

Closing the income gap between male and female agricultural workers: the role of women empowerment in Togo's rural areas

Yevevé DANDONOUGBO*

Esso-hanam ATAKE**

Djinta LITAABA-AKILA***

Dédé KOUEVIDJIN****

Abstract - This paper explores the contribution of women empowerment to the reduction of the gender income gap in rural Togo. In Togo, women bear a disproportionate share of unpaid work - preparation of meals, fetching of water and cleaning, caring for children and elderly. The analysis is carried out through an extension of the Oaxaca-Blinder decomposition model and is based on data from the 2018 Partnership for Economic Policy (PEP) household survey. Regarding the determinants of farm income, irrigation practices, improved seed use, access to credit, mobile phone, and having a paid job improve farm income of both sexes. Furthermore, for an equal area of land, men's income is significantly higher than women's by about 66%. We found that ideological, religious, ethnic, economic and socio-cultural factors contribute to the increase income gap between male and female agricultural workers. Our findings suggest that policies designed to strengthen women's decision-making powers and improve their education levels would be an effective way of boosting their agricultural income. Women's ownership of land titles could serve as an asset for boosting agricultural investment and, consequently, women's income.

JEL Classification

I32 ; J16 ; J31 ; O18 ; O55 ; Q12

Key-words

Income gap
Rural economic development
Women empowerment
Poverty

The authors thank the anonymous reviewers for their comments which helped in improving the final draft of this article.

* Department of Agricultural Economics, University of Lomé, Togo ; ydandonougbo@univ-lome.tg

** Department of Economics Sciences, University of Lomé, Togo; atakesyl@gmail.com

*** Department of Economics Sciences, University of Lomé, Togo, ylitaaba@gmail.com

****Department of Economics Sciences, University of Lomé, Togo, kouevidjin54@gmail.com

INTRODUCTION

“The fact that women earn less than men is a consistent widely observed phenomenon” (Polachek and Xiang, 2009). Women still earn less than men generally in most all societies (Herrera, Dijkstra, and Ruben, 2019). Individual, human capital-related factors such as education and health, factors related to the type of job or sector, the general income structure in a country, and geographic location are the main factors that influence the gender income gap (Herrera, Dijkstra, and Ruben, 2019). In fact, married men invest more in human capital than married women (especially those married women with children), and therefore married men have higher incomes (Becker, 1985; Polachek, 1975). Due to the division of labor in the home, married men are assumed to anticipate to work longer and harder throughout their lifetimes, as well as to earn more money than married women (Becker, 1985; Polachek, 1975). Furthermore, social conventions, practical restrictions, discrimination against or exclusion by employers are additional factors that contribute to the reported income gaps. (Blau and Kahn, 1996).

Gender gap in farm income is attributed to several factors, mainly, inequalities in access to and use of agricultural inputs, land tenure security, investments relating to new technologies, access to markets and credit, human capital and institutional constraints affecting farm management (Croppenstedt et al., 2013; Sraboni et al., 2014). In most developing countries, the agricultural sector employs a large share of women labor force but generates significantly lower yields for women plot owners than for their male counterparts (Udry, 1996; Ali et al., 2016; Mugisha et al., 2019). Farm income gap is largely linked to issues of women empowerment (Manfre et al., 2013).

Women are less efficient and produce less than men because of their limited rights to land and limited access to inputs (FAO, 2010). Education, division of labor in the household, land and property rights access, and weaknesses in government labor regulations are viewed to be critical for reducing gender income gaps (Becker, 1985; Forsythe et al., 2003; Meinzen-Dick et al., 2019). Empowering women through investments in health, education, child nutrition, land and property rights has a direct impact on their agricultural productivity and, in turn, on their income levels (Duflo, 2012).

In Togo, the rural population comprises 48.8 percent men and 51.2 percent women (RNA, 2013), while the agricultural population mainly comprises of women (48.9 percent). The incidence of poverty is however lower in the category of men-headed households (54.6%) than in women-headed households (57.5%)(QUIBB, 2015). Furthermore, it is the men who are mainly in charge, regardless of their land ownership status. They decide which crops to grow, the areas to cultivate and the periods when each household member work on his or her various plots. Women bear a disproportionate share of unpaid work, such as preparation of meals, fetching of water and fuel, cleaning, caring for the children and the elderly and providing health care for the household. It could be inferred that this unpaid work, which restricts women's working time, accounts for their low-income levels. Despite this, women's income is invested exclusively in rural areas - in childcare, education, nutrition and health interventions. Togo, is therefore an interesting case to study the relationship between women empowerment and income gap between male and female agricultural workers.

This paper attempts to answer the following questions: for the same area of land, is there an income gap between women and men farmers in Togo? Would women empowerment contribute to the reduction of the income gap? This study aims to analyze the contribution of women empowerment to the reduction of the gender income gap in rural Togo. This paper contributes to the literature on three levels.

First, it analyses the income gap between male and female farmers with the same arable land. Second, it provides empirical evidence on the relationship between women empowerment and its contribution to reducing the income gap in farm households and in sub-Saharan African countries with similar socio-economic and demographic characteristics as Togo. Lastly, as the promotion of gender equality is a major thrust of rural development policies, this paper will help to highlight policy potentials that will contribute to the achievement of sustainable development goals 1, 5 and 8 through the reduction of poverty in all its forms, the promotion of women empowerment and the achievement of a high level of economic productivity.

This paper used data from a representative survey of farm households conducted by the Partnership for Economic Policy (PEP) within the framework of the Community-Based Monitoring System (CBMS) project in Togo. The CBMS project designs and implements a community-based poverty monitoring system to generate data at the household and individual levels. Our paper use an empirical strategy that extends the traditional Oaxaca-Blinder decomposition to measure income gap and assess the contribution of women empowerment to the observed income differences (Kilic, Palacios-López, and Goldstein, 2015).

1. LITERATURE REVIEW

Access to resources such as land tenure, livestock, employment and access to credit are factors of economic empowerment that have a positive impact on women's incomes. Equal access to land and other factors of production will significantly reduce the income gap between men and women (Kilic, Palacios-Lopez and Goldstein, 2015). Udry (1996) found that women's vegetable and sorghum yields were 20% and 40% lower than men's when comparing fields. This is mainly because women underutilize agricultural inputs. In Ethiopia, a 35% productivity gap has been attributed to lower input consumption and limited access to extended services (Tiruneh et al., 2001).

Nguyen and Le (2023) found that women's property ownership is associated with their bargaining power within the household in various ways. In particular, this relationship is most substantial concerning women's autonomy in decisions about their children. For these authors, it is also easier for women landowners to formally access credit and invest in human capital. Thus, they show that women's land ownership also contributes to household social capital. In Malawi, Maduekwe and Buchenrieder (2023) showed that despite the increase in women's income through access to farmland, human recognition deprivation increases if a woman's access to farmland within her household increases. Their results suggest that household well-being declines with increasing deprivation for women farmers.

