International Journal of Management, Accounting and Economics
Volume 11, Issue 5, May 2024
ISSN 2383-2126 (Online)
DOI: https://doi.org/10.5281/zenodo.11289034
www.ijmae.com

Original Research

Endowment and Structural Effects on Gender Gap in Agricultural Productivity

Steve Andele[1]
Department of Economics, Maseno University, Kisumu, Kenya

Received 17 April 2024 Revised 1 May 2024 Accepted 5 May 2024

Abstract

This study investigated the factors contributing to gender disparities in agricultural productivity, particularly within the context of Busia County, Kenya. Focusing on both endowment and structural effects, the study targeted a population of 149,675 smallholder crop farmers, from which a sample of 384 was derived using Cochran's sample size formula. Employing a multistage sampling procedure, primary data was collected through structured questionnaires. The data was analyzed using Oaxaca–Blinder decomposition techniques. The results revealed that male endowment and structural advantage did not significantly contribute to the gender agricultural productivity gap. Conversely, female structural disadvantages were found to have a notable contribution on gender gap in agricultural productivity. These findings underscore the complex interplay between resource endowments, gender dynamics, and structural constraints in shaping agricultural productivity outcomes. By shedding light on these intricacies, the study offers valuable insights for policymakers and practitioners seeking to address gender inequalities in agriculture effectively in order to improve productivity.

Keywords: Agriculture, Gender Gap, Endowment, Productivity, Structural.

[1] *Corresponding author's Email: sandele8@gmail.com*

Introduction

Gender agricultural productivity gap is a critical issue that underscores disparities in productivity levels between male and female farmers (Doss & Morris, 2020). This gap signifies that, on average, female farmers achieve lower levels of productivity compared to their male counterparts, and several factors contribute to this discrepancy. One major factor is the unequal access to resources faced by female farmers (endowment effect) (FAO, 2011; World Bank, 2012). The implications of the gender agricultural productivity gap are far-reaching. Reduced productivity among female farmers can lead to lower levels of food production, affecting household food security and nutrition. Furthermore, it can perpetuate economic inequalities, as women may earn lower incomes from agricultural activities compared to men. These economic disparities contribute to broader gender inequalities in rural areas, impacting women's autonomy, decision-making power, and overall well-being (Meinzen-Dick, Quisumbing, Doss, and Theis, 2019).

Additionally, societal norms play a pivotal role in shaping gender roles and expectations within communities (structural effects). These norms often perpetuate traditional gender roles where women are expected to prioritize household and caregiving duties over economic activities such as farming. This can lead to a lack of decision-making autonomy for women in agricultural matters and restrict their mobility, limiting their ability to access markets, resources, and agricultural extension services (Piedrahita, Costa, and Mane, 2024). Moreover, the burden of domestic responsibilities further exacerbates the challenges faced by women in agriculture. Women often bear the primary responsibility for household chores, childcare, and other unpaid care work, leaving them with limited time and energy to engage in agricultural activities. This imbalance in workload can lead to time constraints that hinder women's productivity on farms (Doss, 2018).

The gender gap in agricultural productivity has been a focal point for many researchers (Piedrahita, Costa, and Mane, 2024). For instance, Singbo, Njuguna-Mungai, Yila, Sissoko, and Tabo (2021) conducted a study in Mali, revealing that female plot managers experience a 20.18% lower agricultural productivity compared to male plot managers. Conversely, Fukase, Kim, and Chiarella (2022) found in their research in Sri Lanka that female farmers exhibit a 25.4% higher agricultural productivity, measured by yield per unit of land, than male farmers. In Nigeria, Ojo and Baiyegunhi (2023) reported that plots managed by women are 29% less productive than those managed by men. Similarly, Abdisa, Mehare, and Wakeyo (2024) discovered in Ethiopia that female-headed households were less productive by 3.7%. In Ghana, Boahen, Dankwah, and Berko (2024) found that cereal production by female plot managers is 46% lower than that of their male counterparts.

