



AN ANALYSIS OF THE EFFECT OF DEMOGRAPHIC CHARACTERISTICS ON COCOA PRODUCTION AND POVERTY AMONG COCOA FARMERS IN CAMEROON

Joseph Tosam Ngong (Ph.D) 

Faculty of Economics and Management Sciences, University of Maroua – Cameroon
jtosam@yahoo.co.uk

Wanie Abraham Jules (Ph.D)

Faculty of Economics and Management Sciences, University of Maroua – Cameroon

Douswe Benoit (Ph.D)

Faculty of Economics and Management Sciences, University of Maroua – Cameroon

Abstract

There are lots of empirically and theoretically support that Household demographic characteristics have a very strong correlation on output and the rate of poverty in the agricultural sector, but with no clear-cut evidence as to which these demographics are responsible for output and poverty. This study evaluates the effect of demographic characteristics on cocoa production and poverty among cocoa farmers in Cameroon and specifically in the South West Region (SWR). With the use of a three-stage sampling technique, 374 households were randomly chosen in the study area. Both descriptive and inferential statistics were used in analyzing the data. For descriptive statistics we made use bar and pie charts, and for inferential the Ordinary Least Square (OLS) was used. The results reveal that the dependency ratio has a negative significant effect on both cocoa production and per capita household income, whereas experience and farmer training have a positive significant effect on both output and per capita household income. Level of education and age of cocoa farm has a negative significant effect on cocoa production. Male headed households have a negative significant effect on per capita household income whereas level of education and farm size has a positive significant effect and

per capita household income. From the aforementioned analysis, poverty among the cocoa farming households in the SWR of Cameroon will be greatly reduced if that farmers are encouraged to stay in production (experience), reduce dependency ratio, increase farmer trainings (FFS and FBS), farm sizes and the level of education of the farmers. Therefore, to improve on production and household welfare (poverty reduction) in rural Cameroon in the agricultural sector (cocoa) of rural Cameroon, policy programs should critically consider experience, level of education and farmer training as important factors.

Keywords: Poverty, Demographic Characteristics, Cameroon, Production

INTRODUCTION

Poverty continues to remain a global challenge affecting almost all economies in the entire globe (Fambon, 2017). Ma et al., (2022) refer to it as a worldwide problem, found even in wealthy areas. Thus, no country in the world is totally free from the issues of poverty; both developing and developed economies are affected in one way or the other by poverty. According to Dalaker (2020), 38.1 million people were still living below the federal poverty level in America, representing 11.8% of the total population as of 2018. Castañeda et al. (2018) reveal that approximately 766 million people were estimated to be living in “extreme poverty” by 2013, while Suttie, (2020) disclosed that 736 million people are living in extreme poverty globally. Poverty has led to untold hardship, deprivation and suffering in human life (Aguilar and Sumner, 2019). This has led to countries, world governing bodies, non-governmental organisations, policymakers, researchers and other scientific partners to pick up the fight against poverty. Thus, eradicating poverty is a pressing global challenge. This explains why both the United Nations Millennium Development Goal (MDGs) (1990-2015), and the Sustainable Development Goal (SDGs) (2015-2030), has continued to maintain at the top of her goals the need to end poverty. The World Bank has equally set a determined goal of reducing the rate of extreme poverty to 3 percent by 2030.

This poverty situation is more critical in developing economies especially those of sub Saharan Africa (Suttie, 2020). The developing world harbors about 2/3 thirds of the world's poor population, with approximately 65 to 90% of this poor population living in Sub Saharan Africa, thus, the concentrated of poverty in this region is higher than in any other region in the world (WDI, 2020; Suttie, 2020). Approximately 79 percent of this extremely poor people live in rural areas and most of them depend on agriculture; therefore, the major source of livelihood for the poor population in this region is agriculture, which is the main

development engine of most African economies (Ma, 2022; Suttie, (2020). A majority of these farmers are small holder producers. According to the World Bank (2020), Smallholder farms constitute approximately 80% of all farms in Sub Saharan Africa (SSA). Therefore, improving productivity, all other things being constant will to a greater extent reduce poverty.

The main development pillar of the economy of Cameroon like many African countries is agriculture. This sector remains the country's major employer (75%), one of the highest export earners (more than half of the non-oil export revenue) and the greatest contributor to the country's GDP (30%). Despite the importance of this sector to the growth and development of Cameroon, it remains the highest sector infested with poverty of all sorts. Looking at poverty among heads of households, according to PEP, (2016) the rate of poverty is 9.6% for those in the formal private sector, 23% for those in the informal non-agricultural sector and 59.6% in the informal agricultural sector and 7.8% in the formal agricultural sector. Therefore, it won't be an exaggeration to say that if the battle of poverty reduction in Cameroon will be won or lost, then it will be in the agricultural sector of rural Cameroon where the poor are highly concentrated.

One of the strongholds of the country's agricultural strength is the cocoa crop sector, this sector plays a major role in the country employment, export revenue and GDP contribution. According to NCCB, (2022) a revenue of 288.7 billion FCFA was generated from cocoa exports in 2021 and a contribution of 8.2% to agricultural GDP. About 60 percent of the population in Cameroon depending directly or indirectly on cocoa for their livelihood (Klarer, 2014; Tosam et al., 2019). Despite these contributions and the dependence of the economy of Cameroon on cocoa, the sector is facing lots of pre- and post-harvest challenges, all of which end up in the reduction of the quality and quantity of cocoa produced. Though recent statistics show that there has been an increase in the production of cocoa in Cameroon, it has been proven that this increase is due more land that has been brought under cultivation and not because of an increase in productivity. This has led to an increase in the rate poverty in this sector, thus, affecting its sustainability (Tchokote, 2015).

The cocoa sector is therefore endangered with very negative consequences among which is the rural exodus of the working age population in search of better opportunities abroad or in cities. This tend to further contribute to low productivity as a majority of the cocoa producing communities are left with mostly the old and children with low productive capacities. This is perhaps one of the major reasons for the high prevalence of diseases and hunger within villages, increasing child labor, little or no child education and increased poverty. This has tended to jeopardize the cocoa sector on which thousands of cocoa farming households depend

for their livelihoods. Thus, increasing cocoa production and the per capita household incomes (poverty reduction) of the cocoa farmers is urgent and necessary. There is therefore, great need for the examination of factors affecting cocoa production and the farmers income for poverty reduction.