According to Agarwal (2018), increased female agricultural output depends on several factors, including technical training and support, financing accessibility, and commercial crop choice. Beaman et al. (2013) found that higher production resulting from more female input utilization did not translate to higher profitability, whereas Bhaumik et al. (2016) found that female land ownership had a negative impact on the proportion of incomes from high-value agriculture that boosted household wellbeing. Indicators of women's empowerment have a strong positive correlation with maize productivity in Kenya, according to a study by Diiro et al. (2018): the authors estimate that a one-unit increase in female production decision-making is related with a 32% increase in maize productivity.

Furthermore, livestock are presented as an asset that women can own more easily, thus helping to reduce the gender gap in household assets and income (Kristjanson et al., 2014). In comparison to men, rural women face more constraints that are peculiar to the livestock sector, including limited access to information and animal health

services, inadequate land for fodder production and poor access to improved breeds (Njuki et al., 2013; Galiè et al., 2017).

Using Nash's bargaining model in which utility is a function of consumption and violence, Amy Farmer and Jill Tiefenthaler (1997) showed that improving a woman's relative income enhances her bargaining power and reduces the level of violence in the household (Stevenson and Wolfers, 2009). The model shows that the more a woman's income grows (either through increased incomes, hours worked or through non-income income), the more the level of household violence declines. This finding is explained by the fact that the more a wife's income grows, the more her consumption increases. This leads to a decline in the marginal utility of consumption, whereby the husband is less able to inflict violence for a given transfer because its value to the wife has decreased (Tauchen, Witte and Long, 1991).

Dietz et al. (2018) find even when women participate in off-farm economic activities and salaried employment at lower rates than men, female autonomy in decision-making over tasks and income generated from these activities may be higher than the returns from agricultural activities. Decomposition and matching results of (Fisher, Lewin and Pilgeram, 2021) indicate that, compared to men, women make 5% to 6% less in hourly incomes and are less likely to receive a bonus or have health insurance paid by their employer. These gender gaps are partly explained by differences between female and male farmworkers in farming experience, hours worked, farm tasks, and crops cultivated. Sizable proportions of the gender gaps are unexplained and the result of discrimination, unmeasured differences between women and men, or both.

Women's socio-cultural empowerment can be assessed through factors such as education and/or literacy, membership of a farmers' group, access to information, etc. The revival of cooperatives in sub-Saharan Africa has been identified as a promising avenue for enhancing empowerment. Membership of a cooperative can have significant direct benefits for women empowerment and considerable indirect benefits on household living standards (Jones, Smith and Wills, 2012; Majurin, 2012). For example, in Kenya or Uganda, it was found that membership of a farmers' group was positively related to women's economic activity and income, as well as to increased joint decision-making by spouses regarding the household economy (Majurin, 2012). Membership of a group also plays an important role in agricultural production by providing farmers with social networks where they can exchange information on farming practices and social safety nets that they can use in times of hardship (Godquin and Quisumbing, 2008).

Furthermore, as a major dimension of human capital, education has a positive influence on economic output and growth (Balioune-Lutz and McGillivray, 2015). Women's low level of education lowers their average level of human capital and thus has a direct negative bearing on income growth. There is evidence that women's education, particularly in developing countries, also leads to social gains by curtailing fertility and infant mortality, improving the health of families and children, increasing life expectancy and improving the level of children's education in terms of quantity and quality (Knowles, Lorgelly and Owen, 2002).

2. METHODOLOGY

2.1. Empirical specification

Several approaches can be used to analyze the role of women empowerment in narrowing the gender income gap. The approach of estimating, at plot level, a production function with a gender binary as an explanatory variable has some shortcomings. Although it makes it possible to measure the income differences by gender,

the main limitation is that it does not identify the factors behind the observed differences (Oseni et al., 2014). Furthermore, examining income differences according to the gender of the head of household is subject to criticism given the structure of households in Togo. Indeed, in Togo, plots are not necessarily farmed by the head of household but rather at the individual level. Since the head of household does not have the same characteristics as the other members of the household, the scope of the conclusions drawn from these types of studies is limited in terms of economic policy.

In this study, we use the decomposition of Blinder (1973) and Oaxaca (1973) by drawing on the work of Kilic et al. (2015) to measure income differences and assess the contribution of women empowerment to the observed income differences. Based on the work of Kilic et al. (2015), we consider, for the same area, the log of the measure of agricultural income (Y), which represents the monetary value of production, for plots managed by men (M) and women (F) and make the following estimation:

$$Y_G = \beta_{GO} + \sum_{k=1}^K X'_{Gk} \beta_{Gk} + \varepsilon_G \tag{1}$$

Where G represents the gender of the plot manager, X is a vector of k explanatory variables observable at the plot, household and/or community level; β is the vector of coefficients and ε the error term under the assumption that $E(\varepsilon_M) = E(\varepsilon_F) = 0$.

The average gap between men and women "D" is expressed as the average difference in income:

$$D = E(Y_M) - E(Y_F) \tag{2}$$

Equations (1) and (2) imply that:

$$\begin{aligned} E(Y_M) &= E(\beta_{MO} + \sum_{k=1}^K X_{Mk} \beta_{Mk} + \varepsilon_M) \\ &= \beta_{MO} + \sum_{k=1}^K E(X_{Mk}) \beta_{Mk} \end{aligned} \tag{3}$$

$$\begin{aligned} E(Y_F) &= E(\beta_{FO} + \sum_{k=1}^K X_{Fk} \beta_{Fk} + \varepsilon_F) \\ &= \beta_{FO} + \sum_{k=1}^K E(X_{Fk}) \beta_{Fk} \end{aligned} \tag{4}$$

Thus, equation (2) could be re-written as follows:

$$\begin{aligned} D &= E(Y_M) - E(Y_F) \\ &= \beta_{MO} + \sum_{k=1}^K E(X_{Mk}) \beta_{Mk} - \beta_{FO} - \sum_{k=1}^K E(X_{Fk}) \beta_{Fk} \end{aligned} \tag{5}$$

Next, a coefficient vector β^* is defined, estimated from the regression of Y that is based on the pooled plot sample, and of which one of the explanatory variables is a dummy variable that helps to identify plots managed by women. The introduction of the group membership indicator (the dummy variable) in the pooled regression for the estimation of β^* factors in the possibility that the average difference in the income measure at plot level is explained by the gender of the plot farmer, thus eliminating a possible bias in the decomposition results due to the residual group difference reflected in β^* (Jann, 2008).

