notes: *** significant at p<0.01; ** significant at p<0.05; * significant at p<0.10. See notes to Table 6 for the definition of the A-WEAI continuous indicators.

In Ethiopia, for those households that maintained access to credit, participation in JP RWEE was associated with a positive impact on adequacy with respect to group membership for men, but a negative impact on adequacy with respect to control over the use of income. Men in households that lost access to credit were less likely to achieve adequacy with respect to group membership and work balance. These results are consistent with those using the continuous indicators: men in households with access to credit made fewer types of income decisions and had input into fewer kinds of livelihood decisions (albeit weakly significant), and those who lost access to credit not surprisingly had access to fewer types of credit sources and were members of fewer types of groups. Notably, men's work hours increased if they lost access to credit.

In Niger, program participation was associated with higher probabilities of men's being adequate with respect to input in productive decisions, control over use of income and workload, although with weak significance in the latter two. When analyzing continuous indicators, notably, men significantly increased the amount of work hours compared to the control group, with no significant impacts on the other continuous variables.

In Nepal, participation in JP RWEE is associated with higher probability of adequacy with respect to asset ownership, but this coefficient is small in magnitude. Program participation is also associated with lower adequacy with respect to work balance, consistent with the results using continuous indicators showing that men's work hours increased. Across the board, men also experience significant impacts on the number of types of livelihood decisions made, types of assets owned, and the number of types of credit sources and income decisions made, results that are very similar to those of women. There are no significant impacts on the number of types of groups to which men belong, which is expected because these group-based interventions were targeted to women.

Finally, in Kyrgyzstan, both the GALS and GALS/BALI interventions have significant impacts on men's adequacy with respect to several indicators. GALS significantly increases the probability that men are adequate with respect to five of the six indicators (all except control over the use of income), while GALS/BALI significantly increases the probability of adequacy with respect to four of the six indicators

(all except group membership and work balance). Turning to the continuous indicators, we see that GALS/BALI significantly increases the number of asset categories owned, while GALS increase the number of types of groups to which men belong while decreasing their workload. Interestingly, the common intervention marginally decreases the number of income decisions that men make (although the impact is only weakly significant).

5.9 Unpacking work balance

Across the four case studies, lack of work balance was among the top contributors to women's disempowerment. However, we find no significant impacts of participation in JP RWEE on work balance in Niger and Kyrgyzstan, whereas in Ethiopia, women's work hours increased for those who lost access to credit, and in Nepal, men's work hours also increased. Given the time demands that can arise from program participation and the potential unintended consequences from excessive work burdens, it is important to understand which types of activities the JP RWEE interventions are affecting. For example, an increase in time spent in livelihood activities may be less concerning if it is coupled with reduced time in doing domestic chores, and an increase in control over income and resources. An increase in time spent by men in childcare or domestic tasks, although it may increase their overall workload, may represent a welcome shift in attitudes towards more equitable division of labor at home.

To estimate program impacts on different types of activities, we disaggregate hours worked into the following categories:

1. Productive work
2. Reproductive work (domestic and all care activities)
3. Reproductive work, excluding childcare
4. Childcare as primary activity
5. Childcare as secondary activity

We then run the same impact model specifications for each country with (1)-(5) as dependent variables. Tables 12 and 13 present results for women and men, respectively.

Table 12. Impact of JP RWEE on women's time spent on activities and total workload

	Productive work		Reproductive Work		Reproductive (no childcare) work		Primary Childcare		Secondary Childcare		Workload	
	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact
Ethiopia												
Control	1.88		7.887		5.575		0.425		3.774		9.767	
	(2.473)		(4.155)		(2.727)		(1.007)		(5.577)		(3.780)	
With access to credit		0.070 *		-0.033		0.000		-0.051		-0.033		0.016
		(0.040)		(0.041)		(0.046)		(0.053)		(0.046)		(0.044)
Lost access to credit or left RUSACCO		0.096 **		0.094 *		0.122 **		-0.047		0.030		0.166 ***
		(0.048)		(0.053)		(0.056)		(0.057)		(0.047)		(0.054)
Niger												
Control	4.691		3.879		3.687		0.192		0.000		8.569	
	(3.710)		(3.342)		(3.262)		(0.840)		0.000		(4.110)	
Intervention*year		-0.126		0.205 *		0.247 **		-0.234 *	-			0.083
		(0.110)		(0.106)		(0.105)		(0.128)	-			(0.117)
Nepal												
Control	3.521		7.396		5.218		1.073		2.211		10.917	
	(2.946)		(3.939)		(2.972)		(1.677)		(3.078)		(3.422)	
Intervention (ATT)		0.314 ***		-0.203 ***		-0.216 ***		-0.017		-0.069		0.056
		(0.080)		(0.072)		(0.080)		(0.071)		(0.061)		(0.073)
Kyrgyzstan												
Control	1.724		8.269		4.093		1.121		6.107		9.993	
	(2.943)		(4.601)		(2.580)		(1.590)		(6.274)		(4.288)	
Common intervention		0.013		-0.008		0.017		-0.083 **		0.015		0.001
		(0.040)		(0.043)		(0.038)		(0.036)		(0.052)		(0.041)
GALS		0.102 **		-0.029		-0.069 *		-0.025		0.026		0.042
		(0.046)		(0.051)		(0.040)		(0.034)		(0.046)		(0.053)
GALS/BALI		0.123 ***		-0.059		-0.058		-0.014		-0.034		0.025
		(0.046)		(0.040)		(0.048)		(0.035)		(0.031)		(0.038)

Notes: Notes: *** significant at p<0.01; ** significant at p<0.05; * significant at p<0.10. Time use categories are from Komatsu et al. (2018). Productive work is defined as the sum of time in agricultural and nonagricultural work. Activities classified as agriculture include farming, fishing, and livestock care, while non-agriculture includes working as employee or owner of a business, and weaving, textile, or sewing work. Reproductive work is defined as the sum of activities related to cooking, domestic work (including fetching water and firewood), caring for a child or adult, shopping, and getting services. Primary and secondary childcare is the time spent on childcare as a primary and secondary activity, respectively. Total workload is defined as the time spent in productive and reproductive work plus ½ time spent in childcare as a secondary activity.