Researchers such as Singbo et al (2020) and Bello et al (2021) reported that the gender agricultural productivity gap can be explained by differences in resource endowment (endowment effects) and difference in return to resource endowment (structural effects). For instance, Singbo et al. (2020) found that more than half (56%) of the agricultural productivity gap is influenced by female-specific structural disadvantages, while 44% of the gap is due to an endowment effect. This suggests that gender-specific structural factors significantly contribute to productivity gaps in agriculture. Bello et al. (2021) reported that the male advantage contributes to about 30.4% of the structural effects, while the female disadvantage accounts for about 71%. Endowment effects only contribute to 1.30% of the productivity gap. This underscores the significant impact of gender-specific structural disparities on agricultural productivity. Bello et al. (2021) additionally employed Neumark methodology. The findings from this methodology showed that the endowment factor accounts for 70.44% of the productivity gap, with male structure advantage and female structure disadvantage contributing approximately 12.41% and 17.14%, respectively. This further emphasizes the importance of considering both structural and endowment factors in understanding gender disparities in agricultural productivity.

Moreover, Tufa et al. (2022) demonstrated that female-headed households exhibit both a structural disadvantage (23.1%) and an endowment advantage (8.2%). This suggests a complex interplay between structural factors and resource endowments affecting female-headed households' productivity. Abdisa et al. (2024) reported that female-headed households have a net endowment advantage of 0.6%. This indicates that, on average, female-headed households possess slightly more productive resources compared to male-headed households. These estimations rely on a decomposition method to separate the gap into components explained by differences in resource endowments and components due to difference only applied decomposition technique in return to resource endowments (structural effects). The commonly applied decomposition techniques are the Oaxaca-Blinder decomposition (Singbo et al. 2020), Kitagawa–Oaxaca–Blinder decomposition (Piedrahita, et al., 2024) and difference-in-differences (DiD) (Abdisa et al (2024).

These studies collectively highlight the multifaceted nature of gender disparities in agricultural productivity, with structural disadvantages disproportionately affecting female-headed households. Additionally, while endowment advantages may exist for some female-headed households, they do not fully offset the broader structural disadvantages they face. Empirical evidence provide valuable insights into gender disparities in agricultural productivity, however, the socio-cultural, political, and economic context in which agricultural activities take place can significantly influence gender dynamics making generalization to other context limited. This study therefore sought to explore the endowment and structural effects on gender gap in agricultural productivity in Busia County, Kenya.

Specifically, this study sought to:

1. Determine the effect of difference in resource endowment on the gender agricultural productivity gap in Busia County Kenya.

2. Determine the effect of difference in return to resource endowments on the gender agricultural productivity gap in Busia County Kenya.

In order to achieve the above objectives, this study employed a research framework drawing from Production theory. This theory focuses on understanding the factors of production and their impact on output. In the context of the study objectives, Production theory provided a framework for examining the effect of endowments on the gender

International Journal of Management, Accounting and Economics
Volume 11, Issue 5, May 2024
ISSN 2383-2126 (Online)
DOI: https://doi.org/10.5281/zenodo.11289034
www.ijmae.com

agricultural productivity gap. Liberal feminist theory emphasizes the importance of equal rights and opportunities for men and women within existing social and economic structures. In relation to the study objectives, this theory guided the exploration of how differences in endowments contribute to the gender agricultural productivity gap. Finally, social feminist theories focus on the broader social, cultural, and institutional factors that perpetuate gender inequalities. In the context of the study, these theories helped in understanding how societal norms, gender roles, and power dynamics influence the returns to resource endowments for male and female farmers in Busia County, Kenya. By considering these social structures, the study aimed to uncover the underlying mechanisms driving the gender agricultural productivity gap beyond mere differences in resource endowments.

Literature Review

Gender disparities in agricultural productivity are a significant concern globally, impacting the economic empowerment and well-being of female farmers. In this section a review of existing literature that investigated the gender productivity gap is provided by highlighting variations across contexts.