Reworking equation (5) by adding and subtracting (i) the slope coefficient of the pooled regression (β_{δ}^*), and (ii) the return to the observable covariates of each group valued at $\beta^* (X_{Mk} \beta_k^* \text{ and } X_{Fk} \beta_k^*)$, we obtain:

$$\begin{aligned}
D &= \underbrace{\sum_{k=1}^K [E(X_{MK}) - E(X_{FK})] \beta_k^*}_{\text{Component 1: Endowment Effect}} - \\
&\underbrace{(\beta_{OM} - \beta_O^*) + \sum_{k=1}^K [E(X_{MK})(\beta_{Mk} - \beta_k^*)]}_{\text{Male Structural Advantage}} + \underbrace{(\beta_O^* - \beta_{OF}) + \sum_{k=1}^K [E(X_{FK})(\beta_{Fk} - \beta_k^*)]}_{\text{Female Structural Disadvantage}} \\
&\underbrace{\hspace{10em}}_{\text{Component 2: Structure Effect}}
\end{aligned} \tag{6}$$

where $\beta_{MO}, \beta_{FO}, \beta_O^*, \beta_{Mk}, \beta_{Fk}, \beta_k^*$ ($k = 1 \dots K$) represent the estimated coefficients and the slope coefficients of each covariate introduced in the regressions for the male-managed, female-managed and pooled plot samples.

In equation (6) representing the aggregate decomposition, the first component refers to the endowment effect. This term can be interpreted as the change in the value of income that would occur if female plot owners had the same observable characteristics as male plot owners. The second component (the structure effect) represents the portion of the gender gap driven by deviations of each group's return from the corresponding "average" return. The first term of the structure effect $(\beta_{OM} - \beta_O^*) + \sum_{k=1}^K [E(X_{Mk})(\beta_{Mk} - \beta_k^*)]$ represents the structural advantage of men, which is equal to the portion of the gender gap accounted for by deviations of male regression coefficients from pooled counterparts. The second term of the structure effect $(\beta_O^* - \beta_{OF}) + \sum_{k=1}^K [E(X_{Fk})(\beta_{Fk} - \beta_k^*)]$ represents the structural disadvantage of women, which is equal to the portion of the gender gap accounted for by deviations of pooled regression coefficients from female counterparts.

2.2. Data

This paper used data from a representative survey of farm households conducted by the Partnership for Economic Policy (PEP) within the framework of the Community-Based Monitoring System (CBMS) project in Togo. The CBMS project designs and implements a community-based poverty monitoring system to generate data at the household and individual levels. The CBMS generates disaggregated data and indicators relating to income and livelihoods; education, health and nutrition; housing and access to basic services; access to social programs; political and/or community participation; migration, climate change; disaster resilience; peace and security and other community-specific indicators, etc. It has been developed and tested in more than 29 countries in Africa, Asia as well as North and South America.

In Togo, the objective of the project was to develop indicators to assess the impact of agricultural investments on rural poverty reduction, using a gender approach. The study took place in the six administrative regions of Togo. The selected localities have common characteristics, namely, a high-level informal economy; high unemployment and low incomes; poor and insecure housing; lack of access to drinking water, electricity and adequate toilets; poor environmental sanitation; low level of education; and high prevalence of disease. The data was collected during January and February 2018 from 4,661 households in 73 villages and about 4,541 households were enrolled in the data collection (i.e., an enrolment rate of 97.4%).

Data was collected using three questionnaires: the household questionnaire, the individual questionnaire and the community questionnaire. The household questionnaire was administered to the head of the household or his/her spouse/representative to collect information on the household and its members (socio-demographic characteristics, education, health, housing, water and sanitation, employment, migration, nutrition, possession of durable goods, etc.). The individual questionnaire designed for the household's agricultural assets was used to collect data on gender; agricultural investments; access to inputs; agricultural production; agricultural and non-agricultural income; production and use of crops and livestock; consumption and marketing, etc. Agricultural assets are any person aged 15 years and over who is engaged in agricultural activity, whether full or part-time (RNA, 2013). Pupils, students and apprentices are excluded even if their participation is not negligible and they can have their own field (RNA, 2013). The community questionnaire was designed to collect information from selected localities.

According to the gender distribution of households (RNA, 2013), 81.4% of rural households are managed by men compared to 18.6% by women. In agricultural households, the proportion of male heads of household represents 82.3% of rural households compared to female heads, which represent only 17.7%. However, in the distribution of non-agricultural households, there is a slight reduction in this gap, 60.7% of male heads of household for 39.3% of female heads. The data collected show that, the proportion of men is 77.62% by 22.38% of women. This justifies the representativity of the data collected.

2.3. Measurement of key variables

2.3.1. Farm income

Farm income is measured in different ways in the literature. For Brown (1980), a farm income analysis reflects the profitability of a farm on an annual basis. For Sekabira & Qaim (2016), farm income is the value of all farm products sold or kept for household consumption minus production costs. According to Merlen et al., (1999), farm income is obtained by the difference between the revenues related to agricultural activity and the expenses attributable to this activity. Vera & Colmenero (2017) are of the view that agricultural income (excluding fixed costs) results from the deduction of agricultural variable costs. Ouedraogo (2012) on the other hand considers the net agricultural income of households to be the value of production minus the associated production costs (costs of seeds, fertilizers and pesticides, costs of using agricultural equipment and materials, storage costs). In the case of Hemming et al. (2018), net agricultural income is measured by the value of output at market prices less the costs of purchased inputs; it may or may not be considered as net of imputed costs (e.g. land ownership or family labor). In this study, farm income is measured as the value of production less the associated production costs (e.g. costs of seeds, fertilizers and pesticides, costs of using farm equipment and machinery and storage costs).

2.3.2. Empowerment Index

Some authors consider empowerment as a process in which people without decision-making power develop decision-making skills (Kabeer, 1999). For others, it is characterized by the power to take action, participation, self-direction, self-determination, mobilization and self-confidence, access to the labor market, etc. (Kabeer, 1999 ; Alsop & Heinsohn, 2005; Ibrahim & Alkire, 2007). In the capability approach by (Sen, 1985), empowerment refers to the equal freedom a person has to choose between possible lifestyles that he or she has reasons to value.

In order to factor in the multidimensional nature of empowerment, we construct in this study an aggregate empowerment index that takes into account both the economic and socio-cultural dimensions and the family dimensions (Malhotra and Schuler, 2005; Atake and Ali, 2019). In this process, we use the Principal Component Analysis (PCA) to estimate the aggregate empowerment index (Malhotra and Schuler, 2005; Krishnakumar, 2007; Atake and Ali, 2019). The data collected helps to take into account a wide variety of variables in approximating the three main dimensions of empowerment: economic, socio-cultural and family/interpersonal. The variables used to construct this index are presented in Table 1.