However, a lot of studies have been carried out on the determinants of cocoa production. Some authors looked socio economic determinants (Tosam and Forgha, 2013; Yahaya, et al., 2015; Mukete et al (2016) other analyzed the effect of climate and other natural factors (Oyekale and Oladele, 2012; Kimengsi and Tosam, 2013; and Teal, et al., 2013), and some cocoa production growth challenges as well as the effect of both human and physical factors affecting cocoa production (Fadipe et al., 2012; Tchokote, 2015;.Effah et al, 2017; Tosam et al. 2019 and Fouet et al., 2022). Among these studied there is none that has scientifically established the link between demographic characteristics of the cocoa farmers, production and poverty particularly in the rural areas of the south west region of Cameroon, which stands as one of the highest cocoa-producing basins in Cameroon. This is therefore the motivation for this study.

METHODOLOGY

The Study

This study is carried out in Cameroon, the 5th world largest producer of cocoa and Africa's 4th largest producer. Cocoa is produced in 7 of Cameroon's ten regions with two major production basins. These major production basins of the country are found in the South West and the Centre Regions, known as the South West production basin and the Centre production basin. Attention was paid to the rural areas of the country where cocoa is predominantly produced and specification the South West Region was taken as our unit of analysis, which remains one of the highest cocoa-producing basins in the country. This region is bounded to the West by Nigeria, to South by the Atlantic Ocean, to the East by the Littoral region and the North by the North West Region. It is divided into six administrative units called "divisions". All the six divisions of the South West Region are involved in cocoa production. Thus, the study covers all these six cocoa-producing divisions of the region.

Data Collection Instrument

Data was obtained with the use of structured questionnaires, interviews and pictures showing some realities on ground. A four-point Likert scale survey questionnaire was used for data collection which had options ranging from "strongly agree" to "strongly disagree". Thus, the

study made use of primary sources of data. The questionnaires used for this study were self-designed questionnaires. The field survey was carried out between the months of August and October, which are believed to be the months in which cocoa is predominantly produced in the South West Region

Sampling

The study adopted a three-stage sampling frame, beginning with a stratified sampling technique, purposive, convenient and random sampling techniques, thus, a multi-stage sampling technique was employed. The Divisional Delegation of Agriculture and Rural Development and the National Institute of Statistics (NIS) for the South West Region provided a document showing all the cocoa producing communities found in the Region and their productive capacities. The questionnaires were administered to household heads.

Model specification

The theoretical framework of our model here is the Chayanov peasant model. This is a theory of household that focuses on the subjective decision made by the household regarding the amount of family labour to commit to farm production in order to satisfy its consumption needs. This subjective decision involves a trade-off between farm work (disutility of work) and the income that is needed to meet the consumption needs of the household (utility of income). Thus, farm households have two conflicting objectives; to earn income from farm work and to avoid work or enjoy leisure by not working. Chayanov model has been described as a demographic model of peasant household decision making, since its predictive ability rests almost completely on the demographic aspects of households. This model therefore, stands as the theoretical foundation of this study since the study seeks to investigate the impact of demographic characteristics of farm-households on cocoa production and poverty amongst cocoa farmers in the South West Region of Cameroon.

The Chayanov peasant model is stated as $U = F(Y,H)$: Where; U = utility (welfare), Y = production and H = time leisure and other activities. The above model the relationship between production (output) and utility or welfare (decrease poverty). Adapting this model, we have therefore, come up with a farm-household model that establishes the relationship between demographic characteristics, cocoa production and poverty (welfare) among the cocoa farmers, shown below;

$Q = f(D)$, where Q is (output/income) and D is demographic factors

Hence, we came up with two models; first, one that establishes the relationship between household demographic characteristics and cocoa production and the second, that establishes the relationship between household demographic characteristics and household per capital income (poverty).

$$1). Q1 = f(D) \dots \dots \dots (1)$$

$$2). Q2 = f(D) \dots \dots \dots (2)$$

Where; Q1 = Cocoa production and Q2 = per capita household income

D is household demographic characteristics represented by the variables in equation (3) below

The above conceptual models in equations (1) and (2) above can be econometrically presented as follows;

$$Q1 = \beta_0 + \beta_1 A_{get} + \beta_2 G_{ent} + \beta_3 M_{stt} + \beta_4 F_{trt} + \beta_5 N_{det} + \beta_6 L_{edt} + \beta_7 E_{xpt} + \beta_8 F_{ast} + \beta_9 F_{agt} + \mu_t \dots \dots \dots (3)$$

$$Q2 = \beta_0 + \beta_1 A_{get} + \beta_2 G_{ent} + \beta_3 M_{stt} + \beta_4 F_{trt} + \beta_5 N_{det} + \beta_6 L_{edt} + \beta_7 E_{xpt} + \beta_8 F_{ast} + \beta_9 F_{agt} + \mu_t \dots \dots \dots (4)$$

Having defined Q1 and Q2 above, the demographic variables in the equations above can be defined thus;

Age = age of family head, Gen = gender of family head, Mst = marital status, Ftr = farmer training, Nde = number of dependents, Led = level of education, Exp = experience, Fas = farm size and Fag = farm age

Where; β_0 = constant term, t = time and $\beta_1, \beta_2, \beta_3, \beta_4, \dots, \beta_9$ are coefficients of the parameters, μ = stochastic error term,.

Taking logs on both sides, of equation (3) and (4), it can be presented as shown below

$$\ln Q1 = \ln \beta_0 + \ln \beta_1 A_{get} + \ln \beta_2 G_{ent} + \ln \beta_3 M_{stt} + \ln \beta_4 F_{trt} + \ln \beta_5 N_{det} + \ln \beta_6 L_{edt} + \ln \beta_7 E_{xpt} + \ln \beta_8 F_{ast} + \ln \beta_9 F_{agt} + \mu_t \dots \dots \dots (4)$$

$$\ln Q2 = \ln \beta_0 + \ln \beta_1 A_{get} + \ln \beta_2 G_{ent} + \ln \beta_3 M_{stt} + \ln \beta_4 F_{trt} + \ln \beta_5 N_{det} + \ln \beta_6 L_{edt} + \ln \beta_7 E_{xpt} + \ln \beta_8 F_{ast} + \ln \beta_9 F_{agt} + \mu_t \dots \dots \dots (5)$$

The parameters of the model were estimated using the Ordinary Least Square (OLS) technique. The apriori expected sign are as follows; $\beta_2, \beta_3, \beta_4, \beta_{16}, \beta_7$ and $\beta_8 > 0$ and or $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8,$ and $\beta_9 > < 0$. (that is, the values of the variables can either be positive or negative).