Endowment Effects on Gender Agricultural Productivity Gap

Studies have examined gender disparities in agricultural productivity across various countries in Sub-Saharan Africa, focusing on Mali, Senegal, Cameroon, Uganda, Côte d'Ivoire, and Nigeria. Drawing on data from nationally representative surveys and employing decomposition methodologies, researchers have analyzed factors contributing to the gender productivity gap, including endowment effects and structural disadvantages. Findings reveal significant variations in the magnitude and determinants of the gender productivity gap across countries, highlighting the need for context-specific policy interventions to address gender inequalities in agriculture. The findings from different studies across Mali, Senegal, Cameroon, Uganda, Côte d'Ivoire, and Nigeria highlight both similarities and differences in the factors contributing to the gender productivity gap in agricultural farming.

In Mali, Singbo et al. (2020) attribute 56% of the gender productivity gap to female-specific structural disadvantages, while 44% result from endowment effects. This indicates a significant impact of structural barriers on productivity differences between genders. In Senegal, Kane and Aidara (2022) report a higher proportion of the productivity gap being due to endowment effects, accounting for 85.5%, with structural disadvantages contributing to 10.18%. This suggests that unequal access to resources plays a more dominant role in gender disparities in Senegal compared to Mali. In Cameroon, Njikam, Araar, and Elomo (2021) identify variations in gender disparities across regions, with women's structural disadvantage exceeding men's advantage. This highlights the contextual differences in gender dynamics within the country.

Additionally, in Uganda, Miriti et al. (2022) reveal an 18% gender productivity gap, primarily driven by structural advantages in male-managed plots. This echoes the findings in Mali and Senegal, emphasizing the significance of structural factors in determining productivity differences between genders. In Côte d'Ivoire, Donald, Lawin, and Rouanet

International Journal of Management, Accounting and Economics
Volume 11, Issue 5, May 2024
ISSN 2383-2126 (Online)
DOI: https://doi.org/10.5281/zenodo.11289034 www.ijmae.com

(2020) document a 14% reduction in the gender gap, suggesting progress in addressing gender disparities. However, they emphasize the continued need for targeted interventions for female-headed households, indicating persistent challenges despite improvements. Finally, Ojo et al. (2020) uncover a substantial 29% gender productivity gap in rice farming in Nigeria, highlighting the role of factors such as education and access to market information. This underscores the diverse challenges faced by female farmers in different contexts, with Nigeria exhibiting a particularly significant gender productivity gap compared to other countries studied.

Overall, while the studies reveal variations in the magnitude and drivers of the gender productivity gap across countries, they consistently emphasize the importance of addressing structural barriers and providing targeted interventions to promote gender equality in agricultural productivity.

Structural Effects on Gender Agricultural Productivity Gap

Singbo et al. (2020) conducted a study on agricultural farmers in Mali, categorizing factors influencing the gender productivity gap as endowment effects and structural effects. They found that 56% of the gap was linked to female-specific structural disadvantages. This contrasts with previous studies, such as Kilic et al. (2015b), which emphasized the endowment effect as a more significant factor in explaining the gender gap. Kane and Aidara (2022) examined the impact of technological innovations on gender gaps in agricultural productivity in Senegal. They revealed that a 10.18% productivity difference between women's and men's plots was explained by structural effects, indicating a structural disadvantage for female farmers.

Additionally, Njikam, Araar, and Elomo (2021) utilized plot-level survey data from multi-crop smallholder farmers in Cameroon to explore gender disparities in productivity. Their findings indicated variations in gender disparities across regions, with women's structural disadvantage exceeding men's advantage. The study underscored the importance of gender-specific policies, particularly in addressing the endowment effect among the poorest and wealthiest farmers. Nchanji et al. (2021) studied the productivity gap between male and female bean producers in Tanzania, examining its discriminatory nature and implications for agricultural policymakers. They found significant discrimination occurring at the 50th percentile, highlighting the need for targeted interventions to address gender disparities.

The review of recent studies on the gender productivity gap in agricultural farming across Sub-Saharan Africa reveals variations in the drivers and implications of gender disparities. While structural disadvantages disproportionately affect female farmers in some contexts, the endowment effect may play a more significant role in others. Context-specific policies are essential to address these disparities and promote gender equality in agriculture.

