DLSU Business & Economics Review 33(1) 2023 p. 11–25

RESEARCH ARTICLE

Women's Empowerment and Gender Equality in Philippine Agriculture: The Role of Education and Public Policy

Agnes R. Quisumbing[1*]
Hazel J. Malapit[1]
[1]International Food Policy Research Institute, Washington DC, USA
a.quisumbing@cgiar.org

Abstract: This paper draws on previous work undertaken as part of the Gender, Agriculture, and Assets Project Phase Two (GAAP2), the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH), and the CGIAR Research Program on Policies, Institutions, and Markets (PIM). Funding support for this study was provided by the Millennium Challenge Corporation (MCC) [Grant number: MCC-16-GRA-0007], Bill & Melinda Gates Foundation (BMGF) [Grant number: INY-008977], and A4NH. This work would not be possible without the collaboration of the Philippines Compact Development Team (CDT), led by Josef Yap, who provided helpful comments at various stages of this research project. Celia Reyes and Lourdes Turiano from the CDT provided invaluable inputs in the development and piloting of the survey instrument. We would like to thank our field collaborators, Alan Feranil and his team at the University of San Carlos-Office of Population Studies who collected the quantitative and qualitative data for the Visayas study sites; and Prudenciano Gordoncillo and his team at the University of the Philippines, Los Baños, who collected the quantitative data in the Bicol study sites. We acknowledge our coauthors in the larger study, Catherine Ragasa, Elena M. Martinez, Deborah Rubin, and Greg Seymour, for their contributions, and Simone Faas for research support. The opinions expressed here belong to the authors, and do not necessarily reflect those of A4NH, BMGF, CDT, CGIAR, IFPRI, or MCC.

Keywords: women's empowerment, gender equality, agriculture, Philippines

JEL Classification: O13, O15, Q12

Introduction[1]

The Philippines has long been known for high achievements in gender equality, but its standing has fallen in recent years from being ranked 8th globally in 2018 to 19th in 2022 (WEF 2022). Although women have held major political positions, are prominent in the business community, and have equal property rights under the law, women's labor force participation has been persistently low over the past three decades despite considerable economic growth (World Bank, 2021). The World Bank (2021) reports that the country's female labor force participation in 2019 at 49 percent was one of the lowest in the East Asia and Pacific region, while the gender gap in labor force participation was the second-highest after Indonesia. Nevertheless, internationally validated measures

of women's empowerment in agriculture that we developed (Malapit et al., 2019), when applied to the Philippines, find relatively few differences between men and women in most indicators of empowerment; yet a substantial proportion of both men and women in agriculture are disempowered, albeit in different ways. Moreover, wage discrimination is pervasive and persistent in the agricultural labor market (Valientes, 2015), and Briones (2019) shows a wage bias against women (a wage difference for the same activity) at 21 percent. Overall, while Filipino culture is relatively egalitarian, gendered stereotypes persist in households and workspaces (Malapit et al., 2020).

This special issue in honor of Tereso S. Tullao, Jr., a cherished friend and mentor who introduced one of us (Agnes) to economics, provides us the opportunity to reflect on the role of education and public policy in the context of women's empowerment and gender equality in Philippine agriculture. We revisit some of our findings on women's and men's empowerment in four agricultural value chains (VCs) (Malapit et al., 2020), focusing on education, extension services, and community programs as possible vehicles for empowerment. These factors potentially affecting women's and men's empowerment can be influenced by public policy. Because group-based programs have gained popularity as a way both to empower women and to deliver services, we also investigate women's and men's participation in groups. Additionally, the "double burden" of productive and reproductive work may also be an important constraint, particularly for women who take on the major share of domestic and care work both worldwide and in the Philippines. Thus, we also examine women's and men's workload to uncover some of the more deeply rooted constraints to women's and men's empowerment and offer suggestions for public policy.

Background of the study

We undertook this study with colleagues from the University of the Philippines at Los Baños and the Office of Population Studies, University of the Philippines. Originally commissioned by the Millennium Challenge Corporation, this study aimed to provide diagnostics to inform a large government program to develop and promote greater inclusion in the abaca, coconut, seaweed, and swine value chains, commodities with high potential for growth. The survey data were collected from March to August 2017, using a purposive sampling design focusing on top-producing provinces and villages in the Bicol and Visayas regions of the Philippines to ensure sufficient respondents for each value chain and node (see Figure 1 and Malapit et al., 2020 for details). The target sample size for each province-commodity group was 200 households, totaling 400 households per commodity, and 1,600 households for the entire survey; in practice, 1,264 households and 2,811 individuals were interviewed.

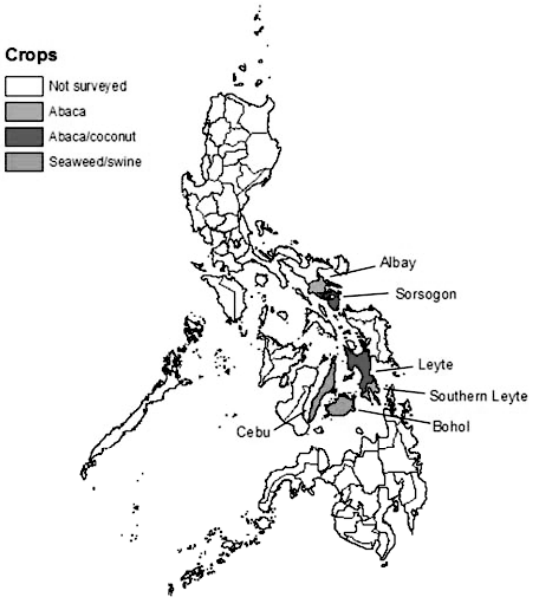


Figure 1. *Map of provinces and value chains surveyed*

A brief formative qualitative study was conducted to inform the study design and identify key areas of inquiry related to empowerment and gender norms. After the survey was completed, more in-depth qualitative data were collected from September to December 2017 to provide insights into some of the key results and patterns emerging from the pro-WEAI+MI analysis. The second round of qualitative work drew on qualitative protocols developed for pro-WEAI in combination with gender and agricultural value chain approaches (Rubin et al., 2009; Meinzen-Dick et al., 2019) to address specific concerns related to participation and benefits at different nodes of the coconut and seaweed value chains. Interviews were conducted with a subset of male and female respondents from the quantitative survey. See Malapit et al. (2020) for details.

