BROILER PRODUCTION AND ECONOMIC WELL-BEING OF POULTRY FARMERS IN BAMENDA, CAMEROON

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Abstract

This study has as objectives: to identify and rank the main challenges faced in broiler production, to determine the effects of poultry production on the economic well-being and to determine the effects by the gender of poultry farmer in Bamenda municipality. Primary data was collected while a 2SLS was used to estimate the result. The study shows that inadequate finance, high cost of inputs and the lack of knowledge constitute the major constraints of poultry production. Broiler production is strongly correlating with economic wellbeing of poultry farmers and the effect is both male and female phenomena. Policy suggests that the decision makers should increase the production of broilers in the municipality through intensification of training and the provision of financial and material support to poultry farmers.
Keywords: broiler production, farmers, economic well-being, Bamenda, Cameroon

INTRODUCTION

The Poultry industry plays a significant role in Mezam division and the economy at large. Poultry sector despite its drawbacks has created unlimited employment to women and youths. It provides about 4% of the Cameroon GDP. It also plays an important role in food security in Mezam division and increase the income opportunity for urban and rural population due to its value added opportunities involved in the poultry farming. In Cameroon poultry sector, anecdotal evidence seems to point to the fact that almost all birds consumed in Cameroon are now imported with the sector focusing almost exclusively on eggs production after Cameroon major poultry meat farmers and smaller scale farmers folded up. Poultry production increased by 80% during the time period stretching from 2000 to 2007 (FAO, 2014), however the sector is plagued with several problems. Poultry production, which is mainly practiced in rural communities and in most cases serves as major source of income, continues to be crippled by competition from poultry producers from developed countries.

A related and persistent problem in the agricultural sector is that there is some disconnection between the agricultural research capacity and the actual practice of agriculture. Some poultry farmers are semi-literate and do not apply research results or make much use of limited extension services. Instead, they rely on the knowledge about farming passed down from their ancestors. Poultry farmers in Cameroon suffer intensively from competition from heavily subsidized imported birds produced with more expensive modern methods. There exist some modern commercial poultry farms but they are few and are either on the verge of closing down or have already closed down (Oloyo, 2018). The poultry sector, once a promising and a significant contributing sector to animal production and as such the economy of the country, performed well at the turn of the 21st century. From 2000 to 2007 the poultry sector enjoyed an exponential annual growth, especially in the southern regions of the country. The interest of the government in poultry sector

has been increasing over the past years. Due to the economic situation of the country, the government has set up programs to train and build up poultry farmers in the value-added chain process of poultry production. Sufficient materials to carry out these programs were made available using companies such as MEDINO. This has help to reduce the unemployment rate in the economy and promote young farmers (Oloyo, 2018).

Livestock is often considered a secondary occupation of many farmers in developing countries. Never-the-less the important of livestock in the livelihood of the rural people cannot be underestimated. The household lives on subsistent farming, often integrating crop production with livestock rearing, yielding, and multipurpose product and uses (Maikasuwa & Jobo, 2011). However, not all farmers can afford to keep cattle or small ruminants. Poultry is found to have greater outreach to poor than other livestock (Moseley, 1991). Provision of adequate food to their inhabitance and assurance of atmosphere free from hunger and malnutrition is the responsibility of a civilized government. The food security becomes more important when 20% of the world population is not getting sufficient food to meet minimum nutritional requirement for a healthy and productive life (Petek et al., 2005). Poor nutritional status is prevalent due to the lack of insufficient energy and protein in the food or due to insufficient availability of food. The balance diet is essential for good health, and productive capacity of the people. Protein plays an important role in the formation of balanced human diet. There are mainly two types of protein - animals and plants.

