DESCRIPTIVE- WELBI

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Women's Empowerment in Livestock Business (WELBI)

Introduction

Livestock play an important role in the lives of smallholder farmers around the world and can contribute to reduced poverty and better human nutrition in several ways including by enhancing women's empowerment through engagement in livestock production, improved access/control over income, and markets (Colverson et al., 2020). Empowering women alongside men as decision-makers in all phases of the livestock value chains as well as within the household domain is a central element for reducing poverty (Colverson et al., 2020). Identifying ways to track and compare this progress requires a validated standard method to measure women's empowerment across countries, subnational, and individual levels (Asaolu et al., 2018). Therefore, efforts to refine both definitions and measures of women's empowerment within sectors of development continue to be needed (Richardson, 2018; Yount et al., 2016).

The Women's Empowerment in Agriculture Index (WEAI) has been in use since 2012 and is one of the most widely used tools to measure women's empowerment (Colverson et al., 2020). The WEAI, having a strong focus on crops, is comprised of five domains of empowerment (5DE) (1) decisions about agricultural production, (2) access to and decision-making power about productive resources, (3) control over the use of income, (4) leadership in the community, and (5) time allocation (Alkire et al., 2013). Changes to the WEAI have been ongoing with adaptations including uses for livestock value chains, as well as other livestock related research (Colverson et al., 2020). In order to study women's empowerment in settings where livestock farming is the primary agricultural activity, the WEAI was adapted by an interdisciplinary team of researchers from ILRI and Emory University to develop the Women Empowerment in Livestock Index (WELI) (Colverson et al., 2020).

Developing a measure to capture the empowerment of women involved in the livestock sector is important to explore how livestock and women's empowerment interconnect, and particularly, how women's empowerment can be supported through livestock (Galiè et al., 2019). WELI assess the empowerment of women involved in the production node of livestock value chains. As livestock may offer opportunities for progress towards women empowerment at other points of the value chain besides production, ILRI furthered the work by developing WELBI (WE in Livestock Business Index). WELBI is a new tool that combines both qualitative and qualitative approaches to measure the empowerment of women involved in livestock business. WELBI differs from WEAI and WELI since it integrates business (economic) and household spheres of livelihood into one tool.

Data

The pilot study of WELBI has been conducted using data from ongoing projects in three countries, namely, Ghana, Tanzania and Ethiopia. Data in Ghana was sourced from the baseline survey for "Women Rear Project", which was conducted using computer aided personal interviews (CAPI) survey of randomly selected households in Bawku West and Pusiga districts,

using a multi-stage sampling process. A sample of 25 households were surveyed in Ghana on separate modules of questions to assess the empowerment of respondents in the livestock business sector. Additionally, a sample of 121 households participating in livestock business were drawn in Tanzania and questioned on the WELBI modules from two different on-going projects, namely, "Women in Business" and "Maziwa Zaidi". Finally, from the "Women in Business" project in Ethiopia, a total of 31 households were randomly chosen for the pilot study on WELBI.

The sampled respondents comprised of both male and female participants who were 18 years and above and directly involved in the livestock business as either owners, investors, or service providers, such as workers, executives, managers etc. The survey included 21 different modules to assess the respondent's empowerment across several dimensions later discussed in Table 1. Because a composite score requires non-missing responses across all modules, the final sample size eligible for the scores for all countries were 22 for Ghana, 81 for Tanzania and 21 for Ethiopia.

Calculating the Index

In this study, we revisited indicators that were established in the pilot version of pro-WEAI and adjusted some indicator definitions, incorporating the results from other ongoing pro-WEAI efforts, to devise a tool that would be able to quantify women's agency and empowerment status in the livestock business sector.

Table 1 provides the definitions and adequacy cut-offs for each indicator used to calculate the final index WELBI. Each indicator is composed of several questions presented to the interviewed men and women. Compared to the pro-WEAI, the adequacy definition has been altered for three indicators to better reflect the activities and empowerment of women participating in livestock business. Firstly, we incorporated 3 scenarios (6-8) in addition to the 5 used in the standard pro-WEAI to determine adequacy in "Attitudes about intimate partner violence against women". The added scenarios are chosen based on common challenges facing women participating in the livestock value-chain. Next, we have updated the definition of ownership of land and other assets – adequacy is now defined as owning land or any three assets. Finally, for determining adequacy in "visiting important locations", we changed the list of locations compared to the pilot version of pro-WEAI by including places frequented by participants of livestock business. Finally, we calculated a weighted index using these 12 indicators, where each received an equal weight of 1/12, following the pro-WEAI.