Methodology

The target population was 149,675 smallholder crop farmers in Busia County. Busia is a county in the former Western Province of Kenya. Latitude: 0° 25' 59.99" N

International Journal of Management, Accounting and Economics
Volume 11, Issue 5, May 2024
ISSN 2383-2126 (Online)
DOI: https://doi.org/10.5281/zenodo.11289034
www.ijmae.com

Longitude: 34° 08' 60.00" E. The study employed a probability sampling technique to select a subset of smallholder crop farmers from the target population. The Cochran's sample size formula used for determining the sample size in this study was:

$$\boldsymbol{n} = \frac{z^2 x\, P(1-P)}{\epsilon^2} \quad (1)$$

Where:

n = Sample Size for infinite population

Ƶ = Confidence level at 95% (Standard value 1.96)

P = Population proportion assumed to be 0.5 (50%)

E= Margin of Error at 5% (0.05)

Therefore,

$$\boldsymbol{n} = \frac{1.96^2 x\, 0.5(1-0.5)}{0.05^2} \quad (2)$$

n = 385

The finite population sample size formula was:

$$\boldsymbol{n'} = \frac{n}{1+\frac{z^2 p(1-p)}{\epsilon^2 N}}$$

where:

n is the sample size

z is the z-score

p̂ is the population proportion

ε is the margin of error

N is the population size

The sample size for the finite population was therefore determined as:

$$\boldsymbol{n'} = \frac{385}{1+\frac{1.96^2(0.5)(1-0.5)}{0.05^2(149{,}675)}} \quad (3)$$

$$\boldsymbol{n'} = \mathbf{384}$$

In order to obtain data across the observations, a structured agricultural questionnaire adapted from FAO (2016) was used to collect data from farmers in Busia County

Model Specification

Oexaca-Blinder decomposition

To determine the portion of the gap that is explained by difference in resource endowment and portion that is explained by difference in returns to resource endowment, this study employed Oaxaca–Blinder (O-B) decomposition method. This method calculates the total gap as the difference in mean productivity between the male and female farmer using total sample. The mean productivity on gender of the farmer (either male (m) or female (f)) was therefore determined as presented in equation. (3.6).

$$\text{Total Gap} = E(y_m) - E(y_f) = \alpha_m + E(X_m)'\beta_m - (\alpha_f + E(X_f)'\beta_f) \qquad \textbf{(4)}$$

Where

$E(y_m)$ = Mean productivity of male plot

$E(y_f)$ = Mean productivity of female plot

X = a row of covariance elements associated with the estimated coefficient of gender and the estimated coefficients of other explanatory variables of the production function (3.3),

α = the intercept and

β was the vector of slope coefficients.

Making simple overlapping support, and ignorability assumptions to equation 3.6, the total gap was then separated into: 1) the part that was explained by differences in resource endowments (explained) between male and female farmers and 2) the part that was explained by the difference in return to endowments (unexplained).

$$Endowment\ Effects = \underbrace{\left[E(X_m)' - E(X_f)'\right]\beta^*}_{Male\ Endowment\ Advantage} \qquad (5)$$

Where:

$E(X_m)$ = a row of covariance elements associated with the estimated coefficient of male farmer and the estimated coefficients of other explanatory variables of the production function

$E(X_m)$ = a row of covariance elements associated with the estimated coefficient of female farmer and the estimated coefficients of other explanatory variables of the production function

β = the vector of slope coefficients

β^* = the vector of non-discriminatory coefficients.

Equation 3.9 tested the first objective which was to determine the endowment effect on gender gap in agricultural productivity in Busia County Kenya.

A positive coefficient of endowment implied that male farmers have an endowment advantage over female farmers. Male endowment advantage was then interpreted as the change in the quantity of output that would occur if female farmers had the same quantities of endowments as male farmers.