In Cameroon like many other Sub-Saharan African (SSA) countries, agriculture is the main stay of the economy, employing about 70% of the population (Food and Agricultural Organization (FAO), 2014). Agricultural development requires the embracement of farmers' organization to facilitate the improved access to productive resource (seeds, breeds, insecticides, fungicides, farm tools, and equipment), capacity building and marketing to production credit (African Development Bank) (Saha, 2003). Meanwhile it is widely believed that the farmers' organization plays a key role in the development of rural community of farmers through the provision of services such as training, productive resource, access to marketing, credit, information to the farmers thereby facilitating the improvement of their income and living condition (Petek et al., 2005). Mack et al (2019) highlighted that farmers' organizations (FOs) contribute in promoting rural development by serving as a framework for sharing information, coordinating activities and making collective decisions, and creating opportunities for producers to get more involved in added activities such as input supply, credit, processing, marketing and distribution, on one hand, and create awareness in view of defending farmers' interests, on the other. According to FAO (2014), farmers' organization would need support in overcoming the constraints faced by farmers in saving and accumulating assets in coping with uncertainty and risk that are intrinsic to farming.

The poultry industry serves as a source of employment and a source of income to many people. It provides quick capital to investors; this has led to setting up of commercial and many backyard poultry farms in Bamenda municipality and contributing to the total amount of eggs and meat production in the country. The poultry sector in Cameroon can be subdivided into modern and traditional sub sectors. Each of them has their own peculiarities that make them so special with respect to their contribution to the national food security. Poultry meat and eggs represent about 10% of the total meat produce in the nation. The traditional sub-sector also called rural or backyard production system largely dominates poultry keeping in Cameroon. The subsector is very important for the livelihood of many Cameroonians, contributing up to 10% of the income earning of the rural population in

contrast to the modern subsector found mostly in urban and pre-urban areas, the traditional poultry system is distributed all over the country. This is due to the fact that there is space for extensive rearing, few socio-economic constraints such as high investment cost and the restriction of the movement of chickens, and the possibility to utilize residues and chicken waste which otherwise will be of little value (Oloyo, 2018).

The traditional sub system comprises 70% of the estimated 19 million chickens nationwide, but provide only about 50% of the average chicken meat and egg intake of 1.8kg and 20 eggs per capital per year, respectively. It has been reported that about 43% of the local chickens are used for home consumption, while 34% and 23% are used for sales and gifts, respectively. Because little care is provided, the sub sector depends on the ability of the local "breed'' to survive within harsh environments. Yet the protein quality and the erratic income derived from the poultry product are necessary to supplement the daily farming activities of the rural population. Chickens are also involved in many social and cultural or religious ceremonies leading to some ritual beliefs. Chickens in Cameroon can generate 1.5 million tons of fresh (25% dry matter) droppings annually. This dropping is richer in nitrogen, phosphates and potash than livestock manure and more efficient for vegetable gardening and other crop production (Oloyo, 2018). Meats and eggs from local chickens are considered more natural and tastier for many Cameroonians. The products from the core of traditional hospitality are serving as a gift to an unexpected "important" guest. Price-wise a local chicken of the same body weight sells at a higher price than a broiler chicken. Eggs from a local hen sell at a 75% higher price than the larger eggs laid by an exotic strain.

Brannius (1997) however reported that the interest of people in the industry and the effort of the government is gradually being killed due to prevalence of diseases and poor marketing strategies which are regarded major constraints in the industry. Worldwide the consumption of the poultry produce over the years could increase if the industry continues to attract a lot more investment. In African countries, eggs and chickens are progressively and significantly contributing to the reduction of the protein deficiency in the food. They represent 14% of the population protein requirement in Cameroon and generate more jobs. Poultry today constitutes one of a few saving opportunities. In Cameroon, the national consumption of chickens increased from 3kg to 4kg / inhabitant/ year of meat, provided the standard of living of the population is raised. The benefit which the nation derives from poultry cannot be overemphasized. It provides employment, source of income and foreign exchange contributing the country's gross domestic product (GDP). It provides food security and protein sufficiency for poor countries (Maikasuwa & Jobo, 2011). Unfortunately, the industry in the northwest faces a lot of challenges and its prospects are dwindling. To enlighten the decision makers on how to resolve this issue, this study has as objectives: to identify and rank the main challenges faced in broiler production in Bamenda municipalities, to determine the effects of poultry production on the economic well-being in Bamenda municipalities and to determine the effect of poultry production on the economic well-being by the gender of the poultry farmer in Bamenda municipalities.