Although the planned investment did not materialize, the data allowed us to examine the correlates of women's and men's empowerment in these value chains and to develop a new metric to measure women's empowerment in market inclusion, the project-level Women's Empowerment in Agriculture Index for Market Inclusion (pro-WEAI+MI), one of the WEAI family of indicators.

Women's empowerment metrics

Pro-WEAI+MI is based on the WEAI, an internationally recognized approach for measuring women's empowerment in the context of agricultural production, originally developed by the International Food Policy Research Institute (IFPRI), the Oxford Poverty and Human Development Initiative (OPHI), and the United States Agency for International Development (USAID) (Alkire et al., 2013). In response to demands from implementers and other partners, the WEAI was adapted to suit the needs of various types of agricultural development projects, leading to the development of the project-level WEAI, or pro-WEAI (Malapit et al., 2019).

The pro-WEAI includes 12 indicators mapped to three domains reflecting three different types of agency: intrinsic agency (power within); instrumental agency (power to); and collective agency (power with). An individual is deemed adequate on a given indicator if they meet a certain threshold (see Malapit et al., 2020 for definitions of the indicators) and is defined as empowered if they have adequate achievements in 9 out of the 12 indicators. The pro-WEAI consists of two sub-indices: the Three Domains of Empowerment, or 3DE, which measures men's and women's performance on the 12 indicators; and the Gender Parity Index, or GPI, which captures women's achievements in the three domains relative to those of the man in the same household. The latter is only calculated for households with both men and women respondents (dual-headed households or DHHs). In addition to the quantitative measures, the pro-WEAI also includes qualitative tools to help projects understand local definitions of empowerment.

Indicators of **intrinsic agency** include autonomy in income, attitudes about gender-based violence (GBV), and respect among household members; indicators of **instrumental agency** include input in productive decisions, ownership of land and other assets, control over use of income, access to and decisions on financial services, and work balance; indicators of **collective agency** include group membership and membership in influential groups. Two pro-WEAI indicators, self-efficacy (intrinsic agency) and visiting important locations (instrumental agency), were excluded from our survey. When this survey was designed, self-efficacy was not a required indicator for pro-WEAI and was excluded to shorten the questionnaire and minimize survey costs. Visiting important locations was excluded because constraints on mobility were not deemed important by our local partners, given Filipino women's greater freedom of movement compared to that of South Asian countries where pro-WEAI has been collected. Table 1 provides the domains and indicators comprising pro-WEAI.

Empirical specification

We use regression analysis to examine the factors associated with different empowerment outcomes at the individual and household level. At the individual level, we are concerned with empowerment of individuals *i (Empowerment)*; at the household level, we analyze the difference between empowerment outcomes of the primary man and woman, which we broadly define as intrahousehold inequality of household *j (Intrahousehold Inequality)* (for dual-headed households only).

Table 1. *Pro-WEAI domains and indicators*

Domain	Indicator	Collected in Philippines survey?	Weights
Intrinsic agency (power with)	Autonomy in income	Yes	1/10
	Self-efficacy	No	
	Attitudes about gender-based violence against women	Yes	1/10
	Respect among household members	Yes	1/10
Instrumental agency (power to)	Input in productive decisions	Yes	1/10
	Ownership of land and other assets	Yes	1/10
	Access to and decisions on financial services	Yes	1/10
	Control over use of income	Yes	1/10
	Work balance	Yes	1/10
	Visiting important locations	No	
Collective agency (power with)	Group membership		
	Membership in influential groups	Yes	1/10

Source: Adapted from Malapit et al. (2019)

Individual regressions

We analyze correlates of individual empowerment:

$$Empowerment_i = \boldsymbol{\beta}'_{ind}\boldsymbol{X}_i + \varepsilon_i \quad (1)$$

Where $\boldsymbol{X}_i$ are individual- and household-level factors explaining *Empowerment;* $\boldsymbol{\beta}'_{ind}$ is a vector of coefficients to be estimated; and ε_i are error terms to be estimated. Individual-level regressions are estimated separately for women and men. We use two indicators of overall empowerment: (1) whether the individual is empowered or not (a binary variable, 0/1); and (2) empowerment score based on 3DE (continuous variable, from 0 to 1). We use an identical specification for analyzing the correlates of group membership and workload.

Household-level regressions

We also analyze the correlates of intrahousehold inequality, measured at the household level:

$$Intrahousehold\ Inequality_j = \boldsymbol{\beta}'_{hh}\boldsymbol{Z}_j + \varepsilon_j \quad (2)$$

Where $\boldsymbol{Z}_j$ are household-level factors explaining *Intrahousehold Inequality*, which differ slightly across study sites; $\boldsymbol{\beta}'_{hh}$ are coefficients to be estimated; and are error terms to be estimated. Household-level regressions are estimated for dual-headed households only.

