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Econometric analysis of factors affecting competitive advantage of broiler agribusinesses in Ghana

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This paper econometrically analyzed the factors affecting competitive advantage of broiler agribusinesses in Ghana, using multiple regression analysis. Through a multi-stage random sampling technique, structured questionnaire was used to collect farm level data from 441 small-scale commercial broiler agribusinesses in the Greater Accra, Ashanti and Brong Ahafo Regions of Ghana. The average variable cost of producing a broiler at an average market age of 57 days was GH¢8.48 (US\$5.93). Of this cost, feed and one day-old chick costs together constitute about 72%. Results of the econometric regression analysis show that feed and day-old chick costs, broiler market age and capacity utilization are the main factors that significantly affect competitive advantage of broiler agribusinesses in the study area. Feed cost, one day-old chick cost and market age of broilers positively and significantly affect cost of broiler agribusinesses while production capacity utilization negatively and significantly affect cost. This suggests that reducing feed and day-old chick costs, market age of broilers and increasing capacity utilization will reduce production cost to promote competitive advantage of broiler agribusinesses. Broiler agribusinesses should be encouraged to adopt better feed management practices and also feed broilers with nutritious feed for the right market weight to be gained by week eight to reduce expenditure on feed. Policies that will encourage broiler producers to increase production capacity should also be encouraged.

Key words: Competitive advantage, broiler, agribusiness, econometric, Ghana

INTRODUCTION

Competitiveness of the global food market has raised concerns among economist and policy makers about the need for competitive advantage in the agribusiness sector of developing countries (Mugera, 2012; Grznár and Szabo, 2006). This is particularly so because competitive advantage ensures continuous survival and profitability of agribusinesses, and so has heightened the need for more competitive strategies to be developed for growth (Sánchez and Pérez, 2005). According to Porter (1985), the goal of all firms is to achieve a competitive advantage in relation to their rivals. This is created when a firm uses its resources and capabilities to achieve either a lower cost structure or differentiated product to

position itself competitively in the industry. Competitive advantage enables a firm to earn profits that are higher than the average profit earned by its competitors. Ghana's broiler agribusiness sector is a major component of the livestock and poultry sub-sector of the Agricultural sector that contributes about 5% to agricultural Gross National Product (GNP). The sector also provides high quality protein meat and inclusively employs 75% of the Ghanaian population in the areas of processing, nutrition, health, product and by-products as well as vending at food joints and chop bars (Anku, 2005). The sector also serves as an important source of ready cash for emergency needs. According to available statistics from

the Ministry of Food and Agriculture (MOFA, 2010), between 2003 and 2008, poultry meat contributed 26% of the 32% growth recorded in total domestic meat production in Ghana.

Up until the 1990s, the broiler sector of Ghana supplied about 95% of the total domestic poultry meat requirement. However, by 2008 the broiler sector could only meet about 11% of the total domestic requirement, with the rest coming from imports (Randan and Ashitey, 2011). The decline in the market share of the domestic broiler sector in total market demand (import and production) has been attributed to increased competition from cheap poultry imports as well as changes in government policies such as the removal of government support for drug costs, discontinuation of government importation and support for feed mill ingredients and the reduction of preference in interest rates for agricultural credit (Nkansala, 2004). These factors raised the cost of broiler production by over 60%, resulting in many broiler enterprises folding up. Recognizing the need to revive the broiler sector to reduce poverty and malnutrition, governments provided some interventions to support the sector. These interventions included the implementation of the National Agricultural Research Project (NARP) in 2002 and the importation of 20,000 Mt of yellow maize in 2005 that were sold to poultry farmers to boost local production. Other interventions were facilitating the capitalization and marketing of broiler birds through a joint Government and Agricultural Development Bank broiler out grower scheme in 2003. In spite of all these supports, increasing production cost continues to raise concerns among stakeholders about competitive advantage of the broiler sector in Ghana. There is therefore the need to achieve competitive advantage in the Ghanaian broiler agribusiness sector. This is to ensure that the broiler sector position itself strategically to survive, grow and compete favourably in the increasingly competitive global agribusiness market to become more profitable in the future.