Table 1. Pro-WEAI indicators and definitions of adequacy cut-off. The 12 indicators are weighed 1/12 each.

Indicator	Explanation	Definition of adequacy
Intrinsic agency		
Autonomy in Income	Regarding income, it is a measure of the internal and external motivations that determine a person's decisions.	More motivated by own values than by coercion or fear of others' disapproval: Relative Autonomy Index score>=1
Self-efficacy	Belief in one's own abilities to succeed in certain situations or accomplish tasks	Agreement on at least 5 out of the 8 statements

Attitudes about intimate partner violence against women	What is your opinion on the acceptability of a husband beating his wife in different situations?	Believes husband is NOT justified in hitting or beating his wife in all 8 scenarios: 1) She goes out without telling him 2) She neglects the children 3) She argues with him 4) She refuses to have sex with him 5) She burns the food 6) she travels far from her neighbourhood to purchase supplies for the business? 7) she purchases business supplies from a man without her husband present? 8)she is not in her shop when he expects her to be?
Respect among household members	How do you feel about some of other people in your household or family group and how do you think they feel about you?	Meets ALL of the following conditions related to 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)
Instrumental agency		
Input in productive decisions	What decisions are you a part of? What is your role in making these decisions?	Meets at least ONE of the following conditions for ALL of the business 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)
Ownership of land and other assets	Do you own any assets? Do you own them solely or jointly?	Owns, either solely or jointly, at least ONE of the following: 1) At least three assets 2) Land
Access to and decisions on financial services	Do you contribute to household decisions on credit (e.g. taking out a loan)? Can you get a loan if you wanted to?	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
Control over use of income	Do you have input in decisions about how to use income generated from selling goods and/or services to consumers/interacting with consumers directly?	Has input in decisions related to how to use income from selling goods/services.
Work Balance	How many hours a day do you work? How much of that time is	Works less than 10.5 hours per day: Workload = time spent in primary activity +

	spent on care giving for children?	(1/2) time spent in childcare as a secondary activity
Visiting Important Locations	How often do you generally visit places?	Meets one or more of the following conditions: 1) Visits at least TWO locations at least ONCE PER WEEK of [Supplier's premise, bank, local authorities' office, market to sell product/services etc.], or 2) Visits least ONE location at least ONCE PER MONTH of [Business group meetings, Business Training programs]
Collective agency		
Group membership	Are you a member of a group in your community?	Active member of at least ONE group
Membership in influential groups	Are you part of a group that is influential in your community? How influential is your group in the community?	Active member of at least ONE group that can influence the community to at least a MEDIUM extent

Characteristics of sample respondents in the survey

Sansa

This analysis was conducted on data from three projects in three countries. As shown in Table 1, a total of 171 interviews were conducted from the 3 countries, Ethiopia, Ghana and Tanzania. From Ghana, total of 25 interviews were conducted within the framework of WomenRear project (https://www.ilri.org/research/projects/transforming-vaccine-delivery-system-ghana-identifying-approaches-benefit-women). From Tanzania, a total of 191 responded were interviewed from 2 projects, Maziwa Zaidi (https://maziwazaidi.org/) and Women in Business (https://www.ilri.org/research/projects/women-in-business), working in the same geographical area. Since Women in Business project is also implemented in Ethiopia, 31 interviews were conducted in Ethiopia covering Women in Business project beneficiaries. It is worth noting that all the 3 projects surveys were at baseline stage.