Imposing additional assumptions: Additive linearity and Zero conditional mean, effect of difference in return to resource endowments was further divided into two parts. One part which estimated the male structural advantage. And another part which estimated the female structural disadvantage using model 3.10:

$$Structural\ effects = \underbrace{[E(X_m)'\ (\beta_m - \beta^*)]}_{Male\ Structural\ Advantage} + \underbrace{\left[E\left(X_f\right)'\ (\beta_f - \beta^*)\right]}_{Female\ Structural\ Disadvantage} \quad (6)$$

Where:

$E(X_m)$ = a row of covariance elements associated with the estimated coefficient of male farmer and the estimated coefficients of other explanatory variables of the production function

$E(X_m)$ = a row of covariance elements associated with the estimated coefficient of female farmer and the estimated coefficients of other explanatory variables of the production function

β = the vector of slope coefficients

β^* = the vector of non-discriminatory coefficients.

A zero coefficient of structural effects implied that male farmers have no structural advantage over female farmers in regards to the specific covariate while a positive coefficient of difference in mean return suggested that female farmers face structural disadvantages in Busia County. Since male structural advantage was zero, female structural disadvantage was then interpreted as the change in the value of output from the female plots that would occur if men and women had the same returns to resource endowments.

Findings

Objective one was to determine the endowment effect on gender agricultural productivity gap. The findings are presented in table 4.6.

Table 1. Effect of Difference in Resource Endowments on Gender Agricultural Productivity Gap

Blinder-Oaxaca decomposition				Number of obs	=	384
	Group 1:	Gender =	0	Model	=	Linear
	Group 2	Gender =	1	N of obs 1	=	192
				N of obs 2	=	192
	explained: (X1-X2) = b					
		with b from pooled model (including group dummy)				
Log-productivity	Coefficient	Robust Std.err.	z	p>|z|	[95% Conf.	Interval
Overall						
group 1	7.216505	0.06972	103.5	0.000	7.079851	7.35316
group 2	6.629226	0.07724	85.83	0.000	6.477848	6.7806
difference	0.5872789	0.10405	5.64	0.000	0.3833436	0.79121
explained	0.0143949	0.07626	0.19	0.850	-0.135071	0.16386

***Note*:** group 1 were the male farmers; group 2 were the female farmers

Explained: if coefficient is positive it implies male structural advantage, since it is not statistically significant it implied that male endowment advantage doesn't explain the gender gap.

From table 1, group 1 were the male farmers while group two were the female farmers. Explained equation estimated the aggregate effect of difference in resource endowments on gender agricultural productivity gap.

From the above table, mean male productivity was 7.216505 and statistically significant at p=0.000 while mean female productivity was 6.629226 which was statistically significant at p=0.000. The difference between these two means was 0.5872789 which was statistically significant at p=0.000. This implied that the aggregate gender agricultural productivity gap in Busia County was 58.7%.

The explained coefficient was found to be 0.0144 and p-value was 0.850 as indicated in table 1. This explained coefficient measured the effect of difference in resource endowments on gender agricultural productivity gap (0.587). A positive coefficient suggests that male farmers have an endowment advantage over female farmers, indicating that male farmers possess greater access to resources such as land, labour, capital, and technology compared to female farmers.

Male endowment advantage is the change in the quantity of output that would occur if female farmers had the same quantities of endowments as male farmers. Additionally, this study found that male endowment advantage accounted for 2.5% of the gender gap in Busia County and this was found not to be statistically significant at p=0.05.

Finding on the structural effects on Gender Agricultural Productivity Gap

International Journal of Management, Accounting and Economics
Volume 11, Issue 5, May 2024
ISSN 2383-2126 (Online)
DOI: https://doi.org/10.5281/zenodo.11289034
www.ijmae.com

Objective two was to determine the effect of difference in return to resource endowments or structural effects on gender agricultural productivity gap. the findings are presented in table 2.