Table 1. The dimensions of empowerment and their operationalization

Dimensions	Variables	Operationalization
Economic	Access to agricultural credit	No = 0 ; Yes = 1
	Ownership of livestock	No = 0 ; Yes = 1
	Access to land ownership	No = 0 ; Yes = 1
	Having a job	No = 0 ; Yes = 1
Socio-cultural	Membership of a producer group	No = 0 ; Yes = 1
	Number of years of education	Continuous variable
	Can read and write in a local or foreign language	No = 0 ; Yes = 1
Family	Has been subjected to physical, psychological or sexual violence within the 12 months preceding the survey	No = 0 ; Yes = 1
	Makes his own decisions concerning sexual relations and use of contraceptives.	No = 0 ; Yes = 1
	Beats his wife if she argues or stands up to him	No = 0 ; Yes = 1
	Beats his wife if she receives unknown/suspicious visitors	No = 0 ; Yes = 1
	Beats his wife if she goes out without informing him	No = 0 ; Yes = 1
	Beats his wife if she drinks alcohol	No = 0 ; Yes = 1
Socio-cultural	Member of a producer group	No = 0 ; Yes = 1
	Number of years of education	Continuous variable
	Can read or write in a local or foreign language	No = 0 ; Yes = 1

2.3.3. Control variables

The literature shows that several factors explain farm income. These factors as control variables are divided up into household and infrastructure characteristics. The head of household characteristics includes the age of the plot owner. Indeed, farm income increases as the age of the household head increases (Bilenkisi, Gungor and Tapsin, 2015). Nevertheless, beyond a certain threshold, it may decrease. The education level of the household is positively associated with the household farm income increases (Bilenkisi, Gungor and Tapsin, 2015). The household size regarded as potential labor in the agricultural sector is positively associated with agricultural productivity and farm income growth (Omideyi, 1988). Using fertilizer increases output and farm income (Sarris, Savastano and Christiaensen, 2006).

Table 2: Empowerment scores and descriptive statistics

Variables	Description	Male	Female	All
Empowerment index		0,0409	-0,1969	7,04E-10
Economic Empowerment index		0,0143	-0,0497	-4,70E-10
Familial Empowerment index		0,5130	-1,7943	9,12E-09
Socio-cultural empowerment index		0,0287	-0,1385	-2,29E-09
Mean				
Income	Difference between the revenues related to agricultural activity and the expenses attributable to this activity in FCFA	264057.4	154090.8	239450.1
Hired labor	Number of hired labor force used in term of man per day	8	5	6
Age	Age of the farmer (year)	47	43	46
Proportion (%)				
Sex	Gender of the farmer (equal to 1 if male)	77.62	22.38	-
Land certificate	Whether the farm has the land certificates consisting of the title deed (1. Yes; 0. No)	36.15	29.51	34.67
Improved seeds	Use of improved seed (1. Yes; 0. No)	17.67	17.38	17.61
Fertilizer	Use of fertilizer (1. Yes; 0. No)	33.27	29.51	32.43
Irrigation practice	Practice the irrigation (1. Yes; 0. No)	4.35	2.46	3.93
Mobile phone	Use of mobile phone (1. Yes; 0. No)	75.43	64.10	72.89
Religion	The farmer's religion			
None		6.85	5.57	6.57
Christian		86.01	81.15	84.92
Muslim		1.37	0.98	1.28
Animist/traditional		5.77	12.30	7.23
Input access	Whether the farmer has facility to access agriculture inputs (equal to 1 if yes)	5.95	4.59	5.65
Organized marketing system	Whether the crop production and organized marketing system has organized (equal to 1 if yes)	0.52	0.33	0.48
Input quality	Whether the inputs are of good quality (equal to 1 if yes)	97.26	96.23	97.03
Natural disaster programs	whether the farmer has been granted assistance from a natural disaster (equal to 1 if yes)	0.28	0.66	0.37
Market access	whether the farmer has easy access to product markets (equal to 1 if yes)	1.61	5.25	2.42
Literacy	whether the farmer is literate (equal to 1 if yes)	77.88	53.61	72.45
Credit access	Whether the farmer access to credit (equal to 1 if yes)	4.40	4.43	4.40
Farmer group member	Whether the farmer is member of a farmer group (equal to 1 if yes)	6.90	2.79	5.98
Livestock	Whether the farmer has the livestock (equal to 1 if yes)	39.18	22.46	1.44

In addition, modern energy sources are required to improve households' living standards and its income (Hussein and Leal Filho, 2012). Extending telecommunications services into rural areas can increase farm income by improving access to the commodity and input markets (Bhavnani et al., 2008).

Furthermore, an increase in agriculture productivity and farm income requires both an expansion of irrigated areas and the adoption of high-yield varieties (Audi-bert, 2010). The further the health facility is, the more it can affect the productivity of households and increase farm income (O'Donnell, 2007). Insurance against natural disasters farmers improves their productivity (Barnett, Barrett and Skees, 2008).

3. RESULTS

3.1. Descriptive statistics

Table 2 presents the empowerment scores, as well as the socio-demographic characteristics of the farmers and of their farms. Scores with a negative sign suggest a low level of empowerment, while a positive sign indicates a high level of empowerment. From our observations, women plot owners have a low level of empowerment regardless of the different economic, family and socio-cultural dimensions. Descriptive statistics reveal that for the same cultivable land surface, the proportion of men is higher (77.62%) compared to that of women (22.38%). Moreover, the average income of women farmers is substantially lower than that of men. With regard to the use of agricultural inputs, the data point to low use of improved seeds and fertilizers, with a higher proportion of men than women. Access to agricultural credit is very low for both sexes. There are similar trends in terms of access to natural disaster response programs and ease of access to product markets.

3.2. Contribution of women empowerment to the reduction of the gender income gap

In Table 3, the column (1) highlights the effect of the empowerment index on the income of all agricultural producers, in the absence of control variables. It is apparent from this result that empowerment contributes positively and significantly towards improving the incomes of agricultural workers. It is also clear from the different dimensions of empowerment (economic, family and socio-cultural) presented in column (4) of Table 3 that the variables of the economic dimension, such as access to credit and having a paid job improve farm income of both sexes. With regard to the socio-cultural dimension, the results indicate that belonging to a farmers' group also improves the income of farmers.

The results presented in columns 6 and 7 (Table 3) underscore the factors that influence the income of male and female plot owners respectively. They show that the empowerment index has a positive and significant influence on the income of women, compared to men for whom the effect is non-significant. Considering the control variables, the results reveal that irrigation practices and selected seed use are associated with improved farm income. This aligns with the findings of Kurukulasuriya, Kala and Mendelsohn (2011), who show that irrigation practices and selected seed use are adaptive methods to reduce the effects of climate change and increase farm income. Similarly, easy access to product or input markets and mobile phone use for financial transactions are correlated with improved farm income. These results, in line with those of Mittal and Mehar (2016) suggest that mobile phones can play a catalytic role in improving agricultural productivity and farm incomes, as the quality of information, timeliness of information, and reliability of information are the three essential aspects that need to be provided to farmers to meet their needs and expectations. This is done through the reduction of transaction costs. Furthermore, having insurance against natural disasters is associated with improved farm income.