Table 1: Sample size

Countries	*Project Name*	*Sample Size*	*Female*	*Male*
Ghana	WomenRear	25	4	21
Tanzania	Maziwa Zaidi Women in Business	121	65	56
Ethiopia	Women in Business	31	31	0
	Total			

Table 2 exhibits some of the key characteristics of the sampled respondents for all three countries. Among all the households surveyed, there were 21 male and 4 female respondents

in Ghana, and 57 Male and 64 female respondents in Tanzania. Ethiopia, however, had responses from females only for all the 31 households surveyed. Table 2 summarizes some of the key characteristics of the sampled respondents in this pilot survey. The average age of respondents was 39, 29 and 35 respectively for Tanzania, Ethiopia, and Ghana. Women surveyed in Tanzania were on average 35 years old, relative to the younger respondents in Ghana and Ethiopia with averages of 25 and 29 respectively. Nearly 96 percent of all respondents in Ghana and 75 percent in Tanzania belonged to dual-adult households, whereas more than 40 percent of the respondents in Ethiopia belonged to households with only female adults. Across all three countries, most of the respondents completed college level/tertiary education, with 43 percent in Tanzania, 42 percent in Ethiopia and 68 percent in Ghana.

Additionally, more than half the responses for the WELBI pilot survey were acquired from married respondents across all three countries (61 percent in Tanzania, 58 percent in Ethiopia and 76 percent in Ghana). Furthermore, we observe a difference in compositions of the role profiles of the respondents across the countries. While Tanzania and Ethiopia surveyed mostly owners (83 percent and 94 percent respectively), Ghana had a more equal distribution among owners and workers, with 48 percent respondents in each category.

Table 2. Characteristics of sample respondents in the survey (% of sample individuals)

Indicators	Tanzania			Ethiopia		Ghana		
	All	Women	Men	All	Women	All	Women	Men
No. of Observations	*121*	*64*	*57*	*31*	*31*	*25*	*4*	*21*
Age (years, average)	38.44	34.81	42.51	29.13	29.13	35.40	25.00	37.38
	(13.0)	(10.9)	(14.0)	(7.9)	(7.9)	(11.9)	(2.6)	(12.0)
Education level								
University complete	20.7	20.3	21.1	41.9	41.9	20.0	0.0	23.8
College (middle level)/Tertiary complete	43.0	35.9	50.9	41.9	41.9	68.0	100.0	61.9
Secondary complete	19.8	21.9	17.5	3.2	3.2	0.0	0.0	0.0
Secondary incomplete	1.7	3.1	0.0	0.0	0.0	4.0	0.0	4.8
Primary complete	14.9	18.8	10.5	6.5	6.5	0.0	0.0	0.0
Marital status								
Married	61.2	48.4	75.4	58.1	58.1	76.0	25.0	85.7
Divorced/Widowed/Separated	8.3	12.5	3.5	3.2	3.2	0.0	0.0	0.0
Single	30.6	39.1	21.1	38.7	38.7	24.0	75.0	14.3
Dual Adult HH	75.2	65.6	86.0	58.1	58.1	96.0	75.0	100.0
Role in Business								
Owner	83.5	82.8	84.2	93.6	93.6	48.0	25.0	52.4
Worker	9.1	14.1	3.5	3.2	3.2	48.0	75.0	42.9
Other	7.4	3.1	12.3	3.2	3.2	4.0	0.0	4.8

Source: The figures are percentages of the sample individuals. For continuous variables, values shown are the means, and values in parentheses are standard deviation.

Women's Empowerment in Livestock Business Index (WELBI)

This section describes the main results on women's and men's empowerment using the WELBI methodology described in the index calculation section. Based on weighted score reflecting respondent's empowerment in the livestock business sector, WELBI, and a threshold of a score above 0.8 for being empowered, nearly two-thirds of the respondents in Tanzania are found

disempowered (Table 3). Although we found a higher percentage of men (39 percent) achieve empowerment compared to women (29 percent), the mean WELBI score for both genders appear to be the same (0.7).

We also find that only 14 percent of all respondents (women) in Ethiopia achieve a weighted score above or equal to 0.8, with a mean WELBI score of 0.6.

Finally, in Ghana we also observe a very low percentage of empowered individuals (18 percent) among the surveyed respondents. We find a mean WELBI score of 0.46 for women and 0.62 for men, indicating that women are more likely to experience a higher proportion and depth of disempowerment compared to men.