We measure intrahousehold inequality as the difference between men's and women's empowerment scores (a continuous variable, from -1 to 1). A positive inequality score means that men are more empowered than women in the household, while a negative inequality score means that women are more empowered than men in the household. If gender equality is a desired outcome, the interpretation of regression coefficients using a continuous intrahousehold inequality variable would be ambiguous. To avoid this, we construct a categorical variable defined as: (i) whether the man is more empowered than the woman; (ii) whether the woman is more empowered than the man; or (iii) whether the man and woman achieve similar levels of empowerment. Using multinomial logit regressions, we estimate the likelihood that a man (or woman) is more empowered, relative to the excluded category where the man and woman are equally empowered.

Descriptives and empowerment results

Table 2 presents descriptive statistics on our sample respondents. Because our samples were drawn purposively for a value chain study, these results should not be interpreted as representative of the empowerment status of women and men in the Philippines.

Table 2. *Characteristics of women and men respondents, Philippines*

	Philippines	
	Women	**Men**
Number of observations	1606	1183
Age	49.0	49.8
Years of schooling	6.7	5.6
Household size	4.6	4.8
Marital status (% married)	74.2	86.6
Lives in dual-headed household (%)	78.6	100.0
Lives in woman-only household (%)	21.4	n/a

Notes: n/a: not applicable

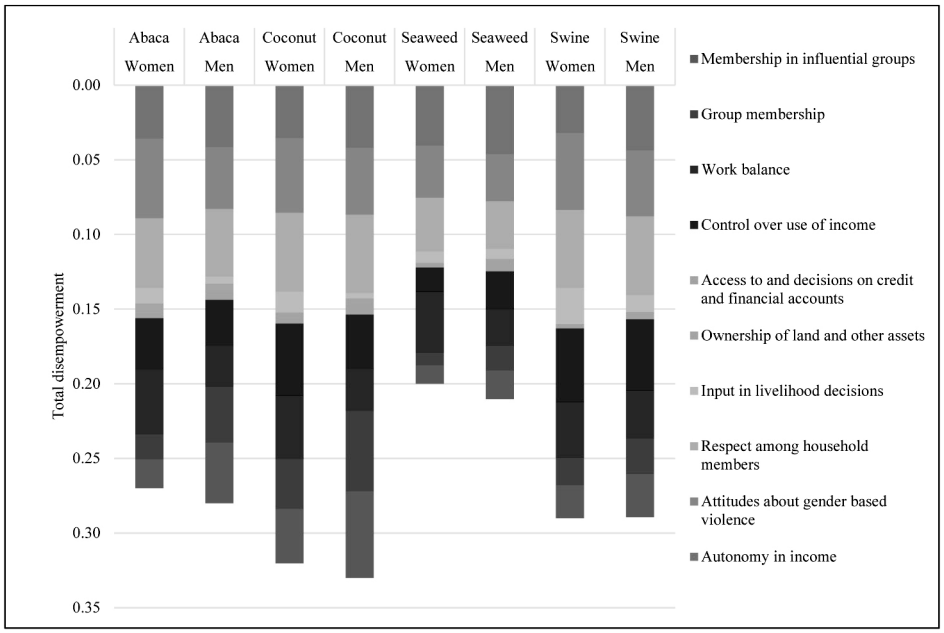
Women respondents in the Philippines are slightly younger than men, but they complete more years of schooling. Most of our respondents are married and live in dual-adult households, although about a fifth live in woman-only households (households with only one female adult).

Table 3 shows the 3DE score, the GPI, and the pro-WEAI score. Unlike many of the countries where we have similar data, women's 3DE scores in the Philippines are equal to men's, that is, Filipino women in this sample are generally as empowered as men. However, a large proportion of both men and women, 67%, are disempowered in agriculture. Sixty-five percent of households achieve gender parity (meaning the woman is empowered or her empowerment score is greater than or equal to the empowerment score of the male decision maker in her household). Interestingly, women are more empowered than men in 21 percent of our sample households; and in 20 percent of households, men are more empowered.

Figure 2 decomposes the factors contributing to disempowerment of both women and men. The decomposition suggests that respect within the household and attitudes about gender-based violence

Table 3. *Empowerment status, average empowerment scores, and gender parity, Philippines*

	Philippines	
	Women	**Men**
Number of observations	1461	1061
3DE Score	0.73	0.73
Disempowerment score (1-3DE)	0.27	0.27
% achieving empowerment	33	33
% not achieving empowerment	67	67
Mean adequacy score for not yet empowered	0.60	0.59
Mean disempowerment score (1-adequacy) for not yet empowered	0.40	0.41
Number of dual-adult households	1061	
Gender parity index (GPI)	0.92	
% achieving gender parity	65	
% not achieving gender parity	35	
Average empowerment gap	0.23	
Pro-WEAI score	0.75	
Households in which man is more empowered (% of total)	20	
Households in which woman is more empowered (% of total)	21	



Source: Malapit et al. (2020)

Figure 2. *Sources of men's and women's disempowerment in four Philippine value chains.*

are the largest sources of disempowerment for both women and men, followed by control over use of income and autonomy in income-related decisions. Excessive workload and lack of group membership are other important sources of disempowerment, with some variation across VCs and nodes along VCs. It is notable that the most important factors contributing to disempowerment in the Philippines are those related to intrinsic agency, some of the most difficult areas to affect because they are deeply rooted in socio-cultural norms.

Correlates of empowerment

We present regression results on the correlates of empowerment in Table 4. These represent factors associated with women's and men's empowerment and should not be interpreted as causal.