RESULTS AND DISCUSSIONS

Both descriptive and inferential statistics were used in analyzing the data. For descriptive statistics we made use bar and pie charts and for inferential, the Ordinary Least Square (OLS) was used.

Table 1: Hypothesized Regression Table (cocoa production and demographic characteristics)

producocoa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
age	-.018204	.068794	-0.26	0.791	-.1534901	.1170822
Sexe	.1199482	.115301	1.04	0.299	-.1067956	.3466921
maritalst	-.0247692	.124144	-0.20	0.842	-.2689032	.2193647
nberdepd	-.1043751	.0455252	-2.29	0.022	-.1939023	-.014848
lvleduc	-.0804092	.0393679	-2.04	0.042	-.1578278	-.0029906
farmsizecocoa	.0397343	.0283339	1.40	0.162	-.0159854	.0954539
experien	.108339	.0403928	2.68	0.008	.028905	.187773
farmertra	.6176062	.0399588	15.46	0.001	.5390256	.6961868
agecocoafarm	-.0604878	.0352925	-1.71	0.087	-.1298919	.0089163
deptotal	-.0462253	.0499447	-0.93	0.355	-.1444435	.0519928
_cons	1.67119	.4749959	3.52	0.000	.7370918	2.605287

Table 2: Hypothesized Regression Table (per capita household income and demographics)

Percapinc	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
age	-.1075179	.0833156	-1.29	0.198	-.2713612	.0563254
Sexm	-.4005036	.1396396	-2.87	0.004	-.6751103	-.125897
maritalst	-.1028505	.1503492	-0.68	0.494	-.3985181	.1928171
nberdepd	-.0937013	.055135	-1.70	0.090	-.2021265	.0147239
lvleduc	.1111071	.047678	2.33	0.020	.0173464	.2048678
farmsize	.0725578	.0343148	2.11	0.035	.0050764	.1400392
experien	.1594153	.0489192	3.26	0.001	.0632137	.2556168
farmertra	.2076068	.0483937	4.29	0.000	.1124388	.3027748
agecocoafarm	-.0045236	.0427423	-0.11	0.916	-.0885781	.0795308
deptotal	-.0191839	.0604874	-0.32	0.751	-.1381347	.0997668
_cons	2.075206	.5752615	3.61	0.000	.9439319	3.20648

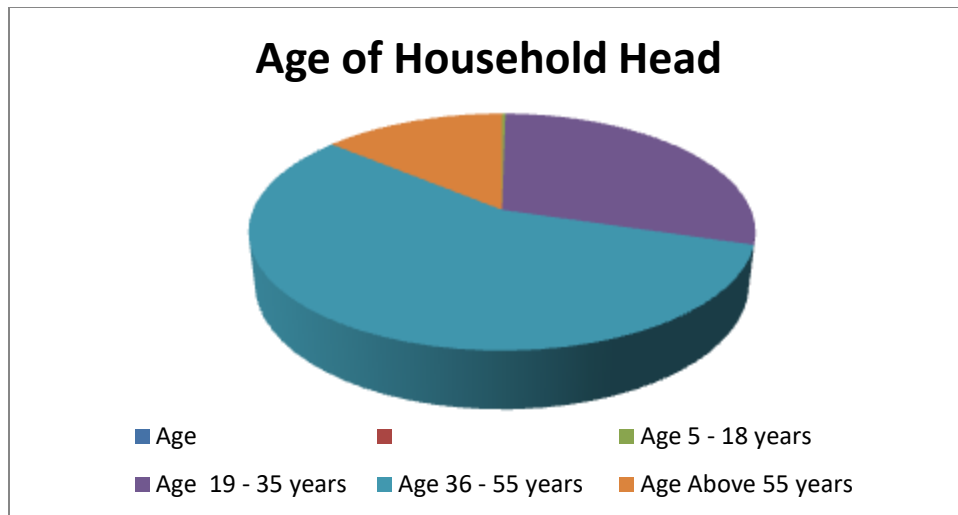


Figure 1: Age of the household head

From our descriptive statistics it is clear that a majority of the cocoa farming population are between the age of 36-55 years. This is an indication that the cocoa farming population in the Region is aging. However, from our analytical statistics on tables 1 and 2 above, age has a negative insignificant effect on cocoa output and per capita household income in the study area. This is in line with the work of Lawal et al. (2015), who, using the ordered probit concludes that age of household head ($p < 0.5$) negatively affects productivity and the welfare of cocoa farming households. According to Kebede and Sharma (2014) the age of household head is negatively linked with the probability of being poor. Andrianarison, (2022) reveal that age, is not statistically significant in the monetary case and poverty.

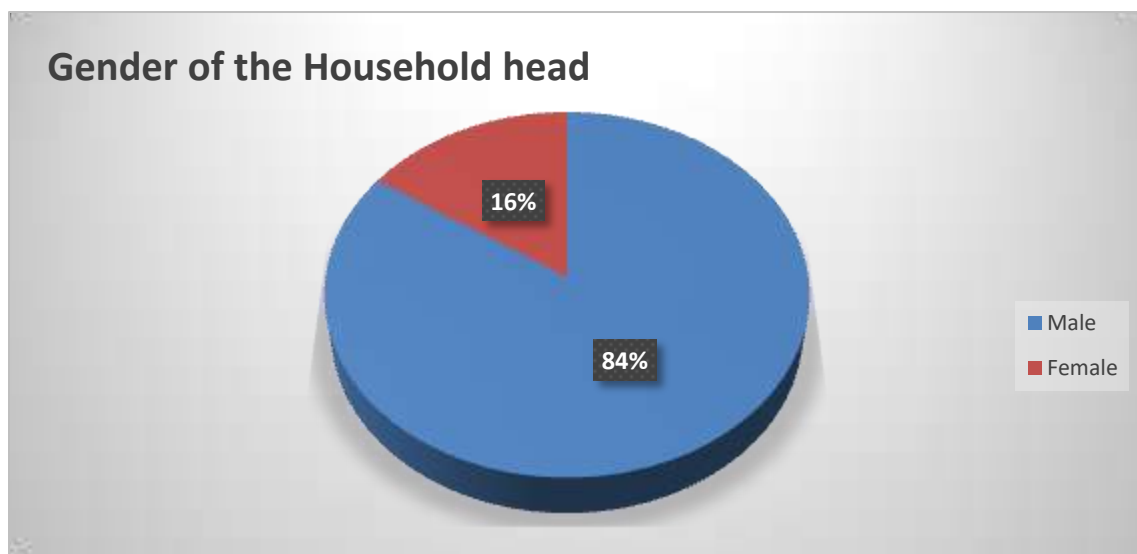


Figure 2: Gender of the household head:

The cocoa farming population in the South West Region of Cameroon is highly gender bias as our descriptive statistics reveal that 84.5% of those involve in cocoa production are males (see fig. 2 above). The statistical analysis indicate that male headed farming households have an insignificant positive effect on cocoa production and a significant negative effect on per capita household income and thus poverty. This could be because, most men have generally extravagant spending tendencies as compared to women, especially on uneconomical ventures such drinks, organising parties, gifts among others. This attitude is highly prevalent in most cocoa producing areas. Akerele and Adewuyi (2011) and Lawal et al. (2015) all attest to the fact that gender of household head significantly affects the welfare of Cocoa Farming Households. Forgha and Tosam (2013) re-iterated the fact that the variable gender has a negative influence on cocoa output; they however attest to the fact that its influence on output was insignificant. This is contrary to other studies that have unveiled that most of the household heads being female are positively correlated with the probability of being poor (Kebede & Sharma, 2014; Tekka et al., 2019).

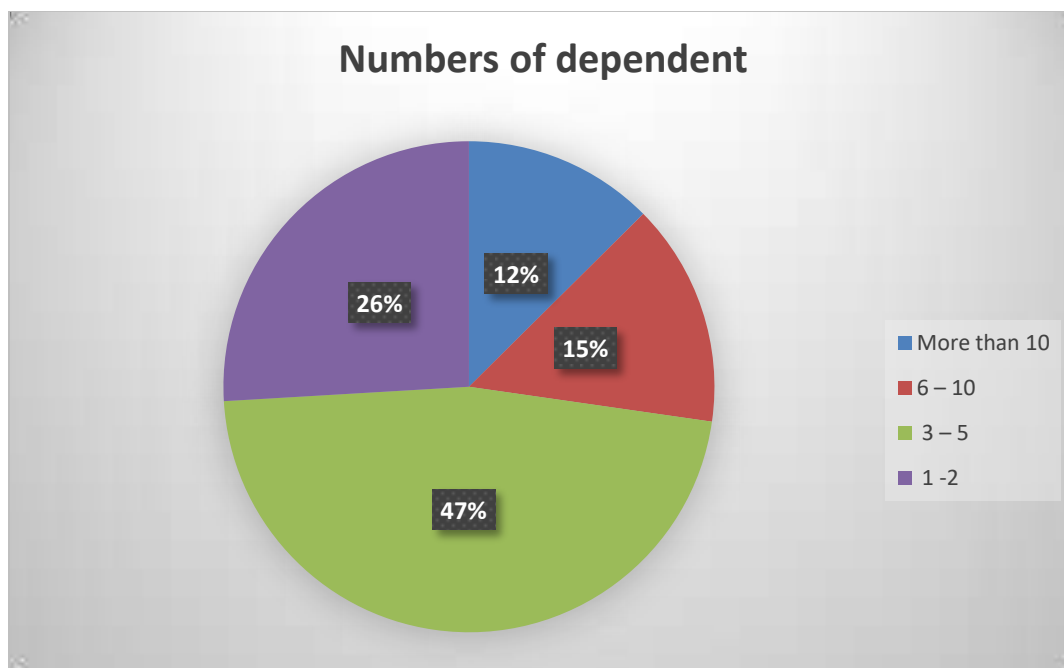


Figure 3: Dependency Ratio

Dependency ratio shows that a majority of the households have dependents ranging from 3 – 5 persons. However, putting the response options of dependency ratio together, a 74.1% of the respondents affirms fact that most of the households have dependents between the range of 3 to 10 and above. This large dependency increases the rate of poverty amongst

the cocoa farmers. From our analysis dependency ratio has a negative significant effect on both production and per capital household income of the farmers. Implying that as dependency ratio increases both cocoa output and per capital household income decreases. This is in line with the study of Akerele and Adewuyi (2011), who confirms that dependency ratio, exert significance influence on household welfare in Ekiti State, Nigeria.