Table 2. Effect of Difference in Returns to Resource Endowments on gender Agricultural Productivity Gap

Blinder-Oaxaca decomposition				Number of obs	=	384
	Group 1:	Gender =	0	Model	=	Linear
	Group 2	Gender =	1	N of obs 1	=	192
				N of obs 2	=	192
	unexplained1:	$X1=(b_1-b)$				
	unexplained1:	$X2=(b-b_2)$				
		with b from pooled model (including group dummy)				
Log-productivity	Coefficient	Robust Std.err.	z	p>|z|	[95% Conf.	Interval
Overall						
group 1	7.216505	0.0697227	103.5	0.000	7.079851	7.35316
group 2	6.629226	0.0772351	85.83	0.000	6.477848	6.7806
difference	0.5872789	0.1040505	5.64	0.000	0.3833436	0.79121
unexplained1	0	0.0164254	0.00	1.000	-0.032193	0.03219
unexplained2	0.5728839	0.078817	7.27	0.000	0.4184054	0.72736

***Note*:** group 1 were the male farmers; group 2 were the female farmers

Unexplained 1: positive coefficient is interpreted as male structural advantage while unexplained 2 positive coefficient is interpreted as female structural disadvantage

The effect of difference in return to resource endowments was further decomposed into two parts. One part which estimated the male structural advantage (male returns to resource endowments). And another part which estimated the female structural disadvantage (female returns to resource endowments). Model named unexplained1 in table 1 estimated the male structural advantage while model named unexplained2 estimated female structural disadvantage. Additionally, group 1 were the male farmers coded 0 while group two were the female farmers coded 1 for analysis.

From the above table, mean male productivity was 7.216505 and statistically significant at p=0.000 while mean female productivity was 6.629226 which was statistically significant at p=0.000. The difference between these two means was 0.5872789 which was statistically significant at p=0.000. This implied that the aggregate gender agricultural productivity gap in Busia County was 58.7%.

The male structural advantage coefficient was 0 with a p-value of 1.000. This implied that there was no discrimination in favour of male farmers. This findings from Busia County, Kenya, as indicated by the coefficient of male structural advantage being 0 with a p-value of 1.000, suggest a lack of discrimination in favour of male farmers. The absence of discrimination in favour of male farmers implies a level playing field in agricultural practices. It suggests that both male and female farmers have equal opportunities and access to resources, which is a positive indication of gender equality in the agricultural sector. This aligns with the broader narrative of Kenya being considered an equal gender country, where policies and initiatives aim to promote gender equality and empower women in various sectors, including agriculture (Kenya National Bureau of Statistics, 2014). While the absence of discrimination against male farmers is a positive finding, it also highlights the need to ensure that women farmers are equally empowered and supported in agriculture.

The coefficient for female structural disadvantage was 0.573 with a significance level of 0.00. This findings suggested that a larger percentage of the gender agricultural productivity gap remains unexplained. Specifically, 98.56% of the gender agricultural productivity gap remains unexplained. This unexplained portion has been attributed to female structural disadvantages. It reflected the difference in return to female resource endowments.

Discussions

The findings of this study are consistent with those of Nchanji (2020) who found that approximately 0.08 of the 0.30 mean log productivity difference could be attributed to differences in endowments such as income, experience, and education. In Ghana, the endowment effect was 43% of the overall gap. Although the overall gap in yield per acre of rice cultivated favoured women, the endowment effect was statistically insignificant (Boahen, Dankwa and Berko, 2024). These findings present a departure from prior research, particularly in contrast to studies such as Kilic et al. (2015b), which underscored the significant role of the endowment effect in explaining gender disparities.

Similarly, Oseni et al. (2015) in Southern Nigeria and Aguilar et al. (2015) in Ethiopia highlighted the dominance of the endowment effect. Kane and Aidara's (2022) study revealed that a substantial portion (85.5%) of the overall productivity gap was attributable to endowment effects, including plot and farmer characteristics and unequal resource access.

Additionally, Bello et al. (2021) found that the endowment factor accounted for 22% of the productivity gap. In contrast, Nchanji (2020) suggested that approximately 0.08 of the 0.30 mean log productivity difference could be attributed to differences in endowments such as income, experience, and education.

Bello et al (2021) found that the structural effects (decomposed into male structural advantage and female structural disadvantage) accounted for 78% of the gender agricultural productivity gap in rural Nigeria. Thus, the structural component of the gap is larger than the endowment component. Additionally, the results of the research by Boahen, et al (2024) revealed that the structural effect was stronger in determining the gender gap, which was also consistent with studies by Aguilar et al. (2015) and Bello et al. (2021). Moreover, Bello et al. (2021) found that female structure disadvantage accounted for 78% of the productivity gap.