Individual empowerment

Individual and household characteristics play an important role in women's and men's empowerment. Empowerment of both genders is positively associated with education, age, being married, access to extension services, and access to community programs and projects, but some correlates of men's and women's empowerment differ. No statistical difference exists between men's and women's empowerment scores and between women in dual-adult households (DHH) and in woman-only households (WOH). Older women have higher empowerment scores, indicative of the respect that Filipino society pays to elders.

Although education increases empowerment scores of both men and women, higher educational attainment (measured using years of schooling) is more strongly associated with men's rather than women's empowerment. Interestingly, there is no strong relationship with household wealth; a woman is more likely to be empowered if she belongs to the top wealth quintile, but none of the other wealth categories are significant.

We see strong positive associations of access to extension services with both women's and men's empowerment. Access to extension services is weak, with only about 26 to 44 percent of women and men reporting having access. Like education, access to extension services seems to have a stronger correlation with men's rather than women's empowerment. Access to extension services is associated with increased likelihood of men being empowered by 12 percent and a 7 percent increase in their empowerment score; and of women being empowered by 5 percent and a 4 percent increase in their empowerment score.

Table 4. *Correlates of women's and men's empowerment, Philippines*

	Whether empowered (=1)[a]		Empowerment score (continuous)[b]	
	Women	**Men**	**Women**	**Men**
Individual and household characteristics				
Respondent is in a woman-only household (WOH)	-0.022		0.003	
	(0.039)		(0.011)	
Highest educational level of respondent	0.013*	0.024***	0.090**	0.135***
	(0.007)	(0.008)	(0.038)	(0.041)
Married (=1)	0.067*	0.065	0.081**	0.122**
	(0.036)	(0.045)	(0.036)	(0.052)
Age of respondent (years)	0.001	0.001	0.118*	0.157*
	(0.001)	(0.001)	(0.070)	(0.091)
Access to extension (=1)	0.050*	0.123***	0.039***	0.074***
	(0.027)	(0.032)	(0.013)	(0.017)
Access to community programs (=1)	0.060*	0.045	0.133***	0.128***
	(0.031)	(0.035)	(0.031)	(0.033)
Asset/wealth quintile[†] (reference=poorest)				
Quintile 2	-0.013	-0.070	-0.013	0.003
	(0.041)	(0.045)	(0.011)	(0.013)
Quintile 3	0.040	-0.014	-0.001	0.007
	(0.043)	(0.049)	(0.011)	(0.013)
Quintile 4	0.043	-0.050	0.006	0.001
	(0.043)	(0.048)	(0.011)	(0.013)
Quintile 5	0.094**	0.013	0.003	-0.003
	(0.046)	(0.053)	(0.012)	(0.013)
Participation in market activities and value chains				
Participates in non-farm activities (=1)	-0.001	0.004	0.004	-0.014
	(0.027)	(0.034)	(0.012)	(0.014)
Participates in wage employment (=1)	0.008	-0.077**	0.001	-0.036*
	(0.029)	(0.031)	(0.011)	(0.019)
VC main activity (reference=production)				
Processing	-0.043	0.010	-0.023**	-0.013
	(0.029)	(0.035)	(0.011)	(0.014)
Trading	-0.006	-0.082**	-0.002	-0.009
	(0.035)	(0.041)	(0.009)	(0.010)
Main VC (reference=seaweed)				
Abaca	-0.076**	-0.099**	-0.037***	-0.053***
	(0.035)	(0.040)	(0.013)	(0.016)
Coconut	-0.138***	-0.212***	-0.081***	-0.085***
	(0.034)	(0.037)	(0.012)	(0.016)
Swine	-0.134***	-0.140***	-0.057***	-0.046***
	(0.034)	(0.041)	(0.013)	(0.015)
Observations	**1410**	**1041**	**1410**	**1041**
Pseudo R-squared	**0.037**	**0.064**	**0.13**	**0.11**

Source: Adapted from Malapit et al. (2020) [a]Estimated using logit regression [b]Estimated using fractional regression.
Regressors also include dummy variables for wealth quintiles. Marginal effects reported, standard errors in parentheses. (=1) represents dummy variables, and coefficients denote the effect of a discrete change in the dummy variable from 0 to 1. Estimates using municipality and province fixed effects were largely consistent. Asset index was calculated using principal components analysis based on: roof material, floor material, people per sleeping room, state of dwelling, type of toilet, source of water and drinking water, electricity, source of cooking fuel; and ownership of land, boats, fishponds, farm equipment, business equipment, consumer durables, cell phones, houses, and means of transportation.
* p<0.05, ** p<0.01, *** p<0.001.

Community programs and projects are common in the study sites; and at least three-quarters of women and men reported accessing and participating in community programs or projects. The main program is the conditional cash transfer program (*Pantawid Pamilyang Pilipino Program*, 4P), to which the majority of VC participants have access. In contrast to the results for extension services, greater access to community programs is associated with greater empowerment among women, but not for men, for whom the association is insignificant.

Participation in groups

Group-based programs have been viewed as a vehicle for women's empowerment worldwide. Understanding what factors are associated with people's participation in groups is important if such groups are used as platforms for service delivery. Interestingly, we do not find that participation in groups is affected by educational level. Both access to extension services and access to community programs are positively correlated with the number of types of groups in which both men and women participate, consistent with the qualitative finding that group members are more likely to benefit from local government programs. Similar to the results for empowerment, extension programs have a stronger association with the number of groups to which men belong; whereas access to community services has a larger association with the number of types of groups to which women belong. This may reflect the types of programs that are channeled through associations and cooperatives in which men and women are more likely to participate. For example, the qualitative findings from the seaweed and coconut value chains report that men's groups are often focused on production, harvesting and other physically demanding tasks that women are not expected to perform; whereas women's groups are often composed of mothers that are organized by social welfare programs focused on livelihood activities. For women, the number of types of groups to which they belong decreases with wealth, possibly indicating pro-poor targeting of group-based programs. Participation in non-farm activities and wage employment increases the number of types of groups in which women participate; but only wage employment increases the number of types of groups in which men participate.