MATERIALS AND METHODS

Methodology
This study was carried out in Mezam division, precisely Bamenda I, II, and municipalities. This area has a feature of being in the Humid tropical climate zone extended between latitude 6-10 degree. Rainfall here is about 1500mm and there are two district seasons: the rainy and dry season. The rainy season lasts from March to October in most cases and the dry season from November to

February. Cattle rearing, pig farming poultry and fish farming also dominate in the agribusiness sector here. Food crops grown are maize, groundnut, cassava, etc.

Model Specification

Broiler production is an appropriate framework for measuring the economic well-being of farmers as a condition by farmer's participation in agriculture, thus modeling econometrically the challenges and economic value of broiler production in Bamenda 1, 2 and 3 municipalities. We apply the following equation of interest:

$$EW_i = \Phi + \hat{\lambda} BP_{agric} + \psi \pi_i + \varepsilon_i \qquad (1)$$

Where EW_i is the economic well-being which is our outcome variable of interest; BP_{agric} is simply broiler production; π_i represent a vector of exogenous demographics of educational background, age group, level of experience and the size of the farm characteristics while i is the unit of observation of farmers growth and broiler production in Mezam division. In the econometric, $\hat{\lambda}$ portrays the actual effect of broiler production on the economic well-being of poultry farmers. In addition, Φ, ψ are parameters to be estimated, while ε is the error term, respectively. Given that there can be some biases due to omitted variables, it will be possible that the covariance of BP αgic and the error term (ε) is not equal to zero, hence making our result inconsistent. To redress this situation, we identify an instrument variable M, the instrument is a factor that affects broiler production without directly influencing the economic well-being, in other words, it's a variable that can partially determine the broiler production in agriculture, but it is uncorrelated with the error term. The farmers' economic wellbeing and productivity generating function may take the following structural form:

$$BP_{agric} = \Phi_{PF} + \hat{\lambda}_{PF} M_i + \gamma_{PF} \pi_i + \mu_i \qquad (2)$$

The instrument use in our study is belonging to a poultry solidarity network. With such an instrument we can estimate a two-stage regression model with the first stage equation indicated in equation (2) above. The consistency of the estimate of $\hat{\lambda}$ relies on the validity of belonging to a poultry solidarity network as our instrument. Thus, as M is uncorrelated with ε, then the instrumental variable estimate of $\hat{\lambda}$ is consistent. Morrill noted that this is fundamentally an untestable assumption. Everything being equal, our model can be estimated by taking the predicted value of women participation in broiler production from equation (2) and substituting it in for economic well-being in broiler production in equation (1) in an IV 2SLS model. Based on the introduction of instrumental variables, three properties of an instrument that need to be noted at the outset. First, an instrument is relevant if its effect on a potentially endogenous explanatory variable is statistically significant. Second, an instrument is strong, if the size of its effect is 'large'. Finally, the instrument is exogenous if it is uncorrelated with the structural error term. An instrumental variable that meets all these requirements is a valid instrument.

Endogeneity can arise due to: errors-in-variables, omitted variables and simultaneous causality. Endogeneity and heterogeneity bias can compromise the validity of OLS estimators. The IV approach is intended to oxygenize the endogenous regressors using valid, relevant and strong instruments and the most commonly used IV estimation method is the single equation approach of two-stage least squares (2SLS) estimators. The strategy for supporting instrument validity, that is we test over-identifying restrictions using Sargan's test statistic (nR^2) which has a chi-square distribution with degrees of freedom equal to (l-q), the degree of over-identification (where n is the sample size, R^2 is from first-stage regression showing the strength of the instrumental variable, l is the number of IVs and q is the number of endogenous variables). This test the null hypothesis that all instruments are valid, hence failing to reject signifies instrument

validity. Murray (2006a) shows that the bias of 2SLS approach grows with the number of IVs (l), declines as the sample size (n) rises and as the strength of the IVs (R^2) increases. Thus, as long as nR^2 is larger than l, (which will often hold true if the instruments are strong), 2SLS has a smaller bias than OLS.