Table 13. Impact of JP RWEE on men's time spent on activities and total workload

	Productive work		Reproductive Work		Reproductive (no childcare) work		Primary Childcare		Secondary Childcare		Workload	
	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact	Control mean	Impact
Ethiopia												
Control	6.793		0.546		0.339		0.043		0.328		7.339	
	(3.181)		(1.613)		(1.169)		(0.335)		(1.316)		(2.894)	
With access to credit		0.0284		-0.0008		-0.015		0.0236		0.0068		0.021
		(0.049)		(0.052)		(0.056)		(0.053)		(0.057)		(0.052)
Lost access to credit or left RUSACCO		0.129 **		0.103 *		0.141 **		-0.074		0.0377		0.196 ***
		(0.054)		(0.055)		(0.060)		(0.068)		(0.051)		(0.058)
Niger												
Control	5.443		0.263		0.219		0.044		0.000		5.706	
	(4.295)		(0.772)		(0.707)		(0.317)		0.000		(4.429)	
Intervention*year		0.217		0.102		0.101		0.017		-		0.252 *
		(0.132)		(0.134)		(0.134)		(0.127)		-		(0.130)
Nepal												
Control	6.094		1.560		0.997		0.208		0.711		7.654	
	(3.904)		(2.042)		(1.781)		(0.634)		(1.439)		(3.725)	
Intervention (ATT)		0.138 *		0.037		0.014		-0.030		0.112 *		0.168 **
		(0.080)		(0.075)		(0.077)		(0.074)		(0.061)		(0.077)
Kyrgyzstan												
Control	2.305		4.77		3.131		0.295		2.688		7.076	
	(3.471)		(3.787)		(2.916)		(0.715)		(4.213)		(3.891)	
Common intervention		-0.046		0.016		0.038		-0.036		-0.016		-0.026
		(0.047)		(0.052)		(0.073)		(0.035)		(0.028)		(0.044)
GALS		-0.019		-0.108 **		-0.010		-0.091 **		-0.165 ***		-0.116 **
		(0.040)		(0.047)		(0.043)		(0.038)		(0.055)		(0.049)
GALS/BALI		0.038		-0.038		-0.031		-0.031		-0.016		-0.002
		(0.051)		(0.048)		(0.047)		(0.044)		(0.044)		(0.051)

Notes: See notes to Table 12.

In Ethiopia, we find that among women and men who lost credit, both productive and non-childcare reproductive work increased. In Niger, women's non-childcare reproductive work increased, but time spent on primary childcare decreased. In Nepal, women's productive work increased, and non-childcare reproductive work decreased, whereas for men, both productive work and secondary childcare increased. A validation seminar conducted by IFPRI with the JP RWEE program staff on March 30, 2022 suggested that this finding is consistent with reports that Nepali men were supportive of their wives' livelihood activities and were happy to take on more responsibilities at home. Finally, in Kyrgyzstan, women in the GALS group increased productive work and decreased non-childcare reproductive work, while for men in the GALS group, primary and secondary childcare, as well as total reproductive work decreased. In the GALS/BALI group, women also had a significant increase in productive work.

Overall, we find that the JP RWEE interventions did not have much impact on childcare for women, which suggests that women continued to perform these duties as prescribed by gender norms. However, in Niger, Nepal, and Kyrgyzstan, we do find that while there was no impact on overall work balance, there were significant offsetting impacts in the disaggregated activities. In Nepal, there is some evidence that men were more open to sharing domestic chores and care work more equitably with their wives. However, in Niger and Kyrgyzstan where we find that reproductive work and childcare have decreased, it is not clear who is performing those essential tasks. It is possible that other household members or extended family are taking on these activities, but we are unable to confirm the possible substitution of other household members' time using the data that only captured time use for the primary woman and man respondents in the household.

5.10 Key comparisons to qualitative results

In addition to the quantitative studies that have been described, there were also qualitative studies conducted as part of the JP RWEE evaluations in Ethiopia, Kyrgyzstan, and Nepal (Mulema et al. 2021; Maharjan

2021; UCA 2021).[27] Each qualitative study addressed a range of topics, including women's empowerment. In this section we focus on results related to women's empowerment to triangulate key findings from the quantitative studies. In both Kyrgyzstan and Nepal, qualitative data were collected at the end of the project. In both cases the studies consider JP RWEE's impacts on most (but not all) of the pro-WEAI indicators. They did not use the pro-WEAI indicator definitions, per se, but considered the "spirit" of the indicators when considering whether JP RWEE had an impact on the outcome. In the case of Ethiopia, qualitative data were collected much earlier in the project cycle. This means that the study is unable to assess empowerment impacts; it instead focuses heavily on the dynamics of women's empowerment in the local contexts.