Workload

Consistent with the definitions used by the WEAI (Alkire et al., 2013) and pro-WEAI (Malapit et al., 2019), we define workload as the number of hours spent in productive activities plus one-half the number of hours spent in childcare. Unlike women's workload, which has a negative but insignificant association with educational level, men's workload has a significant negative association with education. This may imply that better educated men are able to enjoy more leisure but better educated women do not; that is, women continue to bear the double burden of productive and reproductive work regardless of educational level. Neither access to community programs nor access to extension services affects men's workload, although there is a weakly significant positive association between women's workload and access to community programs. This may reflect the tendency to rely on women as community leaders or as unpaid volunteers. The qualitative findings also confirm that women often attend group meetings in place of their husbands if the latter are busy with work, or are occupied with vices (Feranil and Avila, 2018). Associations with wealth appear to be different for men and women: men in the second and third quintiles appear to have less workload compared to the excluded category, the lowest wealth quintile; while women in the upper two quintiles have less workload. Finally, participation in nonfarm activities is positively associated with a higher workload for women, and participation in both nonfarm activities and wage employment is associated with a higher workload for men.

Intrahousehold inequality

Table 6 presents regressions on the correlates of intrahousehold inequality measures in the Philippine sample. The first regression examines the probability that the household achieves gender parity (the woman is at least as empowered as the man). A household is likely to achieve gender parity if the woman is more educated, the woman has access to extension services, and the man participated in nonfarm activities and wage employment (coefficients on men's participation in nonfarm activities and wage employment are only weakly significant). Women's access to community programs is associated with a lower likelihood of achieving parity. Interestingly, men's participation in trading is associated with a lower likelihood of achieving gender parity; whereas

Table 5. *Correlates of individuals' collective agency indicators and workload*

	Number of types of groups to which person belongs[a]		Workload[b]	
	Women	**Men**	**Women**	**Men**
Respondent is in a woman-only household (WOH)	-0.002		-0.019	
	(0.059)		(0.324)	
Highest educational level of respondent	-0.016	0.025	-0.147	-0.416***
	(0.021)	(0.027)	(0.118)	(0.126)
Married (=1)	0.195***	0.236**	0.099	0.565
	(0.057)	(0.094)	(0.305)	(0.359)
Age of respondent (years)	-0.000	0.005*	-0.096***	-0.044***
	(0.002)	(0.002)	(0.009)	(0.011)
Access to extension services (=1)	0.318***	0.482***	0.001	0.256
	(0.039)	(0.055)	(0.228)	(0.253)
Access to community programs (=1)	0.329***	0.286***	0.469*	0.139
	(0.054)	(0.067)	(0.263)	(0.277)
Quintile 2	-0.166***	0.009	-0.426	-0.712*
	(0.060)	(0.086)	(0.338)	(0.367)
Quintile 3	-0.183***	0.007	-0.013	-0.748*
	(0.060)	(0.089)	(0.345)	(0.388)
Quintile 4	-0.134**	0.025	-0.616*	-0.382
	(0.061)	(0.088)	(0.350)	(0.390)
Quintile 5	-0.352***	-0.143	-0.730**	-0.508
	(0.065)	(0.095)	(0.362)	(0.413)
Participates in non-farm activities (=1)	0.133***	0.017	1.105***	1.174***
	(0.040)	(0.058)	(0.230)	(0.267)
Participates in wage employment (=1)	0.233***	0.142**	0.116	1.278***
	(0.040)	(0.055)	(0.241)	(0.251)
VC main activity (reference=production)				
Processing	0.052	-0.028	0.551**	-0.065
	(0.044)	(0.063)	(0.249)	(0.274)
Trading	-0.009	0.071	0.412	0.828**
	(0.053)	(0.072)	(0.301)	(0.343)
Main VC (reference=seaweed)				
Abaca	-0.269***	-0.362***	-0.056	-0.791**
	(0.054)	(0.076)	(0.316)	(0.353)
Coconut	-0.551***	-0.745***	-0.339	-0.899**
	(0.061)	(0.090)	(0.327)	(0.371)
Swine	-0.052	0.081	-1.790***	-1.193***
	(0.052)	(0.074)	(0.320)	(0.373)
Observations	**1560**	**1170**	**1560**	**1168**
Pseudo R-squared	**0.073**	**0.084**		

[a]Estimated using poisson regression [b]Estimated using OLS regression.
Regressors also include dummy variables for wealth quintiles. Marginal effects reported, standard errors in parentheses. (=1) represents dummy variables,and coefficients denote the effect of a discrete change in the dummy variable from 0 to 1. Estimates using municipality and province fixed effects were largely consistent. Asset index was calculated using principal components analysis based on: roof material, floor material, people per sleeping room, state of dwelling, type of toilet, source of water and drinking water, electricity, source of cooking fuel; and ownership of land, boats, fishponds, farm equipment, business equipment, consumer durables, cell phones, houses, and means of transportation. * p<0.05, ** p<0.01, *** p<0.001.