Table 3: OLS Estimation of farm income determinants

Farm Income	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Empowerment index	0.073*** (2.82)	-	-	-	0.055** (2.19)	0.020 (0.73)	0.203*** (3.46)
Familial empowerment index	-	0.235*** (9.94)	-	-	-	-	-
Economic empowerment index	-	-	0.089*** (3.14)	0.088*** (4.07)	-	-	-
Own decisions	-	-	-	-0.310*** (-3.25)	-	-	-
Psycho./sexual violence literacy	-	-	-	0.209 (0.50)	-	-	-
farmer group member	-	-	-	0.270*** (2.84)	-	-	-
Fertilizer	-	-	-	-	0.015 (0.27)	-0.042 (-0.52)	0.025 (0.18)
Irrigation	-	-	-	-	0.455*** (3.44)	0.302** (2.47)	0.577** (2.43)
Hired labor	-	-	-	0.007*** (5.04)	0.006*** (4.51)	0.005*** (3.41)	0.017*** (5.01)
Mobile phone	-	-	-	0.264*** (4.60)	0.264*** (4.22)	0.199*** (2.71)	0.257* (1.79)
Land certificate	-	-	-	0.240*** (5.36)	0.256*** (4.82)	0.256*** (4.90)	0.211* (1.88)
Market access	-	-	-	0.653*** (4.43)	0.800*** (4.43)	0.524*** (2.88)	0.947** (2.55)
Natural disaster programs	-	-	-	-0.574*** (-3.49)	0.507 (1.29)	0.368 (1.35)	0.926*** (3.34)
Improved seeds	-	-	-	-	0.200*** (2.81)	0.243*** (3.90)	0.118 (1.02)
Constant	12.017*** (463.06)	11.951*** (508.16)	11.950*** (499.77)	10.894*** (72.70)	10.866*** (59.99)	11.273*** (62.40)	10.207*** (26.80)
F	7.961	98.897	9.860	18.732	13.963	10.709	8.045
p	0.005	0.000	0.002	0.000	0.000	0.000	0.000
N	2679	2679	2679	2679	2679	2679	2679

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The results in Table 4 highlight the income gap between male and female plot owners and the decomposition of this gap. They are divided into three parts. The first part (A) shows the average results of gender differences in farm income. The analysis of the results shows that the average agricultural income gap observed between men and women is about 66.2%, which suggests that for the same size of farm, men's income is significantly higher than women's by 66.2%.

The second part (B) presents the components of the aggregate decomposition of the income gap, which include the endowment effect, the structural advantage of men and the structural disadvantage of women. Thus, according to the estimates in Table 4, 17.7% of the average farm income gap between women and men is attributable to the endowment effect, and 58.5% to the structural advantage that men have.

By considering the contributions of the various variables to the income gap according to the aggregate components, we note that the empowerment index and the use of paid labor are the factors that significantly explain the differences in farm income in our study area.

Table 4: Empowerment Index and Oaxaca decomposition of log value of farm income

(A) Mean Gender differentia			
Mean male-managed plot agricultural income	12.130***		
	(432.24)		
Mean female-managed plot agricultural income	11.468***		
	(185.53)		
Mean gender differential in agricultural income	0.662***		
	(9.75)		
(B) Aggregate decomposition			
	Endowments effect	Male structural advantage	Female structural disadvantage
	0.177***	0.585***	-0.100**
	(4.12)	(8.88)	(-2.38)
Share of gender differential	26,74%	88,37%	-15,1%
(C) Detailed decomposition			
	Endowments effect	Male structural advantage	Female structural disadvantage
Empowerment index	0.049***	0.036***	-0.045***
	(3.05)	(2.67)	(-2.62)
Land certificate	0.008	0.014	0.002
	(1.12)	(0.34)	(0.33)
Improved seeds	-0.000	0.022	-0.000
	(-0.02)	(0.92)	(-0.02)
Fertilizer	0.001	-0.019	-0.003
	(0.18)	(-0.40)	(-0.39)
Irrigation	0.007	-0.009	-0.003
	(1.06)	(-0.96)	(-0.76)
Hired labor	0.047***	-0.069***	-0.033**
	(2.79)	(-2.98)	(-2.32)
Mobile phone	0.028*	-0.042	-0.007
	(1.67)	(-0.39)	(-0.39)
Market access	0.033*	-0.402	-0.015
	(1.93)	(-1.02)	(-0.96)
Natural disaster programs	-0.007	-0.006	0.004
	(-1.33)	(-1.13)	(1.00)

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4. DISCUSSION

The results presented in Tables 3 and 4 points to a significant gender gap in farm income of about 66%. This income gap can be explained by the low decision-making power of female plot owners in farm households. Indeed, it has been observed in farm households in Togo that the man is primarily responsible regardless of his land ownership status or whether or not he owns his plots and those belonging to his wife. He therefore manages the woman's plots, decides which crops to cultivate, the areas to cultivate and the work shifts of each member of the household on the different fields. He also manages family and external labor, including the use of such labor in the family fields under his authority. He manages the expenses, harvests and income from these fields. In addition to domestic work, the women dedicate the rest of their time to agricultural activities on the man's plots, doing work that requires a great deal of attention, patience, perseverance or endurance. This includes sowing, weeding, winnowing and hulling as well as transportation and marketing of produce. Thus, given the little time they spend on their plots, their income is not high enough to match that of their male counterparts.

Moreover, the work overload from domestic and business activities means that women can hardly engage in paid agricultural employment, while men have the opportunity to work as farm laborers. This could contribute to the increase in men's agricultural income compared to that of women. It should be noted that this result is consistent with the findings of several other authors in the literature in Sub-Saharan Africa (Oseni et al., 2014; Kilic, Palacios-Lopez and Goldstein, 2015; Ali et al., 2016).

The decomposition of the farm income gap between male and female farmers reveals that the structural effects component is larger than the endowment effects component. This suggests that even if women had access to the same inputs and resources as men, there would still be significant differences in income between them. Indeed, for the same area of land and with the same endowments, several unobservable factors, namely, ideological, religious, ethnic, economic and socio-cultural, etc. are, traditionally, sources of gender discrimination and could contribute to this income gap. Thus, the differentiated forms of behavior that society ascribes to men and women would be unobservable sources that may explain the income gap between male and female agricultural producers. The inability to obtain civil documents coupled with illiteracy are major hurdles for women's access to credit in Togo.

Acts of violence against women, including sexual violence, economic deprivation and physical violence often prevent women from carrying out their activities and having a decent income compared to men. This physical violence is accompanied by moral violence which is sometimes more unbearable and stems from the behavior of their husbands and in-laws. These different forms of discrimination against women may affect their income compared to the income of their male counterparts and hence determine the gap observed in the results, as shown in other studies such as those by Oseni et al. (2014) and Kilic, Palacios-Lopez and Goldstein (2015).

It is clear from the analysis of the results that the empowerment index and the use of paid labor are the main factors that contribute significantly to the agricultural income gap between men and women. Based on the finding in the descriptive analysis that men have a higher level of empowerment than women, it is obvious that this difference in the average level of empowerment significantly accentuates the observed agricultural income gap. An increase in the level of women empowerment should therefore translate into growth of their income and a narrower gender income gap.