5.10.1 Nepal

In Nepal, the qualitative study reported that JP RWEE seemed to have a large effect on the collective agency indicators of group membership and membership in influential groups. This finding is in line with the quantitative findings, which revealed a large and significant impact on women's group membership in terms of the binary and continuous indicator. The qualitative study also concluded that the project had large effects on women's control over use of income, which was consistent with the quantitative impact estimates on the binary and continuous indicators, and input into livelihood decisions, which was consistent with the estimated impact on the continuous indicator. Specifically, in the qualitative study women felt that they were consulted on more agricultural decisions. Additionally, the qualitative report indicated a large effect on respect among household members, which was assessed by Andriano (2021)'s quantitative study, but not in this paper owing to the need to use comparable metrics across all four countries.

The qualitative study in Nepal also reported smaller effects on autonomy in income, ownership of land and other assets, access to and decisions on financial services, and visiting important locations. Although autonomy in income and visiting important locations were not considered in this paper, the findings on

[27] A qualitative study was also conducted in Niger, but it was not made available for inclusion in this paper.

ownership of land and other assets and decisions on financial services are in line with the quantitative impacts on the continuous versions of these indicators.

Of considerable interest is that the qualitative study in Nepal reported that there was a negative effect on work balance in Nepal, while the quantitative results reported a null effect. A negative impact would not be surprising given that livelihood interventions may demand a large amount of women's time. The qualitative work may have picked up on subtleties that were not identified in the quantitative work.

5.10.2 Kyrgyzstan

The time use theme was also particularly interesting in the Kyrgyzstan qualitative study. The trainings placed an additional time burden on women. However, participation in GALS specifically led to a rebalancing of household duties across family members and getting help with household chores was one of the most common changes reported by women as a result of the program. This shift in domestic labor made it possible for women to direct their time to income generating activities. This is consistent with the quantitative findings that the program led women spent less time of reproductive work (absent childcare) and more time on productive work. Meanwhile, the qualitative study reported that a significant barrier to women's economic productivity was access to childcare, especially for young children.

Looking at other pro-WEAI indicators in Kyrgyzstan that were considered in Rosso et al. (2021b) but not in this paper, there were important qualitative findings on intrinsic areas of agency. Those who participated in GALS reported increased self-efficacy. They also felt that GALS participation led to proactive communication with family members which improved intrafamily relationships. These improvements to intrinsic agency seemed to form the base for improvements in other areas of agency

According to the qualitative findings, women who participated in GALS in Kyrgyzstan felt that they had increased input into household decisions and were better able to speak up for their own interests when decisions are being made. They thought that these changes went hand in hand with the improvements in intrahousehold relationships that they experienced. In other words, the improved communication dynamics

meant that they felt heard when making decisions on important issues. Additionally, they thought their input was more valued because the livelihood trainings allowed them to contribute money to the household's needs.

The GALS training raised awareness about the importance of titling land and other valuable assets (e.g., cars). In the qualitative study, women indicated that they started to consider having their name on a title as an option in a way that they had not previously considered. There were only detectable changes in asset ownership, however, in the GALS/BALI arm. The qualitative findings explain this dynamic occurred, because this is the group in which women generated more resources and were able to maintain control over the resources to eventually invest in assets.

The qualitative study also found that GALS led women to be able to better maintain control over the use of income. How they chose to spend it was particularly interesting. Women beneficiaries reported that the income they generated typically went to items that could be considered beneficial for the entire household. At the same time many of these household items were often ones that could reduce women's workload, such as a washing machine or improved water access. Thus, despite being labeled as something for the whole family, many women were able to channel their income into items that provided them extra benefit.

5.10.3 Ethiopia

In Ethiopia, where the qualitative study was conducted much earlier in the project cycle, there were still some interesting insights in how the project was potentially leading to an impact on women's empowerment. Of note, the qualitative study found that there was an increase in women's active participation in groups, beyond simply identifying as a member. In other words, they participated in group activities and spoke up during group activities. There was also increased feelings of self-efficacy among beneficiaries due to increased participation in discussing "big issues" in their households, participation in public places, participation in income generation activities, and increased knowledge.

As a credit-focused project, the study found that women were better able to maintain control over the JP RWEE provided credit, compared to other sources, because it was symbolically labeled as belonging to her. Unfortunately, the loan amounts were not large enough to do anything meaningful, and women also found that the terms and timing of repayment were not ideal for agricultural livelihoods. Thus, women also reverted to other forms of income generation. Additionally, men often voiced concerns about participation in the RUSACCOs, and there were concerns that backlash came in the form of limiting women's freedom of movement and challenging intrahousehold dynamics. These may be explanations for the lack of impact on women's access to and decisions on credit.

Time use again came up as an important theme in the Ethiopia qualitative study. Of note, women felt that actual time use was less important to women than control over how they spent their time and their ability to use their time efficiently. In other words, the impact showing an increased amount of time spent on productive work may be something that women perceive as positive, particularly if they receive the benefits to the returns of this productive work.

6. Concluding remarks

Previous evaluations of JP RWEE have focused on the program's ability to reach and benefit women and their households. According to the final report (FAO, IFAD, UN Women, WFP and Mokoro 2021), significant achievements were realized in terms of improved food and nutrition security, increased income to sustain livelihoods, enhanced participation in decisionmaking, and, to a lesser extent, a more gender-responsive policy environment for rural women in agriculture. However, because data on women's empowerment and gender equality were not yet available during the evaluation, assessment of empowerment impacts was incomplete. Here we ask, how well has JP RWEE accomplished its empowerment objectives? This synthesis paper focuses on the empowerment—and possibly the transformative—impacts of the program by calculating comparable measures of women's empowerment

across the four case study countries and estimating the impacts of each country program on these empowerment outcomes.