Table 6. *Correlates of intrahousehold measures of empowerment, (dual-adult households only), Philippines*

	Whether gender parity is achieved (=1) [a]	Whether man is more empowered (=1)[b]	Whether woman is more empowered (=1)[b]
Individual and household characteristics			
Household size	0.003	-0.027	-0.034
	(0.006)	(0.040)	(0.039)
Highest educational level of man respondent	-0.008	0.034	-0.092*
	(0.008)	(0.050)	(0.051)
Highest educational level of woman respondent	0.015*	-0.088*	0.012
	(0.008)	(0.053)	(0.050)
Age of man respondent (years)	-0.002	0.012	-0.014
	(0.002)	(0.012)	(0.011)
Age of woman respondent (years)	0.003*	-0.020*	-0.004
	(0.002)	(0.012)	(0.011)
Man respondent has access to extension services (=1)	-0.066**	0.281*	-0.521***
	(0.027)	(0.167)	(0.176)
Woman respondent has access to extension services (=1)	0.052**	-0.320*	0.095
	(0.025)	(0.177)	(0.171)
Man respondent has access to community programs (=1)	0.030	-0.268	-0.322*
	(0.030)	(0.188)	(0.180)
Woman respondent has access to community programs (=1)	-0.063**	0.400*	-0.143
	(0.028)	(0.213)	(0.199)
Household asset quintile (reference=poorest)			
Asset quintile 2	-0.025	0.174	0.097
	(0.039)	(0.249)	(0.237)
Asset quintile 3	-0.064	0.466*	0.306
	(0.043)	(0.258)	(0.249)
Asset quintile 4	-0.043	0.287	0.109
	(0.042)	(0.264)	(0.257)
Asset quintile 5 (richest)	-0.027	0.131	-0.133
	(0.045)	(0.283)	(0.278)
Participation in markets and value chains			
Man respondent participated in non-farm activities (=1)	0.058*	-0.430*	-0.097
	(0.034)	(0.243)	(0.230)
Woman respondent participated in non-farm activities (=1)	-0.013	0.183	0.291
	(0.035)	(0.230)	(0.221)
Man respondent participated in wage employment (=1)	0.046*	-0.372**	-0.259
	(0.025)	(0.170)	(0.166)
Woman respondent participated in wage employment (=1)	0.038	-0.217	0.071
	(0.027)	(0.190)	(0.176)

Table 6 continue...

	Whether gender parity is achieved (=1) [a]	Whether man is more empowered (=1)[b]	Whether woman is more empowered (=1)[b]
Man's participation in different nodes of the VC (reference=production)			
Processing	0.032	-0.358	-0.564
	(0.070)	(0.599)	(0.550)
Trading	-0.269**	1.416**	0.049
	(0.126)	(0.629)	(0.584)
Woman's participation in different nodes of the VC (reference=production)			
Processing	-0.039	0.352	0.399
	(0.077)	(0.599)	(0.551)
Trading	0.181***	-1.517**	-0.164
	(0.053)	(0.634)	(0.574)
Main VC (reference=seaweed)			
Abaca	-0.051	0.374*	0.283
	(0.036)	(0.222)	(0.220)
Coconut	0.021	-0.143	-0.008
	(0.035)	(0.243)	(0.236)
Swine	-0.045	0.278	0.019
	(0.038)	(0.237)	(0.233)
Observations (total number of households)	**1134**	**1134**	
Households in which empowerment scores are equal (% of total)	664 (58.6)		
Households in which man is more empowered (% of total)		230 (20.2)	
Households in which woman is more empowered (% of total)			240 (21.2)
Pseudo R-squared	**0.036**	**0.036**	

Source: Adapted from Malapit et al. (2020).

[a]Gender parity is defined as the woman being equally or more empowered than the main man in the household; estimated using logistic regression.

[b]Estimated using multinomial logit, with base defined as households where woman and man are equally empowered. Marginal effects reported, standard errors in parentheses. (=1) represents dummy variables, and coefficients denote the effect of a discrete change in the dummy variable from 0 to 1. Regressions also include wealth quintiles.

* p<0.10, ** p<0.05, ***p<0.01. p<0.01.

women's participation in trading is associated with a higher likelihood of achieving parity. Because intrahousehold inequality can result from women or men having higher empowerment scores than the other, we unpack this through multinomial logit regressions, to examine the likelihoods of the man (woman) being more empowered relative to the excluded category, where they are similarly empowered.

Regression results show that age and education have marginal effects that are small in magnitude. A household with an older woman respondent is marginally more likely to achieve gender parity; the negative effect of a woman's age on the likelihood that the man is more empowered, while significant, is small. Higher education levels of men are associated with a lower probability that the woman is empowered, but these do not affect whether the household achieves gender parity. In contrast, the highest educational level of the woman respondent is associated with achieving gender parity, but her highest educational level is associated with a lower likelihood that the man is empowered. The marginal effects of men's and women's participation and access to public services and different types of employment show opposite signs, which suggests offsetting associations between men's and women's access to services and achieving greater equality. Men's access to extension services increases the likelihood that the man is more empowered by 6.5 percent (and lowers the likelihood that the woman is more empowered by 9.6 percent), and is correlated with greater likelihood of inequality. Women's access to extension services is associated with a 5.4 percent reduced likelihood that the man is more empowered, and therefore greater likelihood that men and women are equally empowered. Surprisingly, women's own access to community programs is associated with a 6.9 percent increased likelihood that the man is more empowered; whereas men's access to community programs does not appear to be significantly associated with men themselves being more empowered. However, men's access to community programs is weakly associated with a lower likelihood that women are more empowered. If extension services and community programs are targeted to specific individuals but run the risk of worsening gender inequality and disempowering their partners, this may limit households' participation in these programs, compared to programs that could potentially empower both men and women.