Considering the reduce form the estimate, we remark that the 2SLS estimate of M can also be thought of as resulting from the division of the reduced form estimate $\hat{\lambda}_{PF}$ below, by the first-stage coefficient derived above M_{PF}. The reduced form equation is the regression of the farmers growth and productivity outcome on the instrument: this actually indicates whether the instrument is correlated with the outcome of interest.

$$EW_i = \Phi_{PF} + \hat{\lambda}_{PF} M_i + \gamma_{PF} \pi_i + \sigma_i \qquad (3)$$

Evaluating our endogenous variable, the 2SLS estimate is a reasonable estimation strategy with limited dependent variables and a dichotomous endogenous variable. Since our variables of interest are all continuous variables with a dichotomous endogenous variable, this makes our model of instrumental variable robust in terms of estimations.

Data Setting

The data was collected through sets of questionnaires administered to respondents, as well as interviews, personal observations, focus discussion with key stakeholders and telephone conversation with actors in the industry. In designing the Data Collection Procedure and Processing, the primary data, covering poultry production, for the research was collected using interviews based on structured interviews guides designed to address the issues raised in the objectives of the study. Based on the information acquired from the interviews, questionnaires were structured to collect quantitative data on the challenges affecting poultry production. The questionnaires took were designed using a questionnaire approach to

enable the respondents rank the problems or challenges faced, from the most challenging to the least challenging. The data collected was processed by coding the data in Microsoft Excel to allow for further analysis of its content.

In collecting qualitative data, a sample of 15 broiler farmers was interviewed from the various cooperatives. A sample of forty farmers from 8 cooperatives was later gathered to collect the quantitative data for the research in Bamenda municipality. A sampling frame is the description of units of the population from which the sample could be drawn. Since the population was too large and not all the members of the population directly do business with LIFIDEP, the researcher decided to come up with a sampling frame which involves cooperatives (people) whose activities directly affects broiler farmers in one way or another. Out of this sample frame, the sample size was drawn. The classification and sampling method gave a sample size of 40 which is considered quite representative of the research population.

RESULTS AND DISCUSSION

Socio-economic characteristics of the sample poultry farmers

Considering the gender of respondents, we observed that 52.5% were male, whereas 47.5% were female. According to the respondents, the business is considered to be laborious and quite a risky venture, a lot of boldness and courage is therefore required before one can venture into it, and this explains why the industry attracts more males than females.

The age groups of the respondents show that the majority falls within the age bracket of 35 to 50 representing 45.0% of the total number of the respondents. They were followed by those in the age group of 20-35 representing 42.5% of the respondents, while those above 50 years of age represent 12.5%. The educational background of the respondents reveals that 52.5% have acquired secondary education.

Figure 1. Socio-economic characteristics of the sampled poultry farmers
Source: author