6.1 Summary and discussion

It is striking that, despite the diversity in country and cultural contexts, common patterns of disempowerment exist across the study populations in Ethiopia, Kyrgyzstan, Nepal, and Niger. In all four countries, women are more disempowered than men, although large proportions of men are themselves disempowered. Excessive workload is the most common major contributor to disempowerment across all four countries, and so is lack of group membership. This suggests that the group-based approach of JP RWEE is filling an important empowerment gap. However, the continued high contribution of inadequate work balance, indicative of excess workload, to disempowerment for both men and women alike suggests that this is a persistent constraint.

We find that, in general, JP RWEE has had positive impacts on aggregate empowerment measures for program participants (Niger, Nepal, Kyrgyzstan). In Ethiopia, JP RWEE did not have a significant impact on any of the aggregate indicators for men and women who maintained access to credit, but the negative and significant impacts in Ethiopia on those women and men who lost access to credit or left the credit groups suggests that maintaining program inputs, or ensuring the beneficiaries remain in the program, is essential for the program's success. The additional GALS and GALS/BALI training in Kyrgyzstan also seems to have generated stronger impacts compared with the results of the common set of interventions only. Despite the generally positive impacts on women's empowerment, however, only one country—Nepal—experienced improvements in gender parity. This finding raises concerns that gender equality improved because of increasing men's disempowerment rather than increasing women's empowerment. We explore this topic in more depth.

Analysis of impacts on the six indicators provides more insights. The group-based approach was a clear contributor to women's empowerment in Ethiopia, Nepal, and Kyrgyzstan, and in Kyrgyzstan, the GALS/BALI approach contributed to impacts across almost all indicators of empowerment. Although fewer impacts were detected on men (who were, after all, not the primary target of JP RWEE programming), it is notable that JP RWEE Nepal had positive impacts on many dimensions of men's empowerment (using continuous indicators) except for group membership. This result counters the apparent negative impact of the program on the probability that men were disempowered. Discussions with program staff in Nepal indicate that men willingly took on additional reproductive work and shared women's workload. However, this was interpreted as disempowerment using WEAI metrics, rather than a change in gender norms. The positive impact of GALS and GALS/BALI on men and women alike in Kyrgyzstan is consistent with emerging evidence from other countries (e.g., Bangladesh, see Quisumbing et al. 2021a, 2021b) that involving both men and women in gender transformative approaches, rather than focusing on women alone, may be key to effective and sustainable programs.

Findings from qualitative research undertaken in Nepal, Kyrgyzstan, and Ethiopia both confirm and provide additional nuance to the quantitative results. In all three countries, time use emerged as an issue identified in the qualitative work. However, the findings on time use in the qualitative work were much more nuanced. Although impacts on time use were insignificant in the quantitative study, the qualitative work pointed out negative impacts, which are not surprising because livelihood interventions may demand a large amount of women's time. Similarly, while trainings were identified as placing additional time burdens on women in Kyrgyzstan, the qualitative work showed that participation in GALS specifically led to a rebalancing of household duties among family members, allowing women to direct their time to income-generating activities. In Ethiopia, women expressed that their actual time use was less important to them than control over how they spent their time. Even if they increased time spent on productive work, women themselves may perceive this as positive, if they receive the benefits of the returns to this productive work.

The qualitative work also picked up impacts on additional empowerment indicators in pro-WEAI that were not included in this quantitative synthesis. This included increased respect among household members in Nepal, increased self-efficacy among those who participated in GALS in Kyrgyzstan, and increased self-efficacy among beneficiaries in Ethiopia owing to increased participation in discussing "big issues" in their households, public spaces, and income generation activities, and increased knowledge.

In the context of the RBET framework, previous evaluation reports have shown that JP RWEE has succeeded in its "reach" and "benefit" objectives, in the areas of providing training to women and their households, improving food and nutrition security, and increasing incomes to sustain livelihoods (see Table 1 and (FAO, IFAD, UN Women, WFP and Mokoro 2021). JP RWEE has also succeeded in its "empowerment" objectives for those women who were able to maintain access to credit in Ethiopia, and in Niger, Nepal, and Kyrgyzstan. However, if we look at improved gender equality as an indicator of achieving "transform" objectives, only Nepal was able to narrow the empowerment gap between men and women.

6.2 Limitations of the study

Despite the richness of our findings, we recognize several limitations of our work. First, the evaluation studies were not completely comparable; only two had baseline and endline surveys, which limited our ability to conduct difference-in-difference analysis. Moreover, because program placement was not random, authors of the country case studies —and this study team by extension —had to use quasi-experimental methods to assure that the control groups were valid counterfactuals. Because we replicated the methodology of the country studies for impact estimation, the methodological drawbacks of the original studies in terms of evaluation design are also inherited by this study. In future work, we would suggest that indicators to measure empowerment impacts be part of the evaluation design from the start.

Second, the program itself was not uniformly designed and implemented across countries, so program impact must be interpreted in the context of the specific program and context. The heterogeneity of the

program across countries suggests that simply pooling observations and assessing the impact of the program may not be very useful: even if JP RWEE had common objectives, the strategies to achieve those objectives varied significantly across countries.

Third, to assure comparability across the four countries, we used A-WEAI in the synthesis. However, this means we did not pick up some of the impacts that might have emerged using pro-WEAI, a more sensitive measure. For example, in Ethiopia, Hillesland et al. found that the program had a positive impact on intrinsic agency for those who maintained access to credit. For this group of beneficiaries, the program seemed to increase the trust and respect between spouses. Hillesland et al. (2021) interpret this finding as indicative of the success of the gender awareness component of the program in facilitating spousal cooperation of this group. Similarly, in Nepal (Andriano 2021) and Kyrgyzstan (Rosso 2021b), impacts were also detected on several pro-WEAI indicators that are not included in A-WEAI.