A decomposition of the empowerment index into its component factors shows that literacy levels and livestock ownership help to significantly reduce agricultural income gap between men and women. This major contribution of the literacy level can be attributed to persistent disparities in literacy and education, which negatively affect girls and women. In terms of gender equity, there is a lower illiteracy rate among Togolese women, which affects their living conditions. Those who are educated rarely go beyond primary school level, let alone secondary level. As a result, women are not aware of all the legal provisions in the Convention on the Elimination of All Forms of Discrimination against Women, which work in their favor. This lack of awareness is one of the factors underpinning the observed income gap.

Additionally, livestock are an important asset for women, who can access and control them more easily than they can access and control land or other physical or financial assets. Livestock therefore serve as a bank for peasant economies. As a common currency, livestock are a source of income that can be quickly mobilized to meet the expenses of rural households, and also constitute an important part of a farmer's assets. For rural populations who are still hardly binarized, livestock are a means of saving and capitalizing on the profits generated by agricultural and non-agricultural activities. However, although both women and men practice livestock farming in Togo, the percentage of animals managed by male heads of household varies from 95.9% for cattle to 85.0% for poultry, as opposed to 15% and 4.1% respectively in the case of

women (RNA, 2013). This clearly shows the significant contribution of livestock ownership to the agricultural income gap observed between men and women.

Another finding is that mobile phones play a key role in the production and marketing of agricultural products. Indeed, mobile telecommunication technology can help provide information on prices and the market (Aker, 2008). Similarly, (Bayes, Von Braun and Akhter, 1999) found that mobile services can facilitate transactions by connecting farmers with various buyers. This can help them decide where and at what price to sell their produce (Abraham, 2007). All this explains the positive effect of mobile phones on the income of rural farmers. This finding is in line with that of (Komunte, 2015), i.e., that the use of mobile phones by women entrepreneurs in Uganda has enabled them to reduce transaction costs and increase profits by strengthening their business network.

Ownership of a land title deed by rural farmers has a positive effect on farm incomes as it is an asset for boosting agricultural investment and, hence, agricultural production. This is because land security promotes agricultural investment, access to credit (given that land can be used as collateral), adoption of sustainable soil fertility management practices and agricultural productivity (Besley, 1995; Otsuka and Place, 2001). This finding is consistent with that of (Besley and Burgess, 2000) who observed that land reforms in India have been associated with poverty reduction through increased farm incomes. Similarly, Mariapia Mendola and Franklin Simtowe (2015) concluded that, in Malawi, households with title deeds had significantly higher agricultural incomes than households without title deeds.

Membership of a farmers' group allows rural farmers to adopt better farming practices, thus raising farm income. It facilitates use of agricultural technologies through information exchange and sharing of experiences (Yong Ngondjeb et al., 2014). It also enables rural farmers to benefit from economies of scale on purchased inputs, which leads to lower production costs. Lastly, it facilitates access to loans from financial institutions to increase agricultural production. In Togo, farmers belonging to the same group help each other in the fields, with the added benefit that they can obtain loans from financial institutions through joint surety. However, the desired impact of such membership may not be achieved in some cases, as shown by Moumouni, Arouna and Zakari (2017). This is because farmer structures exist only on paper and are inactive given that they were set up at the request of development partners and not on the farmers' own initiative.

The adoption of improved seed varieties leads to increased yield, improved food security and higher incomes for farmers (Shiferaw et al., 2014). This explains the positive effect of improved seed use on the income of rural farmers. The finding is consistent with that of Ouédraogo (2003), who showed that the adoption of improved cowpea varieties increased farm incomes in the central plateau of Burkina Faso. Similarly, Tesfaye, Bedada and Mesay (2016) and Maruod et al. (2013) demonstrated that the adoption of improved seeds significantly increases crop yields.

In promoting rural development and poverty reduction, focus should not only be on improving the production capacity of farmers, but also on improving their access to markets (Jayne, Mather and Mghenyi, 2010). As a result, rural farmers with better access to input markets and products earn a higher income. Miehlsbradt and McVay (2005) show that improved market access for farmers results in high-value agricultural products and engages them in high value-added activities such as agribusiness. This leads to higher farm income for rural farmers with improved market access for inputs and products.

The agricultural income gap could be narrowed by empowering women to manage their plots of land and setting up literacy programs in rural areas.

5. CONCLUSION

This paper examines the agricultural income gap between men and women in rural areas and its determinants, using the Oaxaca-Blinder decomposition method. The data used are from a representative survey of farm households conducted during January and February 2018 by the Partnership for Economic Policy (PEP) within the framework of the Community-Based Monitoring System (CBMS) project in Togo. According to the findings, women plot owners have a low level of empowerment regardless of the different economic, family and socio-cultural dimensions. It is shown that, for the same cultivable land surface, the proportion of men is higher (77.62%) compared to that of women (22.38%). Moreover, the average income of women farmers is substantially lower than that of men. With regard to the use of agricultural inputs, the data point to low use of improved seeds and fertilizers, with a higher proportion of men than women. Access to agricultural credit is very low for both sexes.

Our results shows that the average agricultural income gap observed between men and women is about 66.2%, which suggests that for the same size of farm, men's income is significantly higher than women's. Furthermore, 17.7% of the average of farm income gap is attributable to the endowment effect, and 58.5% to the structural advantage generally involving unobservable or discriminatory factors. This gap is accentuated by factors such as women's limited decision-making powers within the household and limited education, inadequate access to agricultural credit, the disproportionate amount of time spent on unpaid work, the fact that they virtually do not own livestock, and limited decision-making powers in the management of their farms. The agricultural income gap could be narrowed by empowering women to manage their plots of land and setting up literacy programs in rural areas.

REFERENCES

- Abraham, Y.-M.**, 2007. Du souci scolaire au sérieux managérial, ou comment devenir un «HEC». *Revue française de sociologie*, 48(1), 37–66.
- Agarwal, B.**, 2018. Can group farms outperform individual family farms? Empirical insights from India. *World Development*, 108, 57–73.
- Aker, J.C.**, 2008. Does digital divide or provide? The impact of cell phones on grain markets in Niger. *Center for Global Development working paper*, 154.
- Ali, D., Bowen, D., Deininger, K. and Duponchel, M.**, 2016. Investigating the Gender Gap in Agricultural Productivity: Evidence from Uganda. *World Development*, 87, 152–170.
- Alsop, R. and Heinsohn, N.**, 2005. *Measuring empowerment in practice: Structuring analysis and framing indicators*. The World Bank.
- Atake, E.-H. and Ali, P.G.**, 2019. Women's empowerment and fertility preferences in high fertility countries in Sub-Saharan Africa. *BMC women's health*, 19(1).
- Audibert, M.**, 2010. Endemic diseases and agricultural productivity: Challenges and policy response. *Journal of African Economies*, 19, 110–165.
- Baliamoune-Lutz, M. and McGillivray, M.**, 2015. The impact of gender inequality in education on income in Africa and the Middle East. *Economic Modelling*, 47, 1–11.
- Barnett, B.J., Barrett, C.B. and Skees, J.R.**, 2008. Poverty traps and index-based risk transfer products. *World Development*, 36(10), 1766–1785.
- Bayes, A., Von Braun, J. and Akhter, R.**, 1999. *Village pay phones and poverty reduction: Insights from a Grameen Bank initiative in Bangladesh*. ZEF Discussion Papers on Development Policy.
- Beaman, L., Karlan, D., Thuysbaert, B. and Udry, C.**, 2013. Profitability of fertilizer: Experimental evidence from female rice farmers in Mali. *American Economic Review*, 103(3), 381–86.
- Besley, T.**, 1995. Nonmarket institutions for credit and risk sharing in low-income countries. *Journal of Economic Perspectives*, 9(3), 115–127.
- Besley, T. and Burgess, R.**, 2000. Land reform, poverty reduction, and growth: Evidence from India. *The Quarterly Journal of Economics*, 115(2), 389–430.