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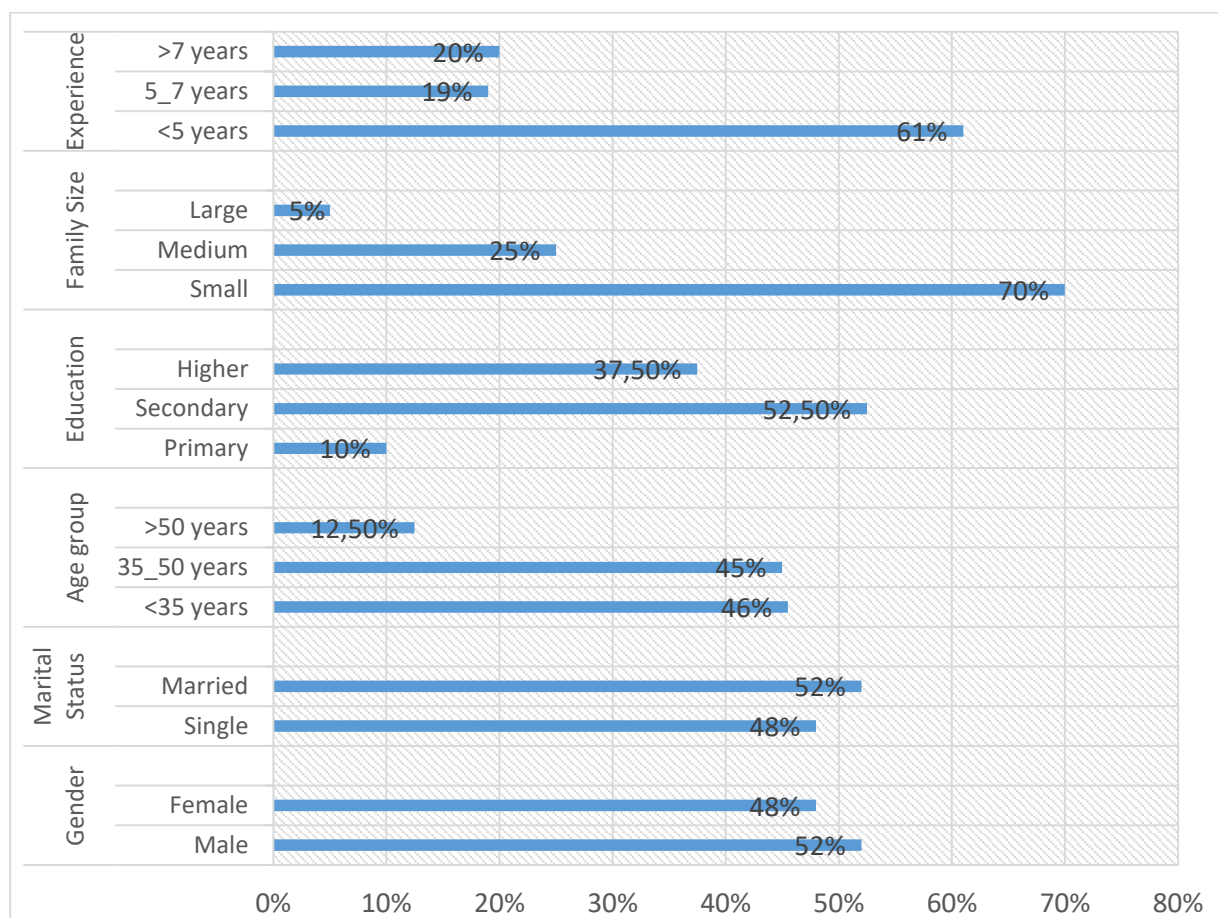
Followed by 15 respondents (37.5%) who have received higher education, while the remaining has acquired primary education or were illiterate. In terms of marital status, married people constitute 52.5%. From the field statistics, most of the respondents had a family size between 0 and 5 children with the least proportion having a family size larger than 7, while in terms of experience of the 40 respondents studied, the majority of them said they have been engaged in this activity for 1-5 years which is a sign of development in the industry.

Ranking challenges in poultry production in terms of severity.
From Table 1, the challenges in poultry production include the following: feed, lack of knowledge or ignorance, theft, limited skill, lack of stock, labor. Also, marketing, climate conditions and credit facilities were among the factors critical for chicken rearing. Lack of knowledge and ignorance were a major setback to chicken rearing in the study area. It constitutes 90% challenges in Bamenda municipality. Limited access to veterinary, extension services and chicken production skills in the study area is common in most extensive chicken production systems, chicken

productivity usually increases when proper and timely veterinary and extension services are provided to farmers (Branckaery et al., 2000).