Fourth, we faced the inherent difficulty of comparing across a portfolio of projects where baseline empowerment levels are quite different across projects, and socio-cultural constraints are also different. For example, in Kyrgyzstan, despite higher levels of education, individuals felt more disempowered compared to others in countries with objectively worse economic conditions. In discussions at the project workshop, this was linked to increased uncertainty following decollectivization and the dissolution of the Soviet Union.

Finally, we acknowledge the difficulty of measuring a multidimensional concept such as empowerment. This is illustrated by the interpretation of Nepal results: according to the program staff, men were willingly taking on reproductive work, but appear disempowered because it increased their workload. Should such sharing of domestic work be interpreted as an undesirable increase in workload, or a transformation of gender norms?

6.3 Implications for future programming

Many lessons can be learned from the first phase of JP RWEE that can inform future projects. An important lesson is to *build on the successes of group-based approaches*. In all four countries, women's groups have been core to the success of the program, helping women build social capital, participate in public spaces, and provide opportunities to express their views.

There is also a need for *sustained programming*; the example of women who lost access to credit in Ethiopia illustrates that interruptions in programming or barriers to continuation in a program have consequences. However, we do not know how long programming needs to be sustained for empowerment impacts to endure.

Involving men is another important lesson. The lack of impact on men's group membership is understandable, given the emphasis on women's groups. However, if men feel excluded from development programs that target women, there is the potential for backlash. This has implications for program sustainability.

All development interventions also need to *be mindful of workload implications*. Many project designers assume that women have plenty of slack time to attend meetings and participate in development interventions. Yet, in all four countries, we see that workload is an important constraint and a barrier to empowerment.

Finally, JP RWEE and other development programs should continue to monitor empowerment, ideally with more sensitive measures like pro-WEAI. Attention to empowerment measures should be part of regular M&E to flag potential problems as they arise, rather than after the program has been operational for a longer period. Moving along the continuum from reach and benefit to empower and transform may increase the effectiveness of programs that seek to empower not only rural women, but also their families and communities.

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Appendix 1. Comparison of pro-WEAI and A-WEAI, all indicators

Pro-WEAI domain	Pro-WEAI indicator name	Pro-WEAI definition	Difference compared to WEAI versions	WEAI & A-WEAI domain	WEAI & A-WEAI indicator name	WEAI definition	A-WEAI definition
Intrinsic agency	Autonomy in income	More motivated by own values than by coercion or fear of others' disapproval: *Relative Autonomy Index* [B] 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) *Weight = 1/12*	Based on "Autonomy in production" indicator in the WEAI; pro-WEAI focuses exclusively on the use of income generated from agricultural and non-agricultural activities and uses a new vignette-based survey instrument. Not included in A-WEAI	Production	Autonomy in production	Adequate if individual has a Relative Autonomy Indicator is greater than 1 in at least one domain/activity linked to production *Weight = 1/10*	Not included
Intrinsic agency	Self-efficacy	"Agree" or greater on average with self-efficacy questions: *New General Self-Efficacy Scale* [C] score>=32 *Weight = 1/12*	Not included in WEAI or A-WEAI				
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*	Not included in WEAI or A-WEAI				

Pro-WEAI domain	Pro-WEAI indicator name	Pro-WEAI definition	Difference compared to WEAI versions	WEAI & A-WEAI domain	WEAI & A-WEAI indicator name	WEAI definition	A-WEAI definition
Intrinsic agency	Respect among household members	Meets ALL of 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*	Not included in WEAI or A-WEAI				
Instrumental Agency	Input in productive decisions	Meets at least ONE of the following conditions for ALL of the agricultural activities they participate in 4) Makes related decision solely, 5) Makes the decision jointly and has at least some input into the decisions 6) Feels could make decision if wanted to (to at least a MEDIUM extent) *Weight = 1/12*	Included in the WEAI and A-WEAI; pro-WEAI uses a stricter adequacy cut-off	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 least two agricultural activities* *Weight = 1/10*	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) 3) Any three assets 4) Land *Weight = 1/12*	Included in the WEAI and A-WEAI; pro-WEAI uses a stricter adequacy cut-off	Resources	Ownership of assets	Adequate if individual owns at least one major asset or at least two minor assets *Weight = 1/15*	Adequate if individual owns at least one major asset or at least two minor assets *Weight = 2/15*

Pro-WEAI domain	**Pro-WEAI indicator name**	**Pro-WEAI definition**	**Difference compared to WEAI versions**	**WEAI & A-WEAI domain**	**WEAI & A-WEAI indicator name**	**WEAI definition**	**A-WEAI definition**
Instrumental Agency	Access to and decisions on financial services	Meets <u>at least ONE of the following</u> conditions: 4) 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 5) Belongs to a household that did not use credit in the past year but could have if wanted to from at least ONE source 6) Has access, solely or jointly, to a financial account *Weight = 1/12*	Based on "Access to and decisions on credit" indicator in the WEAI and A-WEAI; pro-WEAI includes access to financial accounts	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*	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 of the <u>agricultural activities</u> 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*	Included in the WEAI and A-WEAI; pro-WEAI uses a stricter adequacy cut-off	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*	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*
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*	Similar to 'Workload" indicator in the WEAI and A-WEAI; pro-WEAI restricts the measurement of secondary activities to a single activity: childcare. Secondary activities not collected in A-WEAI	Time	Workload	Adequate if individual worked fewer than 10.5 hours during the previous day *Weight = 1/10*	Adequate if individual worked fewer than 10.5 hours during the previous day *Weight = 1/5*