- Bhaumik, S.K., Dimova, R. and Gang, I.N.**, 2016. Is women's ownership of land a panacea in developing countries? Evidence from land-owning farm households in Malawi. *The Journal of Development Studies*, 52(2), 242–253.
- Bhavnani, A., Chiu, R.W.-W., Janakiram, S., Silarszky, P. and Bhatia, D.**, 2008. The role of mobile phones in sustainable rural poverty reduction, Washington, D.C. : World Bank Group.
- Bilenkisi, F., Gungor, M.S. and Tapsin, G.**, 2015. The Impact of Household Heads' Education Levels on the Poverty Risk: The Evidence from Turkey. *Educational Sciences: Theory and Practice*, 15(2), 337–348.
- Blinder, A.S.**, 1973. Wage discrimination: reduced form and structural estimates. *Journal of Human Resources*, 436–455.
- Brown, S.R.**, 1980. *Political subjectivity: Applications of Q methodology in political science*. Yale University Press.
- Croppenstedt, A., Goldstein, M. and Rosas, N.**, 2013. *Gender and agriculture: Inefficiencies, segregation, and low productivity traps*. The World Bank.
- Dietz, T., Estrella Chong, A., Font Gilabert, P. and Grabs, J.**, 2018. Women's empowerment in rural Honduras and its determinants: insights from coffee communities in Ocotepeque and Copan. *Development in Practice*, 28(1), 33–50.
- Diirro, G.M., Seymour, G., Kassie, M., Muricho, G. and Muriithi, B.W.**, 2018. Women's empowerment in agriculture and agricultural productivity: Evidence from rural maize farmer households in western Kenya. *PLOS ONE*, 13(5).
- FAO**, 2010. *Women in Agriculture Closing the gender gap for development*. Food and Agriculture Organization of the United Nations. Rome, Italy.
- Farmer, A. and Tiefenthaler, J.**, 1997. An economic analysis of domestic violence. *Review of Social Economy*, 55(3), 337–358.
- Fisher, M., Lewin, P.A. and Pilgeram, R.**, 2021. Farmworkers and the gender wage gap: An empirical analysis of wage inequality in US agriculture. *Applied Economic Perspectives and Policy*.
- Galiè, A., Distefano, F., Kangogo, D., Mattioli, R.C., Wieland, B. and Baltenweck, I.**, 2017. Gendered perspectives on smallholder cattle production and health management in three sites in Tanzania. *Journal of Gender, Agriculture and Food Security*, 2(3), 43–65.
- Godquin, M. and Quisumbing, A.R.**, 2008. Separate but equal? The gendered nature of social capital in rural Philippine communities. *Journal of International Development: The Journal of the Development Studies Association*, 20(1), 13–33.
- Hemming, D.J., Chirwa, E.W., Dorward, A., Ruffhead, H.J., Hill, R., Osborn, J., Langer, L., Harman, L., Asaoka, H. and Coffey, C.**, 2018. Agricultural input subsidies for improving productivity, farm income, consumer welfare and wider growth in low-and lower-middle-income countries: a systematic review. *Campbell Systematic Reviews*, 14(1), 1–153.
- Hussein, M.A. and Leal Filho, W.**, 2012. Analysis of energy as a precondition for improvement of living conditions and poverty reduction in sub-Saharan Africa. *Scientific Research and Essays*, 7(30), 2656–2666.
- Ibrahim, S. and Alkire, S.**, 2007. Agency and empowerment: A proposal for internationally comparable indicators. *Oxford Development Studies*, 35(4), 379–403.
- Jayne, T.S., Mather, D. and Mghenyi, E.**, 2010. Principal challenges confronting smallholder agriculture in sub-Saharan Africa. *World Development*, 38(10), 1384–1398.
- Jones, E., Smith, S. and Wills, C.**, 2012. Women producers and the benefits of collective forms of enterprise. *Gender & Development*, 20(1), 13–32.
- Kabeer, N.**, 1999. Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change*, 30(3), 435–464.
- 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*, 70, 416–463.
- Knowles, S., Lorgelly, P.K. and Owen, P.D.**, 2002. Are educational gender gaps a brake on economic development? Some cross-country empirical evidence. *Oxford Economic Papers*, 54(1), 118–149.
- Komunte, M.**, 2015. Usage of mobile technology in women entrepreneurs: A case study of Uganda. *The African Journal of Information Systems*, 7(3).
- Krishnakumar, J.**, 2007. Going beyond functionings to capabilities: An econometric model to explain and estimate capabilities. *Journal of Human Development*, 8(1), 39–63.