Table 3. WELBI Results (using 80% cut off-score)

	Tanzania			Ethiopia		Ghana		
	All	Women	Men	All	Women	All	Women	Men
No. of Observations	*81*	*42*	*39*	*21*	*21*	*22*	*2*	*20*
Mean WELBI Score	0.71	0.70	0.72	0.60	0.60	0.61	0.46	0.62
Mean Disempowerment Score (1-WELBI)	0.29	0.30	0.28	0.40	0.40	0.39	0.54	0.38
% Achieving empowerment	33.3	28.6	38.5	14.3	14.3	18.2	0.0	20.0
% Not achieving empowerment	66.7	71.4	61.5	85.7	85.7	81.8	100.0	80.0
Mean WELBI score for not yet empowered	0.63	0.64	0.63	0.56	0.56	0.56	0.46	0.57

*Adequacy is said to be achieved when the individual WELBI score is above 0.8 out of a total 1 (following the original WEAI methodology).

Table 4 exhibits some common patterns in the source of disempowerment for both male and female respondents across all three countries. We find lack of work balance to be the highest contributor to disempowerment for both genders across all areas of study (except for women in Ghana, which however has a very low sample size to make any deduction on). Furthermore, lack of mobility in visiting important locations also makes a high contribution among others to the overall disempowerment of both men and women in Tanzania (15.2 percent) and Ghana (13.5 percent). Additionally, in Ghana, we find both genders report experiencing significant contributions to disempowerment from lack of access to and decision on credit. Finally, we also find that inadequacies from attitude towards domestic violence and lack of membership in influential groups are two key contributors to disempowerment of women in Ethiopia.

Table 4. Percentage contributions to disempowerment

Indicator	Tanzania			Ethiopia		Ghana		
	All	Women	Men	All	Women	All	Women	Men
No. of observations	54	30	24	18	18	18	2	16
Autonomy in income	9.0	6.1	12.6	0.0	0.0	11.3	0.0	12.8
Self-efficacy	0.3	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Attitudes towards domestic violence	11.5	14.6	7.6	15.9	15.9	0.0	0.0	0.0
Respect among household members	11.6	14.0	8.6	5.8	5.8	10.6	0.0	11.9
Input in productive decisions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Ownership of land and other assets	4.3	7.0	1.0	10.8	10.8	9.2	15.5	8.4
Access to and decisions on credit	10.0	8.2	12.4	7.4	7.4	14.2	15.5	14.0
control over use of income	0.0	0.0	0.0	0.0	0.0	1.7	15.5	0.0
Work balance	22.9	24.6	20.8	20.0	20.0	15.2	7.1	16.2
Visiting important locations	15.2	14.3	16.3	11.7	11.7	13.5	15.5	13.3
Group membership	6.9	4.8	9.6	12.7	12.7	11.2	15.5	10.7
Membership in influential groups	8.2	6.5	10.4	15.7	15.7	13.1	15.5	12.8

Next, we observe the percentage of adequacy in respondents by type of agency and by indicators in Table 5. Among the intrinsic agency indicators, we observe that nearly all sampled respondents in the three countries fare well in self-efficacy, as they are found to have adequacy in one's belief in one's own ability to succeed or accomplish tasks. We, however, find varied adequacy levels in "Attitudes about intimate partner violence against women" in three countries. Intriguingly, we find more men (74 percent) achieved high adequacy in rejecting the acceptability of IPV against women in all scenarios presented to them relative to women (48 percent) in Tanzania. Similarly, very low percentage of women (24 percent) are found adequate in their attitudes against domestic violence in Ethiopia. However, we find that all respondents, both men and women, achieve adequacy in this indicator in Ghana. We also find mixed results in the adequacy in autonomy in income. Less than half of all men in Ghana reported having autonomy in income, while all woman in Ethiopia achieved adequacy in the same indicator. This suggests that more men in Ghana used income as others expected of them, and fewer used income as they themselves personally wanted. In Tanzania too, a higher percentage of women (81 percent) report experiencing adequacy in autonomy in income than the male respondents (64 percent).