The ability of an entrepreneur to control production cost is key at promoting competitive advantage of a firm's product. Indeed, the increasing cost of broiler production which has implication for competitive advantage has been a major concern among broiler producers. This situation threatens the future survival of Ghana's broiler sector and therefore requires urgent and concerted efforts to save the sector from total collapse. Since broiler producers have little or no control over the demand for their products as well as inputs prices due to the competitive nature of the market, a more plausible way to achieve competitive advantage in the sector is to reduce production cost to keep broiler producers in business. However, this will require that broiler producers know the main factors affecting production cost and the extent to which they affect competitive advantage in order to take appropriate steps to reduce cost. This is to ensure that local broiler producers compete favourably in the global market. The main research question is: What are the factors affecting

competitive advantage of broiler agribusinesses? The decline of the broiler agribusiness sector in Ghana has been attributed to high inputs costs such as feed, drugs and energy. True as these views expressed on the decline of the broiler industry may be, they are not based on scientifically conducted studies. In actual fact, systematic and rigorous econometric studies examining these issues in Ghana are limited (Kudzodzi, 2006; Killebrew and Plotnick, 2010). Moreover, studies on broiler agribusinesses in Ghana focused mainly on profitability (Anang et al., 2013) and not competitive advantage. The objective of this study is therefore to econometrically analyze the factors affecting competitive advantage of broiler agribusinesses in Ghana. This study will help broiler producers to know the key factors affecting their competitive advantage in order to take appropriate steps to reduce cost to make the sector competitive and more profitable.

MATERIALS AND METHODS

Study area

The study was based on farm level data from small-scale commercial broiler agribusinesses in the Greater Accra, Ashanti and Brong Ahafo Regions of Ghana. These are regions where considerable amount of commercial broiler production takes place. The Greater Accra Region is located in the coastal belt of Ghana and lies between longitudes 1° 8' E – 0° 30' W and latitude 5° 70' – 6° 8' N of the equator and has a total land size of 3.24 thousand square kilometers. The Ashanti Region also has a total land area of 24.39 thousand kilometers and is located in the middle belt of Ghana, between longitudes 0° 15' W – 2° 15' and latitude 6° N – 7° 30' N of the equator. The Brong Ahafo Region on the other hand lies in the forest zone and covers an area of 39,557km². It has a tropical climate, with high temperatures averaging 23.9°C as well as a double maxima rainfall ranging, from an average of 1000 mm in the northern parts to 1400 mm in the southern parts. These three regions of the study have a high concentration of commercial activities, infrastructural facilities like veterinary care as well as climate that favour the production and marketing of poultry meat products.

Population, sample size and technique

The target respondents for the study were small-scale commercial broiler agribusinesses who were members of the Ghana National Poultry Farmers Association (GNPFA, 2009). Multi-stage and purposive random sampling techniques were used to select 441 small-scale broiler producers with stock size of between 50 and 5000 birds in a batch and use the deep litter system. The first stage involved purposive selection of the three main broiler producing regions in Ghana. Five districts from each of the three regions were selected in the second stage after interviewing officials of the regional branches of the GNPFA to find out districts and communities where broiler is predominantly produced. Two (2) communities from each of the five districts were then selected to obtain a total of 30 communities. Since small-scale commercial broiler producers are not evenly distributed within the communities selected in the regions, simple random sampling technique was used in the last stage to select and interview 462 poultry meat producers in a ratio proportional to their population. However, 441

questionnaires which contained the needed information were used for the analysis.

Sources and method of data collection

Structured questionnaire was used to collect primary data on farm and farmer socio-economic characteristics as well as input and output quantities and their respective prices used during the 2010 production cycle. The questionnaire which was pre-texted consisted of both open-ended and close ended questions as well as yes and no questions.