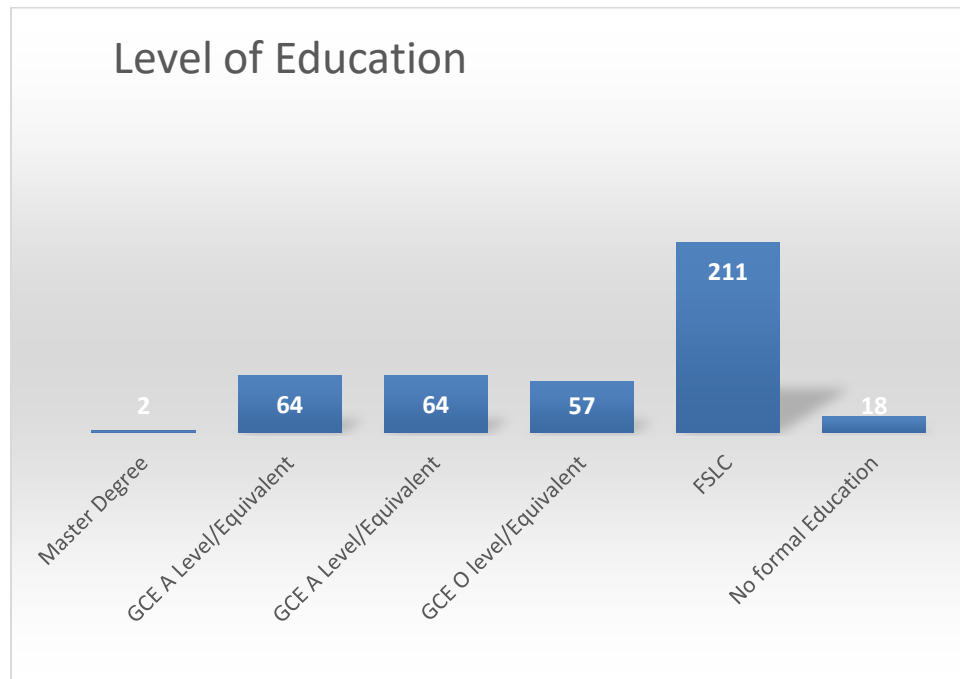


Figure 4: Level of Education

The analysis discloses that 211 out of 374 respondents corresponding to 56.4% of the farmers had first school leaving certificate (FSLC) while 18 respondents (4.8%) had no formal educational qualification. In conclusion, majority of the farmers (respondents) were those who had First School Leaving Certificate (FSLC). From the above descriptive statistics most of the farmers in the SWR of Cameroon have little or no education as 61.2% of the farmers were with either no formal education or with FSLC. From the analysis on the regression table above, level of education has a negative significant effect on cocoa production and positive significant effect on per capita household income. This means that improvement in the level of education will significantly reduce poverty among the cocoa farming households in the south West Region of Cameroon. Reaching a similar conclusion, other studies like Mohammed et al. (2011); Lawal et al. (2015); and Lekobane and Seleka (2017) attested that improved literacy level enhanced cocoa farming households' welfare. Among the most important variables that explains chronic poverty incidence, the level of education of the household head have been found as one of the

most important variables (Edoumiekumo et al., 2014; Isam et al., 2016; Teka et al., 2019; Anteneh, 2020; Dalaker. 2020). Similarly, in Arrow and Romer models knowledge (education) is seen as an important factor that leads to improvement in per capita income and welfare.

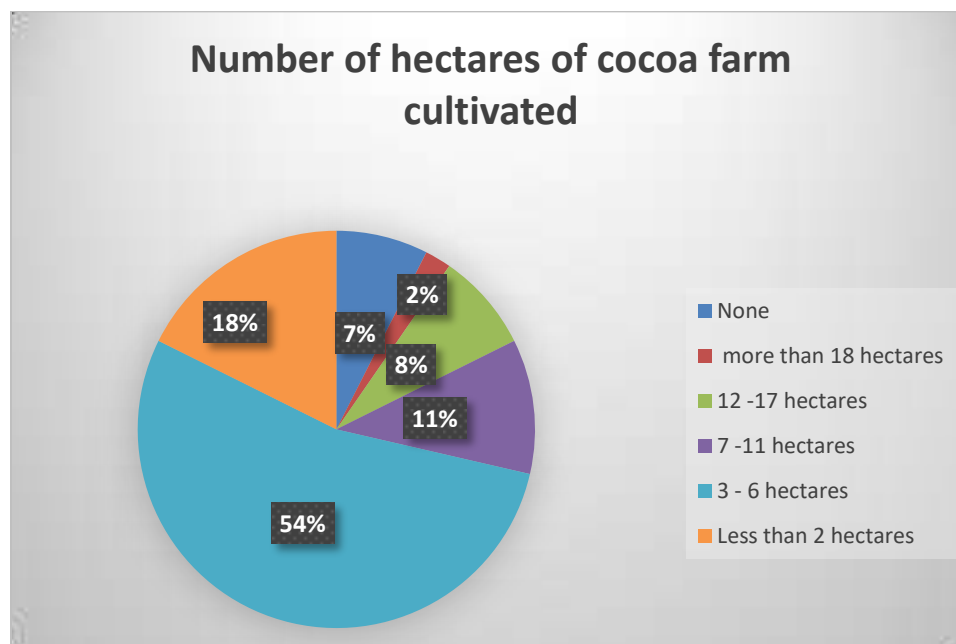


Figure 5: Farm Size

From the foregoing descriptive analysis, 8 respondents (2%) own more than 18 hectares of cocoa farm, 30 respondents corresponding to 8% own between 12 to 17 hectares. 41 respondents corresponding to 11% own between 6 to 11 hectares of cocoa farm, 201 respondents, corresponding to 54% own between 2 to 5 hectares, while 66 respondents corresponding 18% own less than 2 hectares. From above, it is clear that majority of respondents own between 2 to 5 hectares of cocoa farms, thus cocoa farming in the South West Region remains a small holder activity. Klarer, (2014) attest to the fact that most cocoa farmers in Meme division of the South West Region are small holder farmers with farms sizes of 2 - 3 hectares. Likewise, Mubeteneh (2000) who confirmed that cocoa farmers in Cameroon are small scale farmers. According to Harmand (2021) Small-scale farmers (0,5 to 5 ha) contribute to more than 85% of national production in Cameroon. The regression analysis reveals that farm size has a positive insignificant effect on cocoa production and a positive significant effect on per capita household income. Implying that as the number hectares cultivated increases welfare improves and poverty decreases. Farm size have been found to be negatively related to poverty and positively related to the wellbeing of households (Shibru et al., 2013; Kassie et al., 2014).

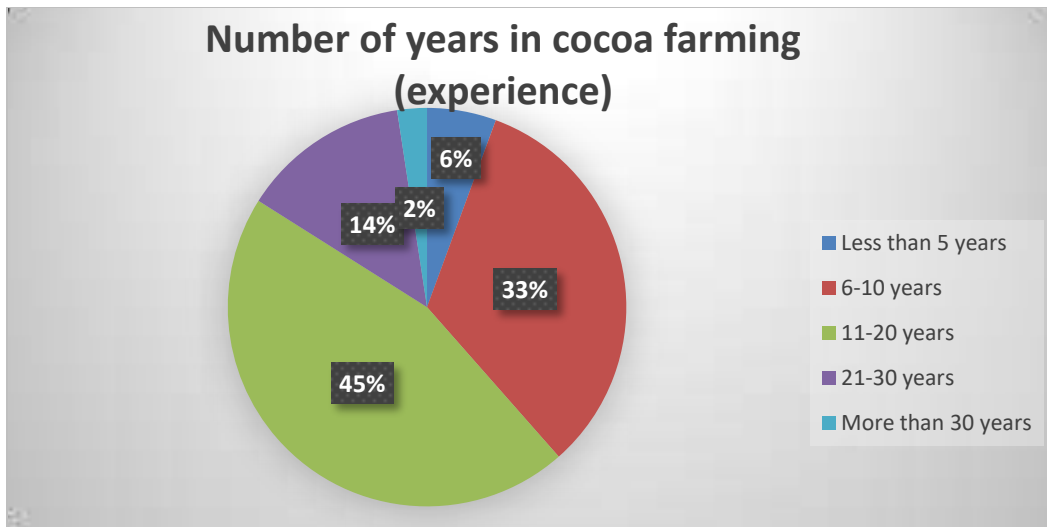


Figure 6: Longevity in cocoa farming (Experience)

A majority of the farmers as shown above have been working on cocoa farms between the range of 11 – 20 years (45%), that is to say the level of experience still needs to be improve upon. However, experience (longevity on cocoa farming) according our statistical analysis has a positive significant effect on both the output produced and per capita household income. Thus, the longer a farmer remains producing on the farm, the more the experience, output and increase per capita household income.