Pro-WEAI domain	Pro-WEAI indicator name	Pro-WEAI definition	Difference compared to WEAI versions	WEAI & A-WEAI domain	WEAI & A-WEAI indicator name	WEAI definition	A-WEAI definition
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*	Not included in the WEAI or A-WEAI				
Collective Agency	Group membership	Active member of at least ONE group *Weight = 1/12*	Same as in the WEAI and A-WEAI	Leadership	Group member	Adequate if individual is an active member of at least one group *Weight = 1/10*	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*	Not included in the WEAI or A-WEAI				
			Not included in pro-WEAI	Time	Leisure	Inadequate if not satisfied with leisure *Weight = 1/10*	Not included
			Not included in pro-WEAI	Resources	Purchase, sale, or transfer of assets	Adequate if individual participates or can participate in decisions to buy, sell or transfer the at least one asset either individually or jointly, conditional on the household's owning it (excludes chickens and non-mechanized farming equipment) *Weight = 1/15*	Not included
			Not included in pro-WEAI	Leadership	Speaking in public	Adequate if individual is comfortable speaking in public *Weight = 1/10*	Not included

Appendix 2. Documentation of changes to indicator and index construction code

Each country study implemented slightly different versions of the WEAI. As mentioned in the text, Niger implemented the original WEAI, while the other countries implemented the pro-WEAI. We used the A-WEAI structure (five domains, six indicators) to create a comparable measure across projects, but because JP RWEE is a project with explicit women's empowerment objectives, we use the higher standards of adequacy embedded in pro-WEAI. Moreover, countries also adjusted the questionnaire to adapt to the local context (for example, asset lists or credit sources may differ across countries). This appendix lists our edits and adaptations by country and module or indicator.

Edits and Adaptations – By Country and Module or Indicator

Nepal

The Nepal do files only required updates to align with the most recent pro-WEAI definitions (ex., inclusion of non-farm work and salaried work for input in productive decisions) and the removal, for clarity, of project-specific COVID-related questions and indicators. The dataprep file the Nepal project analyst used and shared with IFPRI followed the standard pro-WEAI dataprep file from 2020, so it did not require any unique edits or alterations. The Nepal data or do files were not used "as-is", but also did not require changes beyond those applied to all the countries. These across-the-board changes are not specified in the Appendix/decision list because these are changes to ensure compatibility with the most up-to-date pro-WEAI definitions, rather than fixing alterations from pro-WEAI standards/definitions.

Kyrgyzstan

Module 2: Income Generating Activities: Input in livelihood decision and Income Control

The Kyrgyzstan pro-WEAI questionnaire contained questions which are not part of the standard survey, including asking for "input on output" (g2.06) for activities which do not have outputs: (G) Non-Farm Economic activity, (H) Wage & Salary work, (I) Large Household purchases/expenditures, (J) Small/routine Household purchases/expenditures. Similarly, their questionnaire asked for "inputs on income" (g2.07) for activities which

do not have income: (I) Large Household purchases/expenditures, (J) Small/routine Household purchases/expenditures. The responses to these questions were included in the calculations used for the Kyrgyzstan JP RWEE report but is inconsistent with the standard construction of pro-WEAI indicators. To standardize the indicator construction, we excluded the responses regarding these activities from the indicator construction in alignment with the standard pro-WEAI dataprep do file. It is expected that there will be a decrease in the proportion of the sample which is adequate in the Input in Livelihood Decisions and the Control Over Use of Income as compared to the values reported in the Kyrgyzstan country report.

Ethiopia

Module 2: Income Generating Activities: Input in livelihood decision and Income Control

The Ethiopia dataprep file for Module 2 created the variable "self_`x' " (under Input in Livelihood Decisions) to reflect self or joint decision making. For consistency with the pro-WEAI standard calculations, we changed the code to reflect self-only decision-making for this variable.

For the variables "someinput_`x'" regarding activity outputs and incomes, the Ethiopia code included "N/A" response as an adequate degree of input. By excluding the "N/A" responses in alignment of the standard pro-WEAI dataprep do file, the share of respondents considered adequate in "Control Over Use of Income" decreases from 94% to 80%.

Module 3 Access to productive Capital

The Ethiopia dataprep files defined land ownership based on plots of land which were actively being cultivated. This is different from the standard pro-WEAI definition, which is broader: G3.05 "Do you own any of the land owned or cultivated by your household?" and corrected to missing if G3_01"Does anyone in your household currently own or cultivate land?" is No. The Ethiopia questionnaire did not ask the land ownership questions in the same format as the pro-WEAI questionnaire, so in order to maintain the intended definition, we use the project's definition of land ownership, based on the actively cultivated plots. This means that we may not be accounting for some land ownership of respondents who own plots that are not currently or actively cultivated.

Based on the cultural context of land ownership in Ethiopia, this is unlikely to be account for many people, if any.

Module 3 B: Access to and Decision on Credit

For the "Access to Credit" variable, the Ethiopia dataprep code only accepts the value of "Yes" responses as adequate, while standard pro-WEAI code includes "Yes" and "Maybe". We standardized the code to use the pro-WEAI definition.

The pro-WEAI definition of "creditusedec" includes the responses regarding the respondent deciding to borrow and the respondent deciding how to use the borrowed money. The Ethiopia dataprep file defines "creditusedec" as the individual deciding to borrow but does not include the respondent's involvement in how to use the borrowed credit. We expanded the definition to align with the standard pro-WEAI definition. We also corrected the "credit_access" variable construction to match the pro-WEAI specifications, including all necessary conditions.