Analytical framework

The analytical framework developed for this study was based on the one proposed by Porter (1990). According to Porter, the environment in which firms compete and promote the creation of competitive advantage is shaped by a number of broad attributes. Among these attributes are factor conditions, demand conditions, related and supporting industries and firm strategy, structure and rivalry. As one of the broad attributes, factor conditions depend on the quantity, quality and cost of the human, physical, knowledge, capital as well as infrastructural resources of a firm.

These factors determine the competitive environment in which a firm competes and shapes its success. When a firm uses its resources and capabilities to achieve a lower cost structure, then it creates a competitive advantage (Porter, 1985). The agribusiness of broiler production involves the use of resources or inputs such as feed and day-old chick among others. The quantity, quality and cost of these inputs are likely to determine the factor condition, production cost and ultimately competitive advantage in the broiler sector.

Moreover, the ability of the broiler producer which depends on the technical and scientific know-how in broiler agribusiness is also likely to determine how effectively these inputs and operational activities in broiler production are organized and hence per unit production cost and competitive advantage. A lower per unit cost of production obtained from effective use of resources promotes and creates competitive advantage of broiler agribusiness. Therefore, the analytical framework used for the study is based on the fact that competitive advantage created through a lower per unit costs of production is likely to be determined directly or indirectly by the cost of production inputs as well as operational activities of the producer. Based on this, average variable cost (C) of producing broiler at market age in a batch, used as a proxy for competitive advantage, was modeled to be influenced by explanatory variables (X) such as broiler output produced at market age, cost of production inputs per bird as well as extension service contacts, market age of broilers and capacity utilization of respondents. The general form of this cost/competitive advantage model used for the study is specified as:

$$C_i = f(Y, X, \beta) + \varepsilon_i \quad (1)$$

Where C represents average bird variable cost per for selected broiler agribusiness, β are coefficients to be estimated, i represent the farm surveyed, Y is output X is a vector of independent input costs and other variables hypothesized to influence cost/competitive advantage and ε represents the error term assumed to have a zero mean and constant variance. Following the model used by Mumba et al. (2012) and Olubiyo et al. (2009), the implicit econometric cost/competitive advantage regression model used for the study is specified as:

$$\ln C_i = \beta_0 + \beta_1 \ln \text{Output}_i + \beta_2 \ln \text{CstDoc}_i + \beta_3 \ln \text{CstFeed}_i + \beta_4 \ln \text{CstLab}_i + \beta_5 \ln \text{CstMed}_i + \beta_6 \ln \text{CstOthers}_i + \beta_7 \ln \text{DvCap}_i + \beta_8 \ln \text{ExtCon}_i + \beta_9 \ln \text{MktAge}_i + \beta_{10} \ln \text{CapUt}_i + \varepsilon_i \quad (2)$$

Where \ln is natural logarithm, C_i is the competitive advantage of broiler agribusiness proxied by average variable cost of producing broiler at market age, Output is the number of broilers produced at market age in a batch, CstDoc is the per unit cost of one day-old chick, CstFeed is cost per kilogram of feed per bird, CstLab is the sum of hired and imputed family costs of labour per bird, CstMed is cost of medications and vaccines per bird, CstOthers is the cost of other inputs per bird and DvCap is the cost of capital input per bird. ExtCon is extension service contact measured as the number of extension contacts broiler agribusiness had in a batch, MktAge is market age of broilers measured as the deviation from the standard 56 days for a broiler to be ready for the market and Caput is the proportion of the installed capacity of broiler farm utilized by the producer; β_i are the parameters to be estimated and measures the percentage changes in the dependent variable (cost) and ε is the error term. Output of broiler producers represents the number of survived day-old chicks that are ready for sale by the end of the production cycle. All things being equal, the more day-old chicks stocked in a cycle, the more output will be produced and the more the cost. Output variable in the model is hypothesized to have a positive effect on cost. The main variable inputs required in broiler production include feed, day-old chick, labour, vaccines, medication, water, energy among others. These inputs are essential in the production of broiler and their costs have the tendency to affect the cost of production. The higher the cost of these variable inputs, the higher the cost of broiler production will be and hence reducing competitive advantage. These variable inputs costs are expected to have positive effect on cost, hence hypothesized to have a positive sign. The cost of capital input was measured as the depreciation value of farm structure and equipment and was hypothesized to have a positive sign.