Furthermore, we find that among the instrumental agency indicators, all women and men in the three countries achieved adequacy in input in productive decisions and most achieved adequacy in having control over use of income from the livestock business they relate to.

However, women in the three countries are found to have lower adequacy rates in ownership of land and other assets relative to the male respondents. Additionally, both women and men fared poorly on work balance across all three countries—less than one third of respondents (27 percent) achieved adequacy in this indicator in Ghana, whereas none of the women in Tanzania and Ghana are found to achieve adequacy in this indicator. These results are in line with the findings in Table 4 which shows "Work Balance" to be the biggest contributors to disempowerment. Finally, more than half of all respondents in Ethiopia and Ghana fared low in achieving adequacy in visiting important locations, with nearly only 43 percent in Ethiopia and 32 percent in Ghana.

Table 5. Percentage of respondents by adequacy in WELBI indicators

Dimension		Indicator	% Achieving adequacy							
			Tanzania			**Ethiopia**		**Ghana**		
			All	Women	Men	All	Women	All	Women	Men
		observations	*81*	*42*	*39*	*21*	*21*	*22*	*2*	*20*
1 *Instrinsic Agency*	a	Autonomy in Income	73	81	64	100	100	50	100	45
	b	Self-efficacy	99	100	97	100	100	100	100	100

		c	Attitudes about intimate partner violence against women	60	48	74	24	24	100	100	100
		d	Respect among household members	64	52	77	76	76	59	100	55
2	*Instrumental Agency*	a	Input in productive decisions	100	100	100	100	100	100	100	100
		b	Access to and control of land and other productive capital	88	79	97	43	43	50	0	55
		c	Access to and decisions on financial services	62	67	56	62	62	36	0	40
		d	Control over use of income	100	100	100	100	100	91	0	100
		e	Work balance	5	0	10	0	0	27	50	25
		f	Visiting important locations	53	57	49	43	43	32	0	35
3	*Collective Agency*	a	Group membership	77	81	72	38	38	45	0	50
		b	Membership in influential groups	72	74	69	29	29	41	0	45

Adequacy in indicators on collective agency exhibit differences across the study areas. While a large share of the respondents in Tanzania (77 percent) achieved adequacy in both indicators on group membership, more than half the respondents in Ghana (49 percent) and Ethiopia (71 percent) are found to be inadequate in having collective agency.

Additional indicators for women's empowerment in livestock business

We also explored three candidate indicators in the WELBI pilot study that are not included in the original pro-WEAI, as they are likely to be important for livestock businesses: entrepreneurship mindset, access to information and control over other household income. We asked respondents whether they strongly agree, agree, neither agree or disagree, disagree, or strongly disagree with 11 statements that indicate entrepreneurship mindset. Entrepreneurship mindset was high in the sample for all countries—nearly all respondents across both genders achieved adequacy in this indicator (Table 6).

Next, we looked at access to information, which was measured by whether respondents received information on conducting business from any sources, including extension agents, radio messaging, ATCs, friends, and neighbours etc. Although most women in Ethiopia (86 percent) had access to information, we find it lower for women, both in Tanzania (52 percent) and Ghana (50 percent), relative to the male respondents in these countries (77 percent and 60 percent respectively).

We also asked respondents about their decision-making capabilities regarding utilising income from other sources, namely any other business, crop farming, livestock farming, wages, pensions, remittances etc. We found that most men and women in the sample scored high in terms of their control over other household incomes across all study areas.

Table 6. Percentage of respondents by other candidate indicators

Indicators	Tanzania			Ethiopia		Ghana		
	All	Women	Men	All	Women	All	Women	Men
Entrepreneurial mindset	99	100	97	95	95	100	100	100
Access to information	64	52	77	86	86	59	50	60
Control over other household income	79	71	87	76	76	82	50	85

Local environment influencing women's participation and empowerment

This section describes the local environment that potentially affects respondent's participation and empowerment in the livestock business, focusing on access to reliable sanitation, menstrual hygiene management (for women only), and sexual hostility in the working environment.