Niger

In Niger, empowerment data was collected using the original WEAI questionnaire. For this synthesis work, the specifications of WEAI indicators had to be translated to become compatible with the pro-WEAI indicators.

Module 2: Income Generating Activities: Input in livelihood decision and Income Control

The original WEAI includes two productive activities which are not included in pro-WEAI: "Getting inputs for agricultural production" and "Taking crop to the market". The two activities are excluded from indicator calculations The original WEAI asks about all livestock with a single activity code, but the pro-WEAI splits livestock activities between large livestock (cattle, buffalos), small livestock (goats, sheep), and poultry. There is a total of six activities used from the Niger WEAI data, which is two fewer activities than are used in pro-WEAI to calculate the "Input in Productive Decisions" and "Control Over Use of Income" indicators. This difference in the number of activities also means that for the Niger sample the continuous indicators for these

indicators have a smaller range than the other three countries. Given that we use standardized coefficients, this difference should not create any significant differences.

The original WEAI data does not allow us to account for decisions on income spending activities since expenditure decisions are not included.

Appendix Table 2.1. Activity mapping between WEAI and pro-WEAI.

WEAI Code-Niger	Equivalent in pro-WEAI code
I_1_G2_03 (food cropping farming - A)	A Staple grain farming and processing of the harvest: grains that are grown primarily for food consumption (rice, maize, wheat, millet)
I_2_G2_03 (Cash crop farming - B)	B Horticultural (gardens) or high value crop farming and processing of the harvest
I_3_G2_03 (Getting inputs for agricultural production - C)	NOT in pro-WEAI
I_4_G2_03 (Taking crop to the market or not - D)	NOT IN pro-WEAI
I_5_G2_03 (Livestock raising - E)	C Large livestock raising (cattle, buffaloes) and processing of milk and/or meat
_5_G2_03 (Livestock raising - E)	D Small livestock raising (sheep, goats, pigs) and processing of milk and/or meat
_5_G2_03 (Livestock raising - E)	E Poultry and other small animals raising (chickens, ducks, turkeys) and processing of eggs and/or meat
I_6_G2_03 (Fishing or fishpond culture - F)	F Fishpond culture
I_7_G2_04 (non-farm economic activities - G)	G Non-farm economic activities (running a small business, self-employment, buy-and-sell)
I_8_G2_04 (wage and salary employment - H)	H Wage and salary employment (work that is paid for in cash or in-kind, including both agriculture and other wage work)
Not in WEAI	I Large, occasional household purchases (bicycles, land, transport vehicles)
Not in WEAI	J Routine household purchases (food for daily consumption or other household needs)

Ownership of Land and other Assets

In the Niger WEAI files, the “Own Land” variable is based on the question "Household owns land?". (B4.01 Household questionnaire) WEAI Niger calculated household land ownership instead of personal land ownership. This is inconsistent with the pro-WEAI, which constructs the “Own Land” variable based on a respondent solely or jointly owning land and assets. The closest match to this definition we can use from the Niger WEAI questionnaire is B4.08 which asks plot by plot if it’s owned by "self or others". From this, we can recalculate the “Own Land” variable, but it will be slightly different than the original one since we are basing it on a different

question, and it doesn't include the option to "Jointly" own the plot (we are hoping the “self” option includes the jointly-owned plots, as well).

The list of assets is different between the WEAI and pro-WEAI surveys. Below, in Appendix Table XX, the assets from WEAI are mapped to the assets listed in pro-WEAI. This was done to continue the compatibility with the pro-WEAI indicator definitions.

Appendix Table 2.2. Asset Mapping Between WEAI and pro-WEAI.

WEAI list of assets	Var in WEAI	pro-WEAI list of Assets
A Chickens, ducks, turkeys, pigeons and other poultry	I_`x'_G5_04	C Poultry and other small animals (chickens, ducks, turkeys)
B Goats	I_`x'_G5_04	B Small livestock (sheep, goats, pigs)
C Sheep	I_`x'_G5_04	B Small livestock (sheep, goats, pigs)
D Donkey	I_`x'_G5_04	A Large livestock (cattle, buffaloes)
E Cattle or bovine	I_`x'_G5_04	A Large livestock (cattle, buffaloes)
F Camel	I_`x'_G5_04	A Large livestock (cattle, buffaloes)
G Horse	I_`x'_G5_04	A Large livestock (cattle, buffaloes)
H Other (specify)	I_`x'_G5_04	
		D Fish pond or fishing equipment
A Hand tool (hoe/spade)	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)
B Axe	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)
C Pickax	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)
D Sickly/reaping hook	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)
E Water hoses	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)
F Watering can	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)
G Rake	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)
H Shovel	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)
I Mattock	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)
J Earth chisel	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)
K Animal-drawn plough	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)
L Tractor-drawn plough	I_`x'_G4_01	F Mechanized farm equipment (tractor-plough, power tiller, treadle pump)
M Power tiller	I_`x'_G4_01	F Mechanized farm equipment (tractor-plough, power tiller, treadle pump)
N Cart	I_`x'_G4_01	E Non-mechanized farm equipment (hand tools, animal-drawn plough)