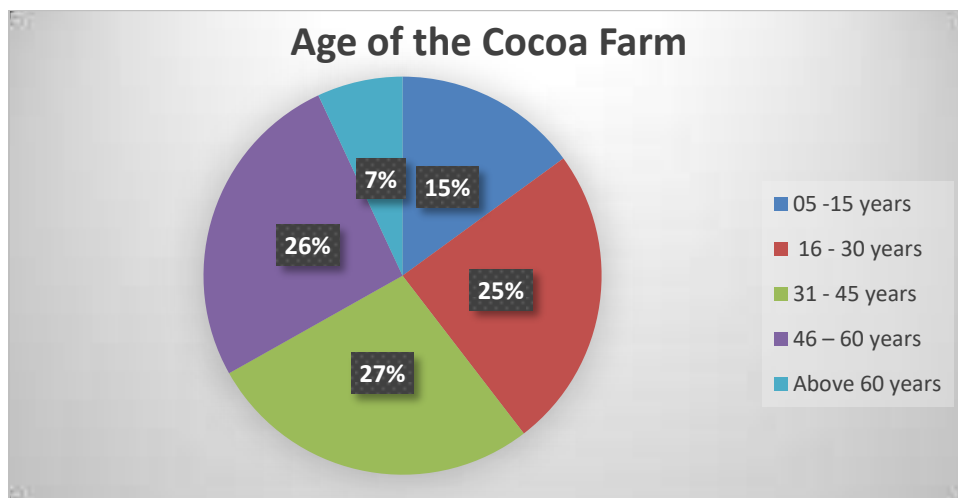


Figure 7: Age of cocoa farm

From the above analysis 60% (that is, 27%, 26% and 7%) of the cocoa farms are above the age of 31 years; implying majority of the farms in the SWR are old which affects the productive capacity of the farms and the rate of poverty among the farmers. The study's

statistical analysis shows that age of the cocoa farm has a negative significant effect on cocoa production. This implies that older farms are less productive than younger ones. According to the augmented Cobb-Douglas production function age of farm is an important variable (augmented) in determining output. Lawal et al. (2015) and Effah et al, (2017 corroborate that 'age of cocoa farm affects its output and income. The national cocoa and coffee board (NCCB, 2013) in Cameroon has ascertained that the most productive age range of cocoa is between 10 – 30 years. This can be further confirmed by the pictures below taken by the researcher on the field.



Figure 8: showing a cocoa farm of over 45 years old in Manyu Division



Figure 9: Showing a young cocoa farm of less than 15 years in Meme Division

From figure 8 (cocoa farm of over 45 years) and 9 (cocoa farm below 15 years) above the differences in yields between the two cocoa farms cannot be overemphasized.

Training in Farmer Field School (FFS) and Farmer Business School (FBS)

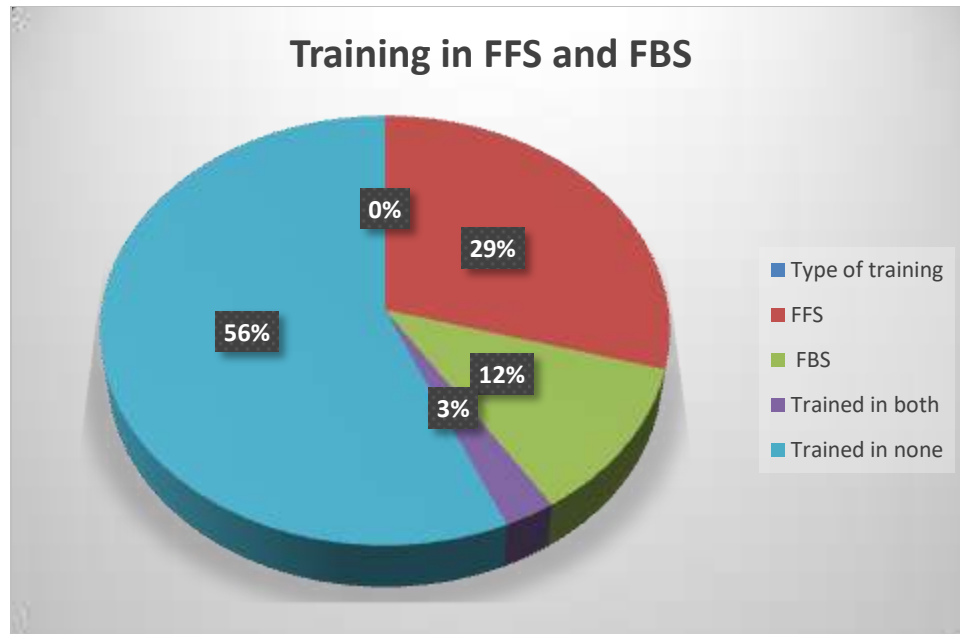


Figure 10: Age of cocoa farm

The figure above shows 29.4% of the cocoa farmers have obtained training from the farmer field school (FFS), 12% have obtained training from the farmer business school (FBS), 3% have been trained in both FFS and FBS, while 56.4% attest to the fact that they have never had any formal training in cocoa production techniques. Thus, a majority of respondents have never been trained in either FFS or FBS, this has a bearing on both the quantity and quality of cocoa produced as well as the farmers' income. Our statistical analysis reveals that farmer training has a significant positive effect on both cocoa production and per capita household income. Brucks, (2003) and Kimengsi et al. (2016) in their studies, attest to the fact that farmer training especially in farmer field school (FFS) and farmer business school (FBS) and certification programs has the tendency of boosting cocoa output and farmers' income. This is in line with the study of Mukete et al. (2016), who revealed that innovative institutional arrangements and farmer training are likely to efficiently boost cocoa production in Meme Division of the SWR. Romer and Arrow in their models emphasize the importance of training in the production growth process.