Table 7. Percentage of respondents by access to reliable sanitation

Indicators	Tanzania			Ethiopia		Ghana		
Access to reliable sanitation (at their normal place of work)	All	Women	Men	All	Women	All	Women	Men
Urination facility	100	100	100	85	85	59	0	65
Defecation facility	100	100	100	85	85	50	0	55
Hand washing facility	91	83	100	90	90	73	50	75
All three of the above	91	83	100	75	75	50	0	55

Access to reliable sanitation

We find varied results among the three countries with the respondents' access to a clean and safe place to urinate, defecate and wash their hands (Table 7) at their usual place of work. Both men and women in Tanzania reported having high access to proper sanitation facilities. All respondents reported having access to urination and defecation facilities, and more than 90 percent reported having access to hand washing facilities. Similarly, we find women in Ethiopia also having proper access to urination (85 percent), defecation (85 percent) and hand washing (90 percent) facilities. However, we find that access to urination and defecation facilities was noticeably higher for men than for women in Ghana. Overall, only 50 percent of all respondents had access to all three facilities in Ghana. These findings have implications for overall safety and hygiene of both the men and women participating in the livestock value chain.

Table 8. Percentage of respondents by menstrual hygiene management (women only)

Indicators	Tanzania	Ethiopia	Ghana
Menstruated in past 6 months	74	71	100
Among those who menstruated in the past 6 months			
Had an acceptable place to change cloth/pad at work	96	80	0
Had a place to dispose cloth/pad at work	52	80	0
Can acquire pad (as opposed to a reusable cloth)	92	67	100
Uses reusable cloths	7	0	0
Experiences pain while menstruating	58	64	50
Among those who experience pain			
Manages pain with medicine	40	0	0
Manages pain with hot water bottle	0	0	0
Manages pain by working less	0	22	0
Does nothing to manage pain	60	67	100

Other pain management	0	0	0
Missed work and social activities			
Never missed work because of inadequate facilities	85	93	100
Missed work 1-2 times because of inadequate facilities	8	7	0
Missed work 3-5 times because of inadequate facilities	4	0	0
Missed work >5 times because of inadequate facilities	4	0	0
Missed school or a social activity during last menstrual period	8	7	0

Menstrual hygiene management

Table 8 shows indicators highlighting overall menstrual hygiene management of female respondents in the three countries of study. Because of the negligible no. of sampled women in Ghana, we focus on the results of female respondents in Tanzania and Ethiopia only for this section.

Nearly 70 percent of the women in both countries reported having menstruated in the past six months, of which 96 percent in Tanzania and 80 percent in Ethiopia are found to have acceptable place to change pad at work. Additionally, most women in Ethiopia (80 percent) report having a place to dispose sanitary napkins, whereas only 52 percent in Tanzania report the same, which is likely to pose health hazards to women's menstrual hygiene if not addressed.

We also find that 64 percent of the women in Ethiopia and 58 percent in Tanzania reported that they experience some pain while menstruating. When asked about pain management, most women in Tanzania (60 percent) and Ethiopia (67 percent) report doing nothing to manage pain. While 40 percent in Tanzania report taking medicine, only 22 percent in Ethiopia report working less to manage pain. Finally, most women in both countries (85 percent in Tanzania and 93 percent in Ethiopia) report never missing work because of inadequate facilities. This finding is in line with most women reporting having acceptable place to change pad, described earlier in the table.

Table 9. Sexual hostility in the working environment (% of respondents)

Indicators	Tanzania			Ethiopia		Ghana		
	All	Women	Men	All	Women	All	Women	Men
Perceive that others like them in the community do not experience sexual hostility in their working environment	30	33	26	100	100	0	0	0

Sexual hostility in the working environment

Sexual hostility in the working environment is defined as experiencing any of the following: unwanted attempts to establish a romantic or sexual relationship; sexual touching without consent; feeling bribed to engage in sexual behaviour; sexual propositions; threats as retaliation for sexual non-cooperation; and others making sexually lewd comments as one walks past. Remarkably both male and female respondents in Ghana report of having no chances of sexual hostility in the working environment. However, responses vary in the other countries, where we find that all respondents in Ghana, both male and female, and 70 percent in Tanzania report

that others like them in the community had experienced some form of sexual hostility in their working environment (Table 9).

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