The second most pressing constraint of the respondents was identified to be that of high-cost feed.

Table 1. Ranking challenges in poultry production in terms of severity.

Variables	NC	C	CD	% CD	Ranking
Pest	16	24	-0.2	-20	9
Climate condition	08	32	-0.6	-60	6
Access to feed	24	16	0.2	20	3
Lack of knowledge	38	02	0.9	90	1
Marketing	15	25	-0.25	-25	8
Access to input	27	13	0.35	35	2
Theft	20	20	0	0	10
Labor	21	19	0.05	5	4
Farm products	10	30	-0.5	-50	7
Lack of stock	04	36	-0.8	-80	5

Source; Author, From Fieldwork

Training and extension services held in the study area were other determinate factors that improve poultry production. The result shows that 90% of the respondents had no access to training services; on the other hand, 10% of the respondents had training services. This result indicates that training is one the constraints in poultry production faced by poultry farmers. About 90% of the respondents requested more training and seminars on general chicken rearing especially on disease control and housing design. They suggested the trainings be conducted by qualified experts from country and national government and non-governmental organization. Poultry production system is the most important economic activity in rural poor household. It serves as a starter capital stock, source of easily disposable cash income, source of protein and also has crucial social and cultural values. Disease is among the most distressing constraints in the production and marketing of poultry product. According to farmers' survey, the respondents pointed out that disease is the most important constraint in the sector. Disease of poultry was unknown to farmers. The only disease reported in poultry was white diarrhea, which could be bacillary white diarrhea or coccidiosis.

The analysis made for market access to buy production inputs and sale poultry product indicate that 75% of the respondents had good market access to procure poultry production inputs and sale chicken, only (25%) had poor market access to procure poultry production input and to sale chicken and eggs in the study area. About (25%) suggested provision for regular market to ensure they get maximum benefits from their chickens rather than being exploited by middlemen. Farmer does not face any competitive market. They face no competition in selling their products so they don't their desired price. Sometimes they sell for very low prices to buyers. Local variety has not enough growth potentiality. This problem was faced by 35% of the famers. This confirms the finding of Adetayo et al (2003) who identified inappropriate breeds as one of the major constraints affecting poultry industries. 20% of the respondents agreed to this.

Linking Broiler Production and Economic Well-being

Table 2 shows the result of the effect of poultry production and economic well-being. The OLS result is inconsistent and understated and not acceptable for inference due to endogeneity problems involve. This implies the parsimonious estimation technique interpreted here is 2SLS. The IV 2SLS result shows that broiler production is strongly corroborating

with economic well-being. This explains why broiler production or poultry business is a lucrative activity in Bamenda Municipalities. The result is consistent with the views of Brannius (1997). The complementary variables to this effect include: access to input, male household head, average household size and experience in poultry production.

Table 2. Linking poultry production and economic well-being.

Variable	Reduced Form	OLS	IV 2SLS
	Broiler Prod	Economic Well-being	
Broiler production	n/a	-0.420*** (4.51)	0.511*** (4.25)
Belonging to a solidarity network	0.003** (2.02)	n/a	n/a
Male household head	0.008*** (4.13)	0.087 *** (6.64)	0.145*** (6.13)
Married household head	-0.025*** (14.01)	-0.115*** (9.15)	-0.298*** (6.17)
Household size	0.001*** (4.22)	-0.099*** (52.73)	-0.092*** (27.79)
Higher education	0.000 (0.59)	0.000 (0.35)	0.000 (0.76)
Average household size	0.017*** (8.80)	0.218*** (16.36)	0.313*** (9.78)
Experience in poultry production	0.033*** (15.01)	0.437*** (29.09)	0.664*** (11.16)
Age group 40 and 49 years	-0.006 *** (3.02)	-0.071*** (4.85)	-0.117*** (4.90)
Climate change	-0.010*** (4.46)	n/a	n/a
Use of process feed	6.942*** (4.37)	0.133*** (6.41)	-0.120*** (4.52)
Access to input	-0.039*** (23.75)	0.511*** (44.45)	0.219*** (3.23)
Constant term	0.096*** (44.09)	12.729*** (800.87)	13.406*** (80.14)
R^2/Pseudo-R^2	0.7062	0.5136	0.964
F-Stat [df; p-val]	72.24 [13, 11377; 0.000]	1001.30 [12 0.000]	479.47 [12 ; 0.000]
F test of excluded instruments/ Joint F / χ^2 (p-value) test	n/a	n/a	15.98 [11; 0.0000]
Angrist-Pischke multivariate F test	n/a	n/a	31.902 [0.0000]
Sargan statistic test	n/a	n/a	15.918 (0.0001)
Cragg-Donald F-Stat	n/a	n/a	15.976 [19.93]
Durbin-Wu-Hausman χ^2 test	n/a	n/a	34.913 (0.0000)
Number of observations	40	40	40