This result suggests that even if women possess the same characteristics as men and have equal access to productive resources as well as policy factors, performance differences will still persist. This highlights the entrenched nature of gender inequalities within agricultural systems and underscores the need for targeted interventions to address systemic barriers faced by women in agriculture. Additionally, the relative contribution of structural effects to the gender gap informs resource allocation and policy prioritization. Efforts to close the gender gap should not only focus on increasing women's access to productive resources but also address broader structural constraints that impede their full participation and empowerment in agriculture.

Conclusion

In conclusion, the findings from Busia County, Kenya, provide insights into the dynamics of gender disparities in agricultural productivity. The analysis revealed that there was no statistically significant discrimination in favor of male farmers, indicating a level playing field in terms of access to resources and opportunities within the agricultural sector. This aligns with the broader narrative of Kenya's commitment to gender equality and empowerment, as evidenced by policies and initiatives aimed at promoting women's participation and advancement across various sectors, including agriculture.

However, despite the absence of discrimination in favor of male farmers, the study uncovered a significant portion of the gender agricultural productivity gap that remains unexplained. This unexplained part of gender agricultural productivity was attributed to structural effects. The coefficient for female structural disadvantage indicates that female farmers face inherent challenges or disadvantages that contribute to their lower productivity compared to male farmers. This unexplained gap underscores the importance of addressing structural barriers and promoting gender-sensitive interventions to enhance women's access to resources, education, and support systems within the agricultural sector.

Recommendations of the study

Based on the findings of the study on gender disparities in agricultural productivity in Busia County, Kenya, the following recommendations can be made for policy, practice, and theory:

1. Investment in Women's Empowerment: There is a need for targeted investments in women's empowerment initiatives, including education and training programs, to enhance the capabilities and capacities of female farmers in Busia County.

2. Capacity Building for Gender Mainstreaming: Agricultural practitioners, including researchers, extension agents, and development practitioners, should receive training and capacity building in gender mainstreaming approaches. This includes raising awareness about gender issues in agriculture, building skills in gender analysis and planning, and integrating gender considerations into agricultural research, programming, and project implementation.

3. Intersectional Approach: Future theoretical frameworks should adopt an intersectional approach to understanding gender disparities in agriculture, taking into account the intersecting factors of gender, socioeconomic status, ethnicity, age, and other dimensions of identity.

Recommendation for future study

This study found that female structural disadvantages play a significant role in the gender gap in agricultural productivity. Future research could delve deeper into identifying and understanding the specific structural constraints faced by female farmers in Busia County, Kenya.

Acknowledgement

The author would like to thank the respondents and enumerators of the questionnaire survey of this research. Without their time and patience, this thesis would not be complete.

References

Abdisa, T., Mehare, A., & Wakeyo, M. B. (2024).Analysing gender gap in agricultural productivity: Evidence from Ethiopia, Journal of Agriculture and Food Research, Volume 15, https://doi.org/10.1016/j.jafr.2023.100960

Aguilar, A., E. Carranza, M. Goldstein, T. Kilic, & G. Oseni (2014), "*Decomposition of gender differentials in agricultural productivity in Ethiopia*", Policy Research Working Paper, No.6764, The World Bank.

Bello, L. O., Baiyegunhi, L. J. S., Danso-Abbeam, G., & Ogundeji, A. A. (2021) Gender decomposition in smallholder agricultural performance in rural Nigeria, Scientific African, Volume 13. Retrieved from https://doi.org/10.1016/j.sciaf.2021.e00875.

Boahen, E. A., Dankwah, J. B. & Berko, D. (2024). Understanding the gender gap in productivity in agricultural production among smallholder cereal growers in rural Ghana. Cogent Economics & Finance. Volume 12, 2024 - Issue 1

Donald, A. A., Lawin, K. G., & Rouanet, L. M. (2020). Gender differences in agricultural productivity in Cote d'Ivoire: Changes in determinants and distributional composition over the past decade. *World Bank Policy Research Working Paper*, (9113).