- Kristjanson, P., Waters-Bayer, A., Johnson, N., Tipilda, A., Njuki, J., Baltenweck, I., Grace, D. and MacMillan, S.**, 2014. Livestock and women's livelihoods. In: Agnes R. Quisumbing, Ruth Meinzen-Dick, Terri L. Raney, André Croppenstedt, Julia A. Behrman, Amber Peterman (eds), *Gender in agriculture*. Springer, 209–233.
- Kurukulasuriya, P., Kala, N. and Mendelsohn, R.**, 2011. Adaptation and climate change impacts: a structural Ricardian model of irrigation and farm income in Africa. *Climate Change Economics*, 2(02), 149–174.
- Maduekwe, E. and Buchenrieder, G.**, 2023. The effect of negative human recognition on farmland access and well-being: Evidence from women farmers in Malawi. *Review of Development Economics*, 27(1), 112–133.
- Majorin, E.**, 2012. How Women Fare in East African Co-operatives: The Case of Kenya, Uganda and Tanzania, Dar es Salaam, International Labour Organization.
- Malhotra, A. and Schuler, S.R.**, 2005. Women's empowerment as a variable in international development. *Measuring empowerment: Cross-disciplinary perspectives*, 1(1), 71–88.
- Maruod, M.E., Breima, E.E., Elkhidir, E.E. and El Naim, A.M.**, 2013. Impact of improved seeds on small farmers productivity, income and livelihood in Umrwaba locality of north Kordofan, Sudan. *International Journal of Agriculture and Forestry*, 3(6), 203–208.
- Mendola, M. and Simtowe, F.**, 2015. The welfare impact of land redistribution: Evidence from a quasi-experimental initiative in Malawi. *World Development*, 72, 53–69.
- Merlen, T., Sereno, D., Brajon, N., Rostand, F. and Lemesre, J.-L.**, 1999. Leishmania spp: completely defined medium without serum and macromolecules (CDM/LP) for the continuous in vitro cultivation of infective promastigote forms. *The American journal of tropical medicine and hygiene*, 60(1), pp.41–50.
- Miehlbradt, A.O. and McVay, M.**, 2005. From BDS to making markets work for the poor. *International Labour Organization*.
- Mittal, S. and Mehar, M.**, 2016. Socio-economic factors affecting adoption of modern information and communication technology by farmers in India: Analysis using multivariate probit model. *The Journal of Agricultural Education and Extension*, 22(2), 199–212.
- Moumouni, Y.I., Arouna, O. and Zakari, S.**, 2017. Diversité floristique et structure des formations végétales dans le district phytogéographique du Borgou-nord au Bénin (secteur de l'arrondissement de Bagou).
- Mugisha, J., Sebatta, C., Mausch, K., Ahikiriza, E., Kalule Okello, D. and Njuguna, E.M.**, 2019. Bridging the gap: decomposing sources of gender yield gaps in Uganda groundnut production. *Gender, Technology and Development*, 23(1), 19–35.
- Nguyen, M. and Le, K.**, 2023. The impacts of women's land ownership: Evidence from Vietnam. *Review of Development Economics*, 27(1), 158–177.
- Njuki, J., Waithanji, E., Lyimo-Macha, J., Kariuki, J. and Mburu, S.**, 2013. *Women, livestock ownership and markets: Bridging the gender gap in eastern and southern Africa*. Routledge.
- Oaxaca, R.**, 1973. Male-female wage differentials in urban labor markets. *International Economic Review*, 693–709.
- O'Donnell, O.**, 2007. Access to health care in developing countries: breaking down demand side barriers. *Cadernos de saude publica*, 23, 2820–2834.
- Omidéyi, A.K.**, 1988. Family size and productivity of rural households in Nigeria. *Janasamkhya*, 6(1), 29–48.
- Oseni, G., Corral, P., Goldstein, M. and Winters, P.**, 2014. *Explaining gender differentials in agricultural production in Nigeria*. The World Bank.
- Otsuka, K. and Place, F.M.**, 2001. *Land tenure and natural resource management: A comparative study of agrarian communities in Asia and Africa*. International Food Policy Research Institute.
- Ouedraogo, M.**, 2012. Impact des changements climatiques sur les revenus agricoles au Burkina Faso. *Journal of Agriculture and Environment for International Development*, 106(1), 3–21.
- Ouédraogo, S.**, 2003. Impact économique des variétés améliorées du niébé sur les revenus des exploitations agricoles du plateau central du Burkina Faso. *Tropicicultura*, 21(4), 204–210.
- Peterman, A., Quisumbing, A., Behrman, J. and Nkonya, E.**, 2011. Understanding the complexities surrounding gender differences in agricultural productivity in Nigeria and Uganda. *Journal of Development Studies*, 47(10), 1482–1509.
- QUIBB**, 2015. *Questionnaire des Indicateurs de Base du Bien-Etre*.

- RNA, 2013. *Aperçu general de l'agriculture togolaise*.
- Sarris, A.H., Savastano, S. and Christiaensen, L.J., 2006. *The role of agriculture in reducing poverty in Tanzania: A household perspective from rural Kilimanjaro and Ruvuma*, FAO Commodity and Trade Policy Research Working Paper No. 19.
- Sekabira, H. and Qaim, M., 2016. *Mobile Phone Technologies, Agricultural Production Patterns, and Market access in Uganda*. Fifth International Conference, African Association of Agricultural Economists, Ethiopia.
- Sen, A., 1985. *Commodities and capabilities Oxford*. Elsevier Science Publishers.
- Shiferaw, B., Kassie, M., Jaleta, M. and Yirga, C., 2014. Adoption of improved wheat varieties and impacts on household food security in Ethiopia. *Food Policy*, 44, 272–284.
- Sraboni, E., Malapit, H.J., Quisumbing, A.R. and Ahmed, A.U., 2014. Women's empowerment in agriculture: What role for food security in Bangladesh? *World Development*, 61, 11–52.
- Stevenson, B. and Wolfers, J., 2009. The paradox of declining female happiness. *American Economic Journal: Economic Policy*, 1(2), 190–225.
- Tauchen, H.V., Witte, A.D. and Long, S.K., 1991. Domestic violence: A nonrandom affair. *International Economic Review*, 491–511.
- Tesfaye, S., Bedada, B. and Mesay, Y., 2016. Impact of improved wheat technology adoption on productivity and income in Ethiopia. *African Crop Science Journal*, 24(s1), 127–135.
- Tiruneh, A., Tesfaye, T., Mwangi, W. and Verkuil, H., 2001. *Gender differentials in agricultural production and decision-making among smallholders in Ada, Lume, and Gimbichu Woredas of the Central Highlands of Ethiopia*. Cimmyt.
- Udry, C., 1996. Gender, agricultural production, and the theory of the household. *Journal of Political Economy*, 104(5), 1010–1046.
- Vera, A.C. and Colmenero, A.G., 2017. Evaluation of risk management tools for stabilising farm income under CAP 2014-2020. *Economía agraria y recursos naturales*, 17(1), 3–23.
- Yong Ngondjeb, D., Dia Kamgnia, B., Nje, P. and Havard, M., 2014. L'Évaluation économique de l'investissement dans la conservation des sols: Le cas des aménagements antiérosifs dans le bassin versant du lac Lagdo au Cameroun. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroéconomie*, 62(3), 393–410.

Réduire l'écart de revenus entre les travailleurs agricoles masculins et féminins : le rôle de l'autonomisation des femmes en milieu rural au Togo

Résumé – Cet article a pour objectif principal d'analyser la contribution de l'autonomisation des femmes à la réduction de l'écart de revenu entre les femmes et les hommes en milieu rural au Togo. Pour ce faire le modèle de décomposition d'Oaxaca et Blinder a été utilisé en se basant sur les données d'enquête collectées auprès de 4 541 ménages agricoles en 2018 dans les milieux ruraux au Togo. Les résultats indiquent qu'à superficie égale, le revenu des hommes est significativement supérieur à celui des femmes d'environ 66%. Cet écart de revenu est imputé en grande partie aux effets structurels (42,7%) contre 7,2% dû aux effets de dotation. Les résultats montrent également que l'autonomisation des femmes contribue significativement à la réduction de l'écart de revenu agricole entre les femmes et les hommes. Ces résultats suggèrent que les politiques visant à renforcer le pouvoir de décision des femmes et à améliorer leur niveau d'éducation seraient un moyen efficace d'augmenter leur revenu agricole. La possession de titres fonciers par les femmes pourrait être un atout pour stimuler l'investissement agricole et, par conséquent, leur revenu.

Mots-Clés

Disparités de revenu
Développement économique rural
Autonomisation des femmes
Pauvreté