Source: Author, From Fieldwork

Male household head has a significant and positive effect at 1% on the farmers' participation decision. This implies that being a male headed household will increase the probability of that family to supply poultry products to the market by 6.13 percent. The coefficient of a male house hold head is positive; this implies that when poultry production is being headed by a male, it leads to an increase in the economic well- being of poultry farmer. It is statistically significant at 1% since the standard error is than the coefficient. Majority of the respondents were married, indicating that married household were more involve in poultry farming than unmarried households. This study supports the finding that married farmers were more involved in backyard poultry farming than unmarried farmers (Brannius, 1997). This study was showing a positive relationship between a married household and unmarried household. According to the respondents, a married household with children provided relative family labor, proper planning and easy decision making.

The household size has a significant and positive effect (1%) on the farmers' participation decision to sell their products or not. This implies that as the number of family members increased by one, the probability of that family to become poultry producer will increase by 9.78 percent. This suggests that everything being equal, family labor is likely to be available in the study area. The majority of the poultry owners' households had a large family size according to the grouping (more than 5 persons per house). This has been evaluated as a good source of labor in the study area. This supports most of the study that confirmed the large household size among the farming households where they see the family size as a work force that supplies the most needed labor requirements for the production activities in the study area (Adetayo et al., 2013). The majority of the respondents has been in the backyard business for a long period of time. This implies that the sampled respondents were well groomed and experienced in the enterprise.

The years of experience are negatively signed and highly significant at 1% level of probability which implies that farmers with more years of experience tend to be more technically efficient in poultry production. Continuous practice for an occupation for a long period presumably makes a person more experienced and more productive. This agrees with (Adeoti, 2004), who reported that the years of experience reduce farmers' inefficiency. The coefficient of the age group indicates that if the majority of the respondents falls between the active age group, young people are dominating poultry backyard farming in the study area. This finding was in line with Anang at al. (2013) who reported that the majority of poultry producers were less than 50 years old, it also concurs with Ojo (2009) who negated a-priori assertion that small-scale farmers in Nigeria were old and ageing (Ojo, 2009).

Poultry production and economic well-being by marital status

The result of poultry production on the economic well-being by marital status is shown in Table 3. The result shows that the effect of the broiler production on the economic welfare is both a married and single phenomenon but with a stronger magnitude in the singles implying the singles enjoy a better economic well-being with broiler production business than otherwise. This result is consistent with the views of Anang et al. (2013), that put emphasis on the profitability of the broiler and layer production in the Brong Ahafo region of Ghana.

Generally, our result simply emphasizes the important economic role the broiler production has in augmenting the well-being of farmers in Bamenda municipalities.