Extension service contact is another variable included in the cost/competitive advantage function model. Broiler producers need to be abreast with modern production technologies and practices in broiler businesses that can be obtained from extension service contacts. Through extension service farmers get access to modern production techniques that enhances their abilities to effectively organize inputs purchased. Therefore, the more extension service contacts broiler producers get, the more they are expose to proper and modern farm management practices and the better their capabilities. This in turn ensures that broiler producers effectively organize their production inputs to reduce cost to achieve competitive advantage. It is therefore hypothesized to negatively affect cost. The number of days/weeks broilers are raised and ready for the market is another important factor that can affect the cost of broiler production and competitive advantage of the sector. The standard number of days required for broilers to be ready for market when fed with the right quality and quantity of feed is between 42 and 56 days. A broiler producer who deviates from this standard number of days is likely to incur more cost, since the birds will have to be fed until they gain the right market weight. Market age is therefore hypothesized to have a positive effect on the cost of broiler production, hence competitive advantage. Finally, the proportion of capacity utilized by a broiler agribusiness may also affect the cost of production and hence competitive advantage. Capacity utilization represents the extent to which broiler producers are optimally utilizing their fixed farms structures. Broiler agribusinesses that optimally use their installed production capacity are able to spread the cost of fixed input over larger outputs to reduce cost and to create competitive advantage. As a result, the higher the proportion of installed capacity utilized by the producer, the less the cost of production and vice versa. Capacity utilization is therefore hypothesized to have a negative effect on cost.

Table 1. Descriptive statistics of farm specific socio-economic characteristics.

Farm-specific variable	Mean	Minimum	Maximum	St.Dev
Average variable cost (GH¢)	8.48	3.34	18.30	2.62
Average cost per broiler (GH¢)	8.78	3.46	19.63	2.73
Farm size (No. of birds stocked)	1050.73	50.00	5000.00	946.77
Broiler output (No. of birds)	1011.82	45.00	4950.00	927.91
Age of farmer (years)	43.36	20	74	11.27
Formal education (years)	12.23	0	28	6.43
Experience (years)	7.61	0.42	51	6.75
Extension service contact/batch	1.38	0	6	0.79
Training/seminar in poultry	0.26	0	1	0.44
Market age of broilers (days)	57.29	28	77	12.36
Market access to sell broilers	0.93	0	1	0.26
Capacity utilization (%)	0.58	0.03	1.00	0.33
Number of batches in a year	1.87	1	3	0.68
Mortality rate (%)	2.61	0.00	16.00	3.46

Source: Author's Computation from Survey Data, 2010.

RESULTS AND DISCUSSION

Descriptive statistics of socio-economic characteristics of respondents

Table 1 shows the descriptive statistics of the socio-economic characteristics of small-scale commercial broiler agribusinesses sampled. It shows that the average age of broiler producers in the study area was 43 years, suggesting that the average broiler producer is old. The youth needs to be encouraged and supported to go into broiler production as a business and also to take over from older farmers in their demise to ensure continuity of the broiler sector. Sixty-three (63) percent of the respondents have up to secondary education, implying that majority of broiler producers sampled have some level of formal education. The education level attained by the farmer not only increases his productivity, but also enhances his/her ability to read, understand and evaluate new production technologies (Obasi, 1991). The average years of experience of broiler production in the study area was about 8 years. The longer the years of broiler production, the more exposed the farmer becomes to broiler production techniques for cost to be minimize to promote competitive advantage. In addition to having an average extension service contact of 1.38 visits per batch, the result also shows that small-scale broiler farmers produce an average of 1.87 batches of broiler in a year. This is less than the potential five batches per year (Atibudhi, 2004). Increasing the number of extension contacts broiler businesses receive in a batch as well as the number of batches of broilers produced will reduce the cost of broiler production to make the local industry gain competitive advantage. Furthermore, the result of the study shows that the average market age at which