CONCLUSION

The cocoa sector in Cameroon and particularly in the South West Region is faced with a lot of challenges most of which are tied to the demographic characteristics of the producers of this high-income yielding crop, that feeds, cloth and takes care of the livelihood needs of thousands of rural inhabitants.

The above analysis has revealed that; age of the household head, level of education, cocoa age, dependency ratio, farm size, farm age, experience, farmer training, and gender of the household head are all demographic characteristics of cocoa farmers in the South west Region of Cameroon. It has been confirmed from the analysis of our results, interview on the field, economic theory and other empirical findings that these characteristics affect cocoa output, income and the welfare of the farmers. The major variables identified in this study which significantly affects both cocoa production and per capita household income and which in our opinion could bring about a dramatic change in output and household poverty rates are level of education, experience and farmer training.

Education plays indispensable role in improving the welfare of the cocoa producing households as it facilitates households' access to credit and more importantly regulate the spending habit of the farmers among others. Policy makers should give priority to programs that will encourage poor households to be educated through mass literacy programs, free adult education among others. Farmers should equally be encouraged to go for training in Farmer Field School (FFS) so that they can be equip with better techniques of production and Farmer Business School (FBS) so that they can do cocoa farming as a business.

In order to improve on experience, it is recommended that the younger and energetic population should be retained on the cocoa farms. This could be done by the granting of subsidies or free pesticides, and fungicides distribution to cocoa farmers., so as to help reduce the cost of production incurred by farmers and this will encourage them to stay in the activity. Another way could be through agro-industrialization and the provision of social amenities in the cocoa growing communities. To an extent it will reverse the current pattern of village-urban migration of the youths in search for employment and city attractions. And thus, it will help retain the working population on the farm, and thereby greatly improving on experience which has a positive significant effect on both cocoa production and poverty reduction. This will also improve quality of city life as it will relieve it of stressful demographic pressures and crime waves.

LIMITATIONS OF THE STUDY

One of major challenges of this study was the socio-political crisis presently going on in the study area. Data in some communities was collected at gun point; this made it impossible

for the researcher to freely access the entire region. Thanks to our research assistants who were able to easily interact with the population because they were either indigenes of the communities or had lived in the areas for a long.

The high illiteracy rate was another predicament as most of the farmer could not fill the questionnaires, and such they needed assistance. We struggle to overcome this by asking our research assistants to help those who could not, by getting their responses and filling the questionnaires for them.

Our analysis in this study was conducted in only one of the seven cocoa producing regions of the country. The findings may certainly vary between regions and thus, generalising our accession might be questionable.

REFERENCES

- Akerele D. and S. A. Adewuyi (2011) Analysis of Poverty Profiles and Socioeconomic Determinants of Welfare among Urban Households of Ekiti State, Nigeria Current Research Journal of Social Sciences 3(1): 1-7, 2011 ISSN: 2041-3246;
- Andrianarison, F., Housseini, B., and Oldiges, C. (2022): 'Dynamics and Determinants of Monetary and Multidimensional Poverty in Cameroon', OPHI Working Paper 141, University of Oxford
- Anteneh M. E., (2020) Determinants of poverty in rural households: Evidence from North-Western Ethiopia, Cogent Food & Agriculture, 6:1, 1823652, DOI: 10.1080/23311932.2020:
- Bruck, T., (2003): Household Cropping Choice and the Determinants of Income and Consumption in Post War Rural Mozambique. A Paper Submitted at the European Economic Association Annual Meeting Instockholm
- Castañeda A., Doan D., Newhouse D., Nguyen M C., Uematsu H., Azevedo J. P., (2016) Who are the Poor in the Developing World, Policy Research Working Paper 7844
- Christiaensen, Luc; Demery, Lionel; Kuhl, Jesper (2010): The (evolving) role of agriculture in poverty reduction: an empirical perspective, WIDER Working Paper, No. 2010/36, ISBN 978-92-9230-273-3, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki
- Dalaker J. (2020) Demographic and Social Characteristics of Persons in Poverty: 2018 Congressional Research Service, www.crs.gov R46294
- Effah E. S, Yusif H. M. and Kwasi W. B, (2017) Determinants of cocoa production in the Ashanti region International Standard Journal Number (ISJN) e-ISJN: A4372 – 2604 ISSN 2354 – 4147 Vol. 5 (1), PP. 21-25,
- Fadipe A. E. Adenuga A. H. and Ilori, T.E (2012) Economic Analysis of Cocoa Production in Oyo State, Nigeria. Nigerian Journal of Agriculture, Food and Environment; NJAFEVOL. 8 No. 4, 2012 588(4):58-63.
- Fambon S. (2017) Pro Poor Growth in Cameroon, STATISTIKA, 97 (2); D63, I32, O49
- Farah, N., (2015). "Impact of Household and Demographic Characteristics on Poverty in Bangladesh: A Logistic Regression Analysis" 2015 Awards for Excellence in Student Research and Creative Activity - Documents. 3. http://thekeep.eiu.edu/lib_awards_2015_docs/3
- Forgha N. G. and Tosam J. N. (2013) An Analysis of the Socio-Economic Determinants of Cocoa Production in Meme Division, Cameroon. Greener Journal of Business and Management Studies ISSN: 2276-7827 Vol. 3 (6), pp. 298-308, August 2013.
- Fouet O., Solorzano R. G. L, Rhoné B., Subía C., Calderón D., Fernández F., Sotomayor I., Rivallan R., Colonges K., Vignes H, Angamarca F., Yaguana B, Costet P., Argout X., Lanaud C., (2022). Collection of native L. accessions from the Ecuadorian Amazon highlights a hotspot of cocoa diversity, Plants, People, Planet, 10.1002/ppp3.10282, 4, 6, (605-617).
- Gisela R. A and Andy S., (2019). "Who Are the World's Poor? A New Profile of Global Multidimensional Poverty." CGD Working Paper 499. Washington, DC: Center for Global Development. <https://www.cgdev.org/publication/who-are-worldspoor-new-profile-global-multidimensional-poverty>