Doss, C., & Morris, M. (2020). How does gender affect the adoption of agricultural innovations? The case of improved maize technology in Ghana. Agricultural Economics, 51(3), 439-450. doi:10.1111/agec.12580

Doss, C., Meinzen-Dick, R., Quisumbing, A., & Theis, S. (2018). Women in agriculture: Four myths. Global Food Security, 16, 69-74.

FAO, (2011).The state of food and agriculture: Women in agriculture, closing the gender gap for development. In Soil Science; Food and Agriculture Organization: Rome, Italy.

Fukase, E., Kim, Y. S., & Chiarella, C. (2022). Exploring the Sources of the Agricultural Productivity Gender Gap.

Kane, A., & Aidara, M. M. (2022). Differences in Agricultural Productivity Among Women and Men on Small-Scale Farms in Senegal: Contributions of Agricultural Innovations. *Journal of Agricultural Science*, *14*(5).

Kilic, T., Palacios-Lopez, A., and Goldstein, M. (2015). *“Caught in a productivity trap: a distributional perspective on gender differences in Malawian agriculture.”* World Development, vol. 70, issue C, 416-463

Meinzen-Dick, R., Quisumbing, A., Doss, C. & Theis, S. (2019). "Women's land rights as a pathway to poverty reduction: Framework and review of available evidence," Agricultural Systems, Elsevier, vol. 172(C), pages 72-82.

Miriti, P., Jakinda, D. O., Chimoita, E., Bikketi, E., Njuguna, E. & Ojiewo, C. O. (2022): Gender gaps in sorghum productivity: evidence from male- and female-managed plots in Uganda, Development in Practice, DOI: 10.1080/09614524.2022.2069228

Nchanji, E.B.; Collins, O.A.; Katungi, E.; Nduguru, A.; Kabungo, C.; Njuguna, E.M.; Ojiewo, C.O. (2021). What Does Gender Yield Gap Tell Us about Smallholder Farming in Developing Countries? Sustainability 2021, 13, 77. https://dx.doi.org/doi:10.3390/ su13010077

Njikam, O., Elomo, T. Z., Mbengono, C. P., & Abossolo, I. (2019). *The Gender Gap in Smallholder Agricultural Productivity: The Case of Cameroon*. WP Partnership for Economic Policy (PEP), No PMMA 20386

Ojo, T.O., Baiyegunhi, L.J.S., Danso-Abbeam, G. & Ogundeji, A. A. (2020). Gender Differentials on Productivity of Rice Farmers in South-western Nigeria: An Oaxaca-blinder Decomposition Approach. Research Square.

Oseni, G., Corral, P., Goldstein, M., & Winters, P. (2015). Explaining gender differentials in agricultural production in Nigeria. Agricultural Economics, 46(3), 285-310.

Piedrahita, N., Costa, V. and Mane, E. 2024. Gender gap in agricultural labour productivity: A cross-country comparison – Background paper for the status of women in agri-food systems. Rome, FAO. https://doi.org/10.4060/cc9118en

Singbo, A., Njuguna-Mungai, E., Yila, J. O., Sissoko, K., & Tabo, R. (2021). Examining the gender productivity gap among farm households in Mali. *Journal of African Economies*, *30*(3), 251-284.

Tufa, A., Alene, A.D., Cole, S.M., Manda, J., Feleke, S., Abdoulaye, T., Chikoye, D. & Manyong V. (2022). Gender differences in technology adoption and agricultural productivity: evidence from Malawi. World Dev., 159 (2022), Article 106027, 10.1016/j.worlddev.2022.106027

World Bank (2012), World Development Report 2012: Gender equaility and Development. The World Bank. Washington DC.

HOW TO CITE THIS ARTICLE

Andele, S. (2024). Endowment and Structural Effects on Gender Gap in Agricultural Productivity. *International Journal of Management, Accounting and Economics*, *11*(5), 505-519.

DOI: https://doi.org/ 10.5281/zenodo.11289034

URL: https://www.ijmae.com/article_196325.html