birds are ready for the market was 57.29 days. This is higher than the standard 42 to 56 days or average of 49 days required for broilers to attain the right market weight for sale. Small-scale commercial broiler producers need to feed their birds with the right quality and quantity of feed to enable the birds gain the right market weight by week eight. This will ensure that feed resources are efficiently utilized to reduce expenditure on feed to make the broiler sector competitive.

The average stock size of broiler agribusinesses sampled in a batch was about 1,051, while the average output produced in a batch was 1,012 broilers. This is an indication of the small size nature of broiler farms in the study area. Increasing the scale of broiler production is necessary to increase output to meet the increasing broiler demand. The result further shows that small-scale broiler producers are producing a little above half of their installed capacity. The average capacity utilization of respondents was 58%, implying 42% less of their installed capacity. This may be due to difficulty of broiler producers' to have access to market to sell their products. Increasing the capacity utilization in broiler production will ensure maximum use of farm structure and other fixed inputs for returns on investment to be maximize. This will help spread cost over wider output to reduce average variable cost of production for the broiler sector to be competitive. The average mortality rate among the respondents was 2.6%, indicating less than 5% mortality rate.

Table 2 shows that the average variable cost of broiler production was GH¢8.48. This is equivalent to US\$5.93 at 2010 cedi-dollar exchange rate (footnote of Table 2). Of this cost, feed and one day-old chick costs together constitute GH¢6.12 (US\$4.28), representing 72% of total variable cost of production. Feed alone represents about

Table 2. Cost structure in broiler agribusiness production.

Variable	Mean (GH¢)	Percentage (%)
Day-old chick	1.84	21.83
Feed	4.28	50.51
Labour	1.49	17.66
Medication/vaccines	0.33	3.91
Other costs	0.52	6.10
Average variable cost	8.48	96.54
Average fixed cost	0.30	3.46
Average Cost	8.78	100.00

Source: Author's Computation from Survey data, 2010. NB: GH¢1.44 = US\$1 at 2010 rate.

51% of the average variable cost while one day-old chick cost represents 22%. This is an indication of the importance of these two inputs in broiler production. Efforts directed at reducing the cost of these inputs will go a long way to reduce production cost for the sector to gain competitive advantage. This result is almost similar to the 79.5% found by Shaikh and Zala (2011) in their study. With the continuous increase in feed prices, small-scale commercial broiler producers need to adopt better feed management practices to ensure efficient use of feed by broilers. This will help reduce expenditure on feed by broiler producers. Besides, feeding broilers with the right quality and quantity of feed starter and finisher will improve the feed conversion ratio (amount of feed consumed to gain a kilogram weight) to reduce production cost and promote competitive advantage of the sector.

Labour cost which is divided into hired and imputed labour costs, was the third largest component, representing about 18% of the total variable cost. The mean labour cost per bird was GH¢1.49, equivalent to US\$1.03. Of this amount, hired labour cost per bird represents 65.05%, while imputed family labour cost represents the remaining 34.95%. This indicates the importance of hired labour in small-scale commercial broiler production in the study area. This result agrees with Shaikh and Zala (2011) who found labour cost to be the third largest in the total variable cost of small-scale broiler production in their study. Medication and vaccine costs constitute about 3.9% of the total variable cost of broiler production, while other operating costs on water, energy, transport and litter management represents about 6.1%. The mean medication/vaccines and other operating costs per bird were GH¢0.33 (US\$0.23) and GH¢0.52 (US\$0.36) respectively. Broiler production is prone to diseases and as such, increases in cost of drugs and medication will make it difficult for broiler producers to control mortality in production. There is the need to provide medications and vaccines to broiler producers at competitive price to enable the control of diseases. Moreover, the costs of water and energy should be made affordable to producers to ensure maximum returns on investments. The average fixed cost per broiler, including

depreciation of equipment and maintenance represents 3.46% of average cost of production. With the 42% excess capacity, small-scale broiler producers could relatively reduce production cost by about 14.7% (0.42×0.35), if they increase capacity utilization to 100% and the number of 1.87 batches to five in a year. This will cause less increase in consumer price of broilers and make the broiler sector competitive.