- Gustavo A. and Stamouli K. (2007) Rural development and poverty reduction: is agriculture still the key? *Journal of Agricultural and Development Economics Division (ESA) FAO* available online at www.fao.org/es/esa/e JADE Vol. 4, No. 1, 2007, pp. 5-46
- Herve, Z. and Zhao, G. (2018) Cocoa Exports of Cameroon: Structure and Mechanism of Operation. *Theoretical Economics Letters*, 8, 3223-3251. doi: 10.4236/tel.2018.814200.
- Kebede, T., & Sharma, M. K. (2014). The determinant of poverty in Ethiopia. *Ethiopian Journal of Economics*, XXIII(1), 113–130.
- Kimengsi J. N. and Tosam J. N. (2013) Climate Variability and Cocoa Production in Meme Division of Cameroon: Agricultural Development Policy options. *Greener Journal of Agricultural Sciences* ISSN: 2276-7770 Vol. 3 (8), pp. 606-617, August 2013.
- Klarer A. J. (2014) The Evolution and Expansion of Cacao Farming in South West Cameroon and its Effects on Local Livelihoods; Resources, Agricultural Systems and Development (RESAD) Published Master Thesis, Copenhagen University, Copenhagen AFS4Food, SupAgro IRC, Montpellier
- Lawal, J. O., Omonona, B. T., Oluwatayo, I. B., Oyekale, A. S., and Salman K. K. (2015) Welfare Transitions and its Correlates among Cocoa Farming Households in Nigeria: An Application of Ordered Probit Approach. Paper prepared for presentation at the 2015 Agricultural & Applied Economics Association and Western Agricultural Economics Association Annual Meeting, San Francisco, CA, July 26-28
- Lekobane, R. and Seleka, B. (2017). Determinants of Household Welfare and Poverty in Botswana, 2002/2003 and 2009/2010, *Journal of Poverty*, 21(1), pp. 42-60.
- Ma, L.; Wang, S.; Wästfelt, A. (2022) The Poverty of Farmers in a Main Grain-Producing Area in Northeast China. *Land*, 11, 594. <https://doi.org/10.3390/land11050594>
- Mohammed D. Asamoah D. And Asiedu-Appiah F. (2011) Cocoa Value Chain-Implication for the Smallholder Farmer in Ghana
- Mubeteneh C. T (2015) The Cameroon Cocoa Story; report produced with the assistance of the European Union within the project “Supply Change – Make Supermarkets fair”, Department of Crop Science, University of Dschang, Cameroon
- Mukete, N. (2016) Analysis of the Technical Efficiency of Smallholder Cocoa Farmers in South West Cameroon. *American Journal of Rural Development*. Vol. 4, No. 6, 2016, pp 129-133. <http://pubs.sciepub.com/ajrd/4/6/2>
- Mwabu G., (2016) Agriculture Productivity and Poverty Eradication in Africa; School of Economics, University of Nairobi
- NCCB (National Cocoa and Coffee Board) (2022). Cocoa Statistics.NCCB.
- NCCB (National Cocoa and Coffee Board) (2013), Cocoa Statistics.NCCB.
- PEP., (2016) Partnership for Economic Policy, Impact of labor and tax policies on the informal sector in Cameroon. PEP publications Working paper, 2016-04 Policy brief 137
- Omoregbee F.E; Ighoro A. & Ejembi, S.A. (2013) Analysis of the Effects of Farmers Characteristics on Poverty Status in Delta State. *International Journal of Humanities and Social Science Invention* Volume 2 Issue 5 II, ISSN (Online): 2319 – 7722.
- Oyekale A.S. and Oladele O.I. (2012) Determinants of Climate Change Adaptation Among Cocoa Farmers in Southwest Nigeria, *Journal of Science and Technology* , VOL. 2, Special Issue, ICESR 2012 ISSN 2225-7217 ARP.N. <http://www.ejournalofscience.org> 154
- Suttie D., (2020) Overview: Rural Poverty in Developing Countries: Issues, Policies and Challenges, Global Engagement Specialist, IFAD
- Tchokote J., Onyebuchi K. O., Paul M., Nguetzet P. M. D., (2015): An Economic Appraisal of Cocoa Production in Cameroon: The Case Study of Lekie Division. *Journal of Economics and Sustainable Development* ISSN 2222-1700 (Paper) ISSN 2222-2855 Vol.6, No.9.
- Teal, F., Zeitlin, A. and Maamah, H. (2013) Ghana Cocoa Farmers Survey 2004: Report to Ghana Cocoa Board. Centre for the Study of African Economies, Oxford University (<http://www.gprg.org/pubs/reports/pdfs/2006-04-teal-zeitlin-maamah.pdf>).
- Teka, A. M., Woldu, G. T., & Fre, Z. (2019). Status and determinants of poverty and income inequality in pastoral and agro-pastoral communities. Household-based Evidence from Afar Regional State, Ethiopia, *World Development Perspectives*, 15(2019), 100123. <https://doi.org/10.1016/j.wdp.2019.100123>

Tosam J. N, Akume DA, Njimanted GF, Vukenkeng AW. (2019) An empirical investigation of the determinants of cocoa production in the South West region of Cameroon. *International Journal of Economics, Commerce and Management*;7(5):411-430. Retrieved from <https://ijecm.co.uk/wp-content/uploads/2019/05/7521.pdf>

Tosam J. N. and Forgha N. G. (2013) An Analysis of the Socio-Economic Determinants of Cocoa Production in Meme Division, Cameroon. *Greener Journal of Business and Management Studies* ISSN: 2276-7827 Vol. 3 (6), pp. 298-308, August 2013.

Tsehay, A. S., & Bauer, S. (2012). Poverty and vulnerability dynamics: Empirical evidence from smallholders in the Northern Highlands of Ethiopia. *Quarterly Journal of International Agriculture*, 51(4), 301–332.

WDI (2020), National Statistical Offices for national poverty rates, POVCALNET, and Global Monitoring Database for the rest. *Poverty & Equity Brief in Cameroon Sub-Saharan Africa*

World Bank Group (2020) *Poverty & Equity Brief, Sub-Saharan Africa Cameroon* retrieved from www.worldbank.org/poverty

Yahaya, A.M.; Karli, B.; Gül, M. (2015) Economic analysis of cocoa production in Ghana: the case of eastern region, - v. 11, n. 1 ISSN 1808-2882, www.custoseagronegocioonline.com.br