Conclusions and policy implications

Table 7 summarizes our key results across the variables of interest: education, access to extension services, and access to community programs. The cells are shaded differently to indicate the relative strength of the associations between the aforementioned variables on women's and men's empowerment outcomes. Education, access to extension services, and access to community programs have differential associations with women's and men's empowerment outcomes in terms of the magnitude, but not the direction, of the association. While education has a positive association with both women's and men's probability of being empowered and the empowerment score, the magnitude of the association is larger for men. Although earlier studies in similar contexts (e.g., Samarakoon and Parinduri, 2015 for Indonesia) point to the positive association between education and women's empowerment, the weaker correlation of education to women's empowerment is likely attributable to the higher proportion of women who have completed secondary schooling or higher compared to men, which is not unusual in the Philippines.

Education does not appear to be correlated with the number of types of groups to which women and men belong, indicating that lack of education is not a barrier to group membership. Interestingly, education is not associated with women's workload, but is negatively associated with men's. This implies that better educated men can reduce their workload, possibly by hiring substitutes such as domestic workers, but better educated women cannot. Because our workload measure includes both productive and reproductive work, this implies that women continue to bear the double burden of work within and outside the home. This is consistent with other time use studies conducted in the Philippines, particularly in the Visayas (where most of this sample is from). Floro and Poyatzis (2019) find, for example, that women, in general, spend more time in housework and care work; and that more educated individuals, regardless of sex, spend more time in care work, reflecting the recognized importance of care in the well-being of dependent members.

Access to extension services appears to favor men in the Philippines. Although it is positively associated with women's empowerment outcomes and group membership, the magnitude of the association is also larger for men. This suggests that extension messaging

from the Department of Agriculture may need to be reviewed so that it does not exclude women or perpetuate gender stereotypes about involvement in agriculture. Access to extension services does not appear to be correlated to workload of either women or men.

In contrast to extension services, women's empowerment indicators appear to be more responsive to access to community programs than men's empowerment indicators. This holds for whether the woman is empowered and the number of types of groups to which women belong. However, women's workload is also (weakly) positively correlated to participation in community programs, which may imply that the costs of such participation is borne by women.

Table 8 summarizes the role of men's and women's own schooling, access to extension services, and access to community programs on indicators of gender equality. Women's education and access to extension services are associated with achieving gender parity; but women's access to community services has a negative correlation with achieving gender equality. Men's access to extension services decreases the likelihood of achieving gender parity and is associated with a higher probability that men are empowered. While access to community programs do not appear to be correlated with the likelihood of gender parity

Table 7. *Summary of key findings on empowerment outcomes*

	Whether empowered		Empowerment score		Group membership		Workload	
	Women	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**
Highest educational level of respondent	+	+	+	+	n.s.	n.s.	n.s.	_
Access to extension services	+	+	+	+	+	+	n.s.	n.s.
Access to community programs	+	n.s.	+	+	+	+	+	n.s.

Note: Summary of results from Tables 4-5. Legend: White = statistically insignificant; Light Gray = significant at the 5-10% level; Dark Gray = significant at the 1% level.

Table 8. *Summary of key findings on gender equality outcomes*

	Gender parity achieved	**Man more empowered**	**Woman more empowered**
Highest educational level, man	n.s.	n.s.	_
Highest educational attainment, woman	+	-	n.s.
Access to extension, man	-	+	-
Access to extension, woman	+	-	n.s.
Access to community programs, man	n.s.	n.s.	-
Access to community programs, woman	-	+	n.s.

Note: Summary of results from Table 6. Legend: White = statistically insignificant; Light Gray = significant at the 5-10% level; Dark Gray = significant at the 1% level.

being achieved nor of the man being more empowered, it is associated with a lower likelihood that the woman is more empowered. Finally, a woman's access to community programs is surprisingly related negatively to gender parity being achieved, and positively to the man being empowered. The last result might be related to women often attending community meetings in their husband's stead, which has negative implications for their own workload, but may result in benefits accruing to their husbands.

Our qualitative findings confirm that in the Philippines, the local governments use organized groups like farmer associations and cooperatives to provide assistance for farming inputs and other livelihood projects (Feranil and Avila, 2018; Malapit et al., 2017). However, other studies in the Philippines find that, while men and women have equal propensities to participate in groups, the types of groups that they join are different (Godquin and Quisumbing, 2008). Men are more likely to be members of production groups, while women are more likely to participate in civic groups. This may indicate a division of labor within the household or separate spheres of decision-making. Men, who are more heavily involved in agricultural production, are indeed more involved in groups related to income generation; whereas women, who tend to be engaged in non-agriculture and are largely responsible for maintaining social networks, are more involved in civic and religious groups. Moreover, although both women and men can join groups in the community, a heavy workload can limit an individual's ability to attend group meetings (Feranil and Avila, 2018).

Our qualitative work also highlights the importance that both women and men place on education. Most interviewees, regardless of gender, upheld the value of college education, since education is valued highly in Filipino society and considered as a legacy parents can pass on to their children and as a vehicle for social mobility (Medina, 2015). All the informants valued education and perceived it as a means to have a job, a good future, and better life opportunities. Yet the careers that respondents desired for their children clearly aligned with established gender roles. For example, the desired careers for women were in traditional care-giving roles like teaching or nursing, or roles that would permit daughters to take care of their families or their aging parents.

Education alone may not improve outcomes that require transformation of gender relations, including a more equitable sharing of workload within the family. Even if education has been shown to increase women's bargaining power within their households in many contexts, and may be empowering for individuals themselves, it may be insufficient to change deeply rooted societal attitudes. The 2021 Women, Work, and Childcare survey found that women tend to replicate their childhood parental model in organizing their family-work life when there is a child under school age (World Bank, 2021). The gender-stereotypical careers that respondents identified for their children indicate that parents, regardless of gender, still subscribe to traditional gender roles.

