# Determinants of Choice of Institutional Marketing Arrangements by Small Poultry Businesses in Tanzania: Application of Transaction Cost Theory

***Peter Msami[2] and Deus Ngaruko[3]***
[1] College of Business Education, Dar es Salaam
[2] Centre for Economics and Community Economic Development
The Open University of Tanzania.
E-mail:dues.ngaruko@out.ac.tz

***Abstract:*** *The transaction cost (TC) theory of the firm provides a conceptual model suitable for investigating the mechanism by which business firms evolve and grow. This paper uses poultry farm businesses (PFBs) in Tanzania as a vehicle of assessing relevance of the theory in explaining factors determining choice of institutional arrangement, for the purpose of identifying policy measures that can influence small business firms to opt for contractual businesses. A cross-sectional survey was conducted in two regions in the country covering 170 respondents. Logistic regression analysis indicate that the choice by business firms to opt for a particular institutional arrangement is determined by all the components of total transaction cost (TTC); as all were statistically significant ($P < 0.05$). It shows also that search and screening cost has greatest impact on choice of institutional arrangement (Wald = 8.745) followed by enforcement cost (Wald = 4.735) and negotiation cost (Wald = 4.735). It indicates in addition that, probability of PFBs to enter into contractual businesses falls with increase in Transaction Costs (TCs). Linear regression analysis shows, in addition that, search and screening cost has greatest elasticity to TTC (Beta = 0.596), followed by enforcement cost (Beta = 0.43) and negotiation cost (Beta =0.437). A theory based intervention should therefore, mainly be focused on reducing search and screening cost, followed by the other components of TTC.*

**Key words***:* Transaction costs, poultry farm businesses, institutional arrangements

## INTRODUCTION

This paper presents empirical analysis of the factors determining choice of institutional arrangement by small business firms predominant in Tanzania and other developing countries. It aims at investigating policy measures which can influence the business firms to shift from independent business entities operating in market institutional arrangement into contractual businesses. The premises of this study is that formation of contractual business arrangement in forms of contract farming, vertical integration producers' organization and the like results into growth of business firms into commercial businesses. If the contractual business arrangement does not develop independently, the Government should therefore

[2] College of Business Education, Dar es Salaam
[3] Centre for Economics and Community Economic Development, Open University of Tanzania

intervene and stimulate them to develop. The study used poultry farm businesses (PFBs) in Tanzania in the investigation. Throughout this chapter, discussion is based on comparative institutional framework which is the basic feature of the transaction cost economics analysis.

The first part of this paper provides a brief theoretical review on determinants of choice of institutional arrangements based on the transaction cost theory of the firm. The second part presents empirical analysis of factors determining choice of institutional arrangements by the farm businesses in the study area. The third section presents in brief the methodology that was used in conducting the study. This was followed by empirical analysis of motives behind formation of each institutional arrangement. This section covered description of the dependent and independent variables, model specification and estimation and analysis. The paper also presents analysis of the determinants of total transaction cost to investigate policy measures to stimulate growth of the poultry industry. This part also presents model specification, analysis and econometrics results.

**THEORETICAL REVIEW OF THE DETERMINANTS OF CHOICE OF INSTITUTIONAL ARRANGEMENT**

The central tenet of the transaction cost economics is that there are costs in any transaction regardless of whether it occurs in a market arrangement or in contractual business arrangements (including for example vertical integration, contract farming, joint venture and partnership). The choice between the two alternative arrangements may be considered by an example of a business firm deciding whether to outsource a production input in the market or otherwise. The market option would see the firm purchasing the required input in the spot market, produce and sell output in the spot market (buy option); while the contractual business arrangement option would see the firm build its own plant to manufacture the input, produce and sell the product in its own sell outlets (make option) or entering into a joint venture with the input manufacturing firm to supply the input and market the output (collaborate option).

In this case the business chooses the most efficient arrangement in the alternative options, the one which involve lowest costs. Similarly in transaction cost economics, efficiency, that is transaction cost (transaction risks) minimization is considered to play the central role in decisions; or more precisely it is seen as the primary determinant of choice of institutional arrangement. In the PFBs under analysis the market institutional arrangement 'buy' option and contractual business arrangement (make and collaborate) option may be conceptualized as shown in Table 1.

According to the transaction cost theory of the firm, hierarchies and markets are alternative institutional arrangements and the choice between the two depends on magnitude of transaction cost/risk (Williamson, 2004). The magnitude of transaction risk is mainly determined by human behavioral assumptions (bounded rationality and opportunism) complimented with exchange attributes namely, asset specificity uncertainty and frequency (Williamson, 2000).

**Table 1: The make *versus* buy choice for FFBs**

| **Institutional arrangement** | **Contractual business arrangement** | | **Market institutional arrangement** |
|---|---|---|---|
| | **Hierarchy** | **Hybrid** | **Market** |
| **Choice:** | Make (produce within the firm) | Collaborate | Buy (coordinate transaction in the market) |
| **Descriptive:** | Firm develops its internal whole–owned business | Firm enter into contractual arrangements with other firms | Businesses buy input and sell output in spot market |
| **Example:** | Interchick company | Kukudealer contract programme | Independent farmer |

Institutional environment determines also the choice of institutional arrangement by business firms. Figure 1 summarizes the determinants of magnitude of transaction costs and therefore of choice of institutional arrangement according to the transaction cost economics model.