Table 3. Poultry production and economic well-being by marital status

Variable	Correlates of Marital Status (IV-2SLS)	
	Married	**Single**
Poultry Production	0.007*** (4.41)	0.304*** (6.23)
Male household head	0.050* (1.94)	0.120*** (5.43)
Household size	-0.073*** (25.48)	-0.145*** (37.26)
Higher education	-0.000 (0.98)	-0.000 (0.66)
Average Household size	0.299*** (9.86)	0.485*** (13.17)
Experience in poultry production	0.634*** (11.90)	0.842*** (13.30)
Age group 40 and 49 years	1.130*** (19.95)	1.315*** (19.85)
Climate change	-0.314*** (6.97)	-0.380*** (7.33)
Use of process feed	0.133*** (6.41)	-0.120*** (4.52)
Access to input	0.257*** (4.00)	0.064 (0.88)
Constant term	13.089*** (115.96)	13.888*** (80.06)
R^2	0.7560	0.5365
F-Stat [df; p-val]	45.78 [12, 0.000]	47.85 [12, 0.000]
Number of observations	**40**	**40**

Source: Author From Field.

The variables complementing broiler production in influencing the economic wellbeing of married poultry farmers include: male household head, average household size, age group 40-49 years, use of process feed, access to input and experience in poultry production. In the same way, the variables complementing broiler production in influencing the economic wellbeing of single poultry farmers are: age group 40 and 49 years of experience in poultry production, average household size and male household head.

The coefficient of male household head is positivity significant at 1% which implies that when the poultry production is being headed by a male, there is a better chance to expand the business, manage the risks involved and make better decisions. An increase in a male household head will lead to an increase in the poultry production by 5.43% implying the more the male household the improved poultry production and consequently economic wellbeing. This result is true for both married farmers and singles. This may be due to the high risk involved in the poultry business and the fact that women are not good risk takers as observed by Anang et al. (2013). The coefficient of the household size is significant implying that a household size affects economic well-being. A large household size will affect the poultry production as resources will be concentrated on feeding the house rather than buying inputs for

the chickens whereas an average household size will be able to maintain and put in more on the poultry. This suggests that everything being equal, family labor is likely to be available in the study area. However, due to increased expenditure, the effect of household size is negatively correlating with economic welfare.

The coefficient of farming experience is significant at 1%. It implies that the experience in poultry production has a positive relation to poultry production. When farmers are well trained, it enables farmers to expand and bring out new technologies on poultry production. This will lead to an increase by 13.30% in productivity and well-being and also acquisition of new skills and use of technological innovation. Climate change is significant at 1% implying the weather has an adverse effect on poultry production and affects the productivity of farmers. This indicates that an increase in the weather condition will bring down productivity by 7.33 which will lead to a fall in the well-being of the farmers. The coefficient of belonging to a solidarity network is significant which indicates that when poultry farmers engage in cooperative activities or are part of a social group, it helps to enhance their productivity and well-being by achieving common objectives with other members. This implies that they have other means to access credit, sell their product or purchase their business; they can also reduce the total cost of operation. A decrease will lead to a fall in productivity by 4.42%.

CONCLUSION

This study has the following objectives: to identify and rank the main challenges faced in broiler production in Bamenda municipalities, to determine the effects of poultry production on the economic well-being in Bamenda municipalities and to determine the effect of poultry production on the economic well-being by the gender of the poultry farmer in Bamenda municipalities. Primary data was collected from 40 poultry farmers from different cooperatives using structured questionnaires and personal observations on poultry rearing and production. The two stage least squared was used to estimate the result. The challenges of the poultry production observed in this zone of study included: feed, lack of knowledge or ignorance, theft, limited skill, lack of stock, labor, marketing and climate condition and credit facilities were among the factors critical for chicken rearing. The lack of knowledge and ignorance were a major setback to chicken rearing in the study area constituting 90% of the challenges in Bamenda municipality. The two stage least squared result shows that broiler production is strongly corroborating with the farmers' economic well-being. Decomposing the result into a gender perspective shows that it's an issue of both male and female phenomenon. The state should subsidize the cost of feed for poultry farmers to render it affordable and improve the development and growth of the birds. The services of extension workers should be promoted for the sake of farmers training.

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