Gender Gap in Rice Productivity: Micro-evidence from Myanmar

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Background

- Achieving gender equality within the agricultural sector is essential for fostering both food security and economic growth.
- In Myanmar, 42.4% of women are employed in the agricultural sector [1], yet they have restricted access to resources [2].
- Rice is vital for Myanmar's food security, economic growth and export earnings.
- Measuring the gender gap in the rice sector and understanding the factors that explain any identified disparities are necessary to develop policy interventions to boost rice output.

Methodology

Kitagawa–Oaxaca–Blinder decomposition approach:

➢ Mean gender yield gap

Gap = D = $E(Y_M) - E(Y_F)$

$= \alpha_{m0} + \sum_{w=1}^{W} E(X_{mw})\,\beta_{mw} - \alpha_{f0} - \sum_{w=1}^{W} E(X_{fw})\,\beta_{fw}.$

D = *Endowment Effect* = $\sum_{w=1}^{W}[E(X_{mw}) - E(X_{fw})]\;\beta_w^* +$

Male Structural Advantage = $(\alpha_{m0} - \alpha_0^*) + \sum_{w=1}^{W}[E(X_{mw})(\beta_{mw} - \beta_w^*)] +$

Female Structural Disadvantage = $(\alpha_0^* - \alpha_{f0}) + \sum_{w=1}^{W}[E(X_{fw})(\beta_{fw} - \beta_w^*)]$,

Where, α_{m0}, α_{f0}, α_0^*, $\beta_{mw}, \beta_{fw}, \beta_w^*$ (w = 1…W) - the estimated intercept, slope coefficients of each variable comprised in the regressions for the male-, female-managed plots and pooled plot samples, respectively.

Objective

➢ This study aims to conduct a comprehensive analysis of the gender productivity gap in Myanmar's rice sector to provide a better understanding of the factors that contribute to inequality.

Highlights

- We provide new empirical evidence of the gender gap through a micro-regional analysis of rice productivity in Myanmar.
- We find that female-managed plots are 7% less productive than male-managed plots, mainly due to structural effects.
- Seasonality significantly influences this gap, calling for season-specific interventions to meet women's unique needs and challenges.

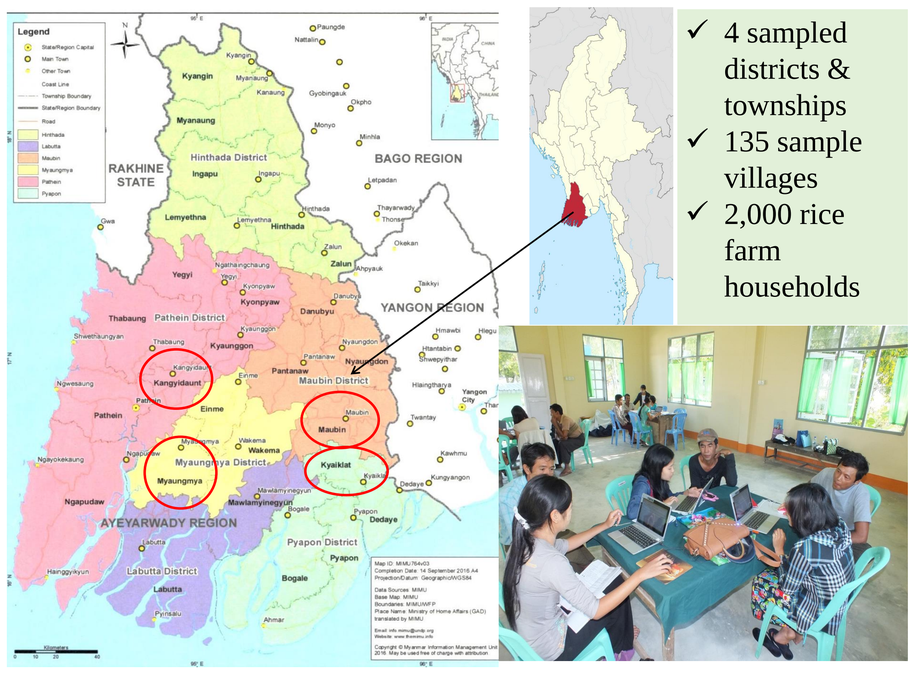
Data

Data are from the Area-Based Farm Household Survey, collected in October 2014 under the Metrics and Indicators for Tracking in Global Rice Science Partnership project.

Study Area –**Ayeyarwady Delta Region**

Collaborative survey-

IRRI International Rice Research Institute & **Yezin Agricultural University (YAU), Myanmar**



- ✓ 4 sampled districts & townships
- ✓ 135 sample villages
- ✓ 2,000 rice farm households

Source: Myanmar Information Management Unit, 2016

🔍 The dataset allows us to identify the most influential decision-maker for rice production at the plot level.