Social norms may limit Filipino women's movement into the labor force in general and into more empowering jobs in particular. Results from the 2021 Women Work and Childcare survey reveal that women's reluctance to join the labor force seem to be based on beliefs about the role of women in the household, as well as the belief that mothers working outside the home can negatively affect children (World Bank, 2021).

Malapit et al. (2020) find that many deeply rooted and structural gender and social norms cut across value chains and locations. They suggest increasing gender awareness in communities, targeting both women and men. Incorporating gender awareness in schools, starting in primary school, may help change attitudes of the young. Other literature in South Asia also points to media campaigns, behavior change communication (particularly in tandem with social protection programs; see Roy et al., 2018), and attitude change interventions as possible solutions to shifting cultural norms about women's work and to narrowing gender gaps in the labor market (World Bank, 2021, citing Jayachandran, 2021). As is the case with policy interventions, it is important to be aware of the potential of asymmetric impacts and unforeseen consequences, such as backlash against women, so that interventions and policies attempting to promote gender equality achieve their intended goals.

Note

1 This paper draws heavily on our previous work on women's empowerment in value chains in the Philippines (Malapit et al. 2020) and in food systems (Quisumbing et al. 2021).

References

Alkire, S., Meinzen-Dick, R., Peterman, A., Quisumbing, A., Seymour, G., and Vaz, A. (2013). The Women's Empowerment in Agriculture Index. *World Development, 52*(December): 71–91. https://doi.org/10.1016/j.worlddev.2013.06.007.

Briones, R.M. (2019). The Wage Gap Between Male and Female Agricultural Workers. In *Outside Looking In: Gendered Perspectives in Work and Education* (pp. 109–136). Philippine Institute for Development Studies (PIDS), Quezon City, Philippines.

Feranil, A., and Avila J. (2018). Qualitative Research on Women's Empowerment and Participation in Agricultural Value Chains in the Philippines: Major Findings and Insights. Unpublished report prepared by the University of San Carlos-Office of Population Studies, Cebu, Philippines.

Floro, M. S., and G. Poyatzis. (2019). Climate change, natural disasters, and the spillover effects on unpaid care: The case of Super-typhoon Haiyan. In Christine Bauhardt and Wendy Harcourt. *Feminist Political Ecology and the Economics of Care: In search of economic alternatives* (pp. 70-98). London and New York: Routledge.

Godquin, M., and Quisumbing, A. (2008). Separate but equal? The gendered nature of social capital in rural Philippine communities. *Journal of International Development*, *20*(1), 13–33.

Jayachandran, S. (2021). Social Norms as a Barrier to Women's Employment in Developing Countries. *IMF Economic Review*,, September, *69*(3), 576–595. Palgrave Macmillan; International Monetary Fund.

Malapit, H.J., Ragasa, C., Martinez, E. M., Rubin, D., Seymour, G., and Quisumbing, A. (2020). Empowerment in agricultural value chains: Mixed methods evidence from the Philippines. *Journal of Rural Studies*. https://doi.org/10.1016/j.jrurstud.2020.04.003

Malapit, H., Quisumbing, A., Meinzen-Dick, R., Seymour, G., Martinez, E.M., Heckert, J., Rubin, D., Vaz, A., Yount, K.M., and Gender Agriculture Assets Phase 2 (GAAP2) Study Team. (2019). Development of the project-level Women's Empowerment in Agriculture Index (pro-WEAI). *World Development*, *122*, 675–692.

Malapit, H., Martinez, E., Pinkstaff, C., Quisumbing, A., Seymour, G., and Ragasa, C. (2017). MCC WEAI Philippines Baseline Report, September 1, 2017. Unpublished report prepared by the International Food Policy Research Institute (IFPRI), Washington, DC.

Medina, B. (2015). *The Filipino Family* Diliman, Quezon City: University of the Philippines Press.

Meinzen-Dick, R., Rubin, D., Elias, M., Mulema, A.A., and Myers, E. (2019). Women's Empowerment in Agriculture: Lessons from Qualitative Research. IFPRI Discussion Paper Series 01797. Washington, DC.

Quisumbing, A., Heckert, J., Faas, S., Raman, G., Raghunathan, K., Malapit, H. and the pro-WEAI for Market Inclusion Study Team. (2021). Women's empowerment and gender equality in agricultural value chains: evidence from four countries in Asia and Africa. *Food Security*. https://doi.org/10.1007/s12571-021-01193-5

Roy, S., Hidrobo, M., Hoddinott, J., and Ahmed, A. (2018). Transfers, behavior change communication, and intimate partner violence: post-program evidence from rural Bangladesh. Rev. Econ. Stat. 1–45. https://doi.org/10.1162/rest_a_00791.

Rubin, D., Manfre, C., and Barrett, K.N. (2009). Promoting gender equitable opportunities in agricultural value chains: A handbook. Washington, DC.

Samarakoon, S., & Parinduri, R. A. (2015). Does Education Empower Women? Evidence from Indonesia. *World Development*, *66*, 428–442. https://doi.org/10.1016/J.WORLDDEV.2014.09.002

Valientes, R. (2015). Male-female wage-gap decomposition in agriculture-based employment in the Philippines. J. Econ. Manag. Agric. Dev. 1, 45–62.

World Bank. (2021). Women, Child Care, and Social Norms in the Philippines. Policy Brief. Produced by the Philippine Women's Economic Empowerment Program of the World Bank with support from the Australian Government.

WEF. (2022). Global Gender Gap Report 2022. World Economic Forum (WEF), Geneva, Switzerland.