Factors affecting competitive advantage of broiler agribusinesses

The econometric regression results of the parameters of the factors affecting competitive advantage of broiler producers sampled are presented in Table 3. All the parameter estimates except depreciation value of capital input have the expected signs. The parameter estimates of costs of day-old chick, feed, labour, medicine/vaccines, other cost and broiler market age in the model are positive and highly significant at 1 and 5% level respectively, while capacity utilization is negative and significant at 1% level. This means that these factors are significantly different from zero and are therefore important in explaining competitive advantage in broiler agribusiness production. Though extension service contact was not significant, it met the expected negative sign. The coefficients of the parameter estimates represent percentage change in cost of broiler production when the explanatory variables change by one percent. The diagnostic statistic results show a mean dependent variable of 2.09, with a standard deviation of 0.30 and an F-value of 23.3 which is statistically significant at 1%. The coefficient of determination (R^2) means that about 94% of variability in per unit variable cost was accounted for by the explanatory variables in the model. Indeed, the explanatory factors in the cost function model explain competitive advantage of broiler producers. Thus, the cost function regression model was adequate. According to Gujarati (2004) in determining model adequacy, broad features of results, such as the value of coefficient of determination (R^2) and F-value should be looked at.

Table 3. Regression result of factors affecting competitive advantage of respondents.

Variable	Coefficient	Std. error	t-Statistic
Constant	1.152***	0.087	13.281
Output	0.011	0.009	1.262
Day-old chick cost	0.270***	0.019	14.349
Feed cost	0.454***	0.013	34.602
Labour cost	0.137***	0.006	23.035
Medicine/vaccine cost	0.084***	0.011	7.366
Other operating cost	0.060***	0.010	6.198
Depreciation value	-0.001	0.005	-1.162
Extension contacts	-0.003	0.009	-0.368
Market Age	0.058**	0.022	2.564
Capacity utilization	-0.016***	0.005	-3.011
R-squared	0.939	Mean dependent var	2.091
Adjusted R-squared	0.938	S.D. dependent var	0.299
S.E. of regression	0.075	Akaide info criterion	-2.323
Sum squared resid	2.361	Schwarz criterion	-2.219
Log likelihood	513.898	Hannan-Quinn criter	-2.28
F-statistic	649.673***	Durbin-Watson stat	1.911

Source: Author's Computation from Survey Data, 2010. Asterisks indicate significance level for one-tail tests; *** denote 1%, and ** denote 5%.

These diagnostic statistics are both statistically significant in this study. Moreover, the value of the Durbin-Watson statistic of 1.91 is closer to two, indicating that there is no autocorrelation among the explanatory variables in the model. This suggests the reliability of the parameter estimates.

As indicated by Porter (1985), competitive advantage is created when a firm uses its resources and capabilities to achieve a lower cost structure. Based on this, factors that reduce per unit cost of production promote competitive advantage of broiler agribusiness. Thus, a positive parameter estimate indicates that reduction in the explanatory factor will result in reduction in per unit cost, hence promotes competitive advantage. On the other hand, a negative parameter estimate means that an increase in the explanatory factor will result in reduction in per unit cost and hence promotes competitive advantage.