Results

Table 1. Aggregate decomposition results of the gender gap in summer (dry season) and monsoon (wet season) rice productivity

	Male vs. Female		Joint vs. Female		Male vs. Joint	
	Dry season	Wet season	Dry season	Wet season	Dry season	Wet season
Panel (A). Mean gender differential						
Male	8.3982***	7.9329***	8.4407***	7.9188***	8.3982***	7.9329***
	(0.0081)	(0.0097)	(0.0095)	(0.0142)	(0.0081)	(0.0097)
Female	8.3703***	7.8620***	8.3703***	7.8620***	8.4407***	7.9188***
	(0.0367)	(0.0323)	(0.0367)	(0.0323)	(0.0094)	(0.0142)
Difference	0.0279	**0.0709****	**0.0704***	0.0569	**-0.0425*****	0.0141
	(0.0375)	**(0.0337)**	**(0.0379)**	(0.0353)	**(0.0124)**	(0.0172)
Panel (B). Aggregate decomposition						
Endowment effect	0.0032	0.0032	0.0108	0.0117	**-0.0192*****	0.0078
	(0.0145)	(0.0164)	(0.0168)	(0.0233)	**(0.0065)**	(0.0092)
Share of gender differential	11%	5%	15%	21%	45%	56%
Male structural advantage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0010)	(0.0009)	(0.0031)	(0.0023)	(0.0010)	(0.0012)
Share of gender differential	0%	0%	0%	0%	0%	0%
Female structural disadvantage	0.0247	**0.0677****	**0.0596***	0.0452	**-0.0233****	0.0062
	(0.0340)	**(0.0307)**	**(0.0327)**	(0.0343)	**(0.0115)**	(0.0158)
Share of gender differential	89%	95%	85%	79%	55%	44%
Total Observations	1,038	936	509	478	1,355	1,226
Male	942	842	413	384	942	842
Female	96	94	96	94	413	384

Note: Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05 and * p < 0.1.

Table 2. Estimates of monsoon rice productivity within female subgroups at a particular level of marital status

Variables	Dependent variable: log [rice productivity (kg/ha)]	
	(1)	(2)
Female and marital status interactions		
Female x married†	-0.0993	-0.0916
	(0.0775)	(0.0709)
Female x widowed†	-0.0953	-0.1079
	(0.0885)	(0.0800)
Female x divorced†	**-0.4109*****	**-0.3195*****
	(0.1152)	**(0.0935)**
Covariates	No	Yes
Observations	936	936
R-squared	0.0169	0.2014

Note: Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, and * p < 0.1.
†The reference groups as non-married, non-widowed, and non-divorced females, respectively.

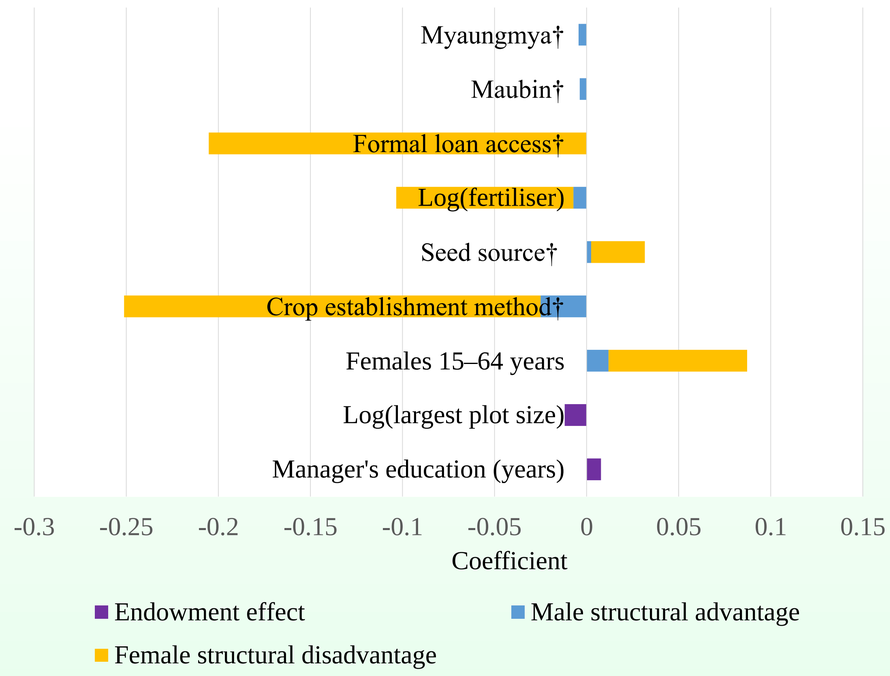


Fig 1. The main factors that contribute the most to each component of the gap (Male vs. Female) in monsoon season.

Conclusions & Recommendations

- Rice production in Myanmar is still characterised by a gender productivity gap.
- Jointly-managed plots are more productive and cooperative, producing a higher yield than their counterparts.
- Any strategy should concentrate its efforts on this divorced women subgroup.
- Season-specific interventions are recommended to meet women's unique needs and challenges in different seasons.
- Our findings can help implement future crop-level policy interventions to empower female farmers, promote gender equality and increase rice productivity in Myanmar.

References

1) ADB (Asian Development Bank). 2018. Detailed Gender Analysis Myanmar: Climate-Friendly Agribusiness Value Chains Sector Project. Manila, Philippines.
2) World Bank. 2019. "World Development Indicators." 2019. https://data.worldbank.org/indicator/SL.AGR.EMPL.FE.ZS?locations=MM. Accessed February 7, 2023.

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