O Other (specify)	I_`x'_G4_01	
	own_c (I_2_B5_01)	H House or building
A Radio	I_x_G3_01	J Small consumer durables (radio, cookware)
B Portable phone (cell phone)	I_x_G3_01	K Cell phone
C Camera	I_x_G3_01	J Small consumer durables (radio, cookware)
D Computer	I_x_G3_01	J Small consumer durables (radio, cookware)
E Television set	I_x_G3_01	I Large consumer durables (refrigerator, TV, sofa)
F Tape, CD, or DVD player	I_x_G3_01	J Small consumer durables (radio, cookware)
G Musical instrument	I_x_G3_01	J Small consumer durables (radio, cookware)
H Pots and pans	I_x_G3_01	J Small consumer durables (radio, cookware)
I Clothe	I_x_G3_01	J Small consumer durables (radio, cookware)
J Jewelry	I_x_G3_01	J Small consumer durables (radio, cookware)
K Sewing machine	I_x_G3_01	J Small consumer durables (radio, cookware)
L Iron	I_x_G3_01	J Small consumer durables (radio, cookware)
M Moulinex/Food processor	I_x_G3_01	J Small consumer durables (radio, cookware)
N Gas stove	I_x_G3_01	I Large consumer durables (refrigerator, TV, sofa)
O Oil stove	I_x_G3_01	I Large consumer durables (refrigerator, TV, sofa)
P Gas cooker	I_x_G3_01	I Large consumer durables (refrigerator, TV, sofa)
Q Refrigerator/freezer	I_x_G3_01	I Large consumer durables (refrigerator, TV, sofa)
R Fan	I_x_G3_01	J Small consumer durables (radio, cookware)
S Air conditioner/split	I_x_G3_01	I Large consumer durables (refrigerator, TV, sofa)
T Generator	I_x_G3_01	I Large consumer durables (refrigerator, TV, sofa)
U Bicycle	I_x_G3_01	M Means of transportation (bicycle, motorcycle, car)
V Motorcycle, moped or scooter	I_x_G3_01	M Means of transportation (bicycle, motorcycle, car)
W Car or truck	I_x_G3_01	M Means of transportation (bicycle, motorcycle, car)
X Large non-farm business equipment (e.g. wagons, pushcarts)	I_x_G3_01	G Non-farm business equipment (solar panels used for recharging, sewing machine, brewing equipment, fryers)
	own_b (I_1_B5_01)	L Other land not used for agricultural purposes (pieces/plots, residential or commercial land)

Access to and Decisions on Credit and Financial Services

The construction of the "credit access" variable differs between WEAI Niger and the standard pro-WEAI, since pro-WEAI accounts for taking a loan in the last 12 months which WEAI Niger doesn't.

Regarding who made the decision to apply for credit, WEAI Niger only has the option Self/Other (B08_03) whereas pro-WEAI includes self, joint, others. So, the indicator, although it is going to be called "selfjoint", it only refers to self (similar to the issue with income and productive decisions).

To determine adequacy, WEAI does not have a question on ownership of bank account, which pro-WEAI asks about, so that is excluded from the Access to and Decisions on Credit indicator specifications.

Appendix Table 2.3. Mapping of Credit Sources between WEAI and pro-WEAI

WEAI Niger list of sources	Var in WEAI Niger	ProWEAI list of sources
A Friends or relatives (individual credit)	B8.01 (I_`x'_B8_01)	D Friends or relatives
B VLSAs		E Group based micro-finance or lending including VSLAs / SACCOs
C SACCOs		E Group based micro-finance or lending including VSLAs / SACCOs
D Merry-go-rounds		F Informal credit / savings groups (.e.g., merry-go-rounds, tontines, funeral societies, etc.)
E Other group based micro-finance self-help groups		E Group based micro-finance or lending including VSLAs / SACCOs
F Micro Finance Institutions		
G Formal lender (bank/financial institution) to individuals		B Formal lender (bank/financial institution)
		A Non-governmental organization (NGO)
		C Informal lender
H Other (specify)		

Group Membership

Group membership in WEAI is constructed from two questions: 1) belonging to a group and 2) participating in it. In pro-WEAI, Group Membership is defined by one question- If the person is a member- and restricted by another question- if this type of group exists in the community. In the Niger sample, there are some people who reported that they belonged to a group, but that group didn't exist in the community. This is an error in the skip

patterns typically applied to pro-WEAI questionnaires and data collection. These people are considered inadequate if that is true for all the groups they report being members of.

Appendix Table 2.4. Niger Group Membership response errors.

WEAI Niger list of groups	No. of ppl belong to group but there's no group in the community	Total no. of ppl who belong to group
A Farmer field school (FAO)	24	83
B Grassroot producer organization	0	3
C Agricultural producer cooperative	3	18
D Agricultural producer union	3	25
E Agricultural producer federation (APEX)	0	1
F Other formal agricultural producer organization	2	8
G Other informal agricultural producer organization	1	7
H Dimitra club meeting	3	114
I Dimitra club radio	5	69
J Other self-help group (not Dimitra club)	4	36
K Forest users' group	0	6
L Trade/business association	2	12
M Civic group (improving community) or charitable group (helping others)	6	18
N Local government body (including councils)	1	17
O Religious group	18	111
P Other	.	55

Issues and Decisions on Calculating the Index in Niger

In the index calculation do files used with the Niger sample, the variable for the count of dual-headed household included ALL individuals in each treatment group who came from a dual-headed household, rather than the household count, and did not consider the drop in observations resulting from individuals who were missing any indicators. This error resulted in a "Dual-Headed Household" observation value that was more than twice what the actual value should have been. When correcting this error, the variable construction for dual-adult households now follows the code used in the AWEAI and pro-WEAI Index Calculation files, and the value is reduced by more than half, to slightly less than the number of male observations, and appears to be accurate.

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