The parameter estimates of all the variable input costs used in the model are positive and statistically significant at 1%, implying that the cost function monotonically increases in variable input prices. A percentage increase in the costs of one day-old chick, feed, labour, medication and other operating cost will significantly increase cost of broiler agribusinesses by 0.27, 0.45, 0.14, 0.08 and 0.06%, respectively. This implies that reducing the cost of all these variable inputs will lead to a significant reduction in the per unit variable cost of broiler agribusiness, hence creating competitive advantage of the broiler sector. It is clear from this results that feed and one day-old chick costs have the highest impact on cost, confirming their

significance in broiler production in the study area. All other things being equal, if broiler producers could have access to day-old chick at competitive price and also adopt proper feed management practices, they would be able to reduce production cost significantly to gain competitive advantage and maximize profit. Efforts should be directed at reducing the cost of these two inputs to promote competitive advantage of the broiler sector. This result is consistent with Singh et al. (2010) who found one day-old chick and feed costs to be the two main factors affecting the cost of broiler production in their study. The number of days that broilers are raised to be ready for sale is vital in determining the feed conversion ratio as well as the production cost of a broiler business. The result of the parameter estimate for market age variable in the model was also found to be positive and significant at 5% level. This indicates that the more broiler producers deviate from the standard 42 to 56 days required for birds to be ready for market, the more the cost incurred. This in turn reduces the competitive advantage of the broiler sector. As broilers are kept for longer days to gain the right market weight, the quantity of feed utilized increases. This increases the value of feed conversion ratio. Broiler producers therefore incur extra cost when they keep their birds for extra days beyond the required number of days. There is the need for broiler producers to feed broilers with high quality feed for the right market weight to be gained by week eight. This will improve the feed conversion ratio to reduce production cost and to make the sector gain competitive advantage. This result corroborates Rajendran et al. (2008)

who found market age to affect broiler production cost in their study.

The negative coefficient of extension service contacts and capacity utilization implies that broiler producers who have more extension service contacts and utilizes more of their installed capacity reduce their production cost than those who do not have more extension service contacts and utilize less of their installed capacity. Though extension service contact variable was not significant, the negative coefficient means that if broiler agribusinesses have more extension service contacts their abilities in broiler production is enhanced. This is because they have more access to information on new production techniques. With the technical know-how and information from the extension service contacts, broiler producers are able to adopt modern and better production methods to reduce production cost. This will in turn promote competitive advantage of broiler agribusinesses. Moreover, increasing production capacity utilization of broiler producers will ensure that cost is spread over larger output. This reduces per unit cost of production to promote competitive advantage of the broiler sector. Policies directed at encouraging broiler producers to increase their production capacity to reduce production cost are recommendable. This finding corroborates with Farooq et al. (2010) who found that small-scale broiler producers that optimally utilized their installed capacity have lower cost of production than those who do not utilize their installed capacity optimally.

CONCLUSION AND RECOMMENDATIONS

The results obtained in this study revealed that feed and one day-old chick costs constitute almost three-quarters of the average variable cost of broiler production. This indicates the relative importance of feed and one day-old chick in broiler production. Reduction in the cost of these two inputs will increase profitability of broiler production. The study also discovers that feed cost, one day-old chick cost, labour cost as well as market age of broilers and capacity utilization are the main factors that significantly affect competitive advantage of broiler agribusinesses in Ghana. Reduction in the cost of feed, one day-old chick cost, labour cost and market age at which broilers are ready for sale will promote competitive advantage in broiler production. Similarly, increase in capacity utilization will significantly reduce production cost to promote competitive advantage of the broiler sector. Recommended policy actions should therefore be directed at building the capacity and technical know-how of broiler producers to adopt proper farm management practices to ensure efficient utilization of feed resources. This will reduce expenditure on feed and consequently production cost to ensure competitive advantage of broiler agribusinesses. In addition, measures that aim at encouraging broiler producers to increase capacity utilization of farm structures is recommended as a policy option to reduce production cost and to promote competitive advantage

of the sector. Given that market age significantly affects competitive advantage, broiler producers should be encouraged through appropriate policy options to raise their birds for the market by the eight week to reduce expenditure on feed. Producers should also feed birds with high quality feed to enable birds gain the right market weight by the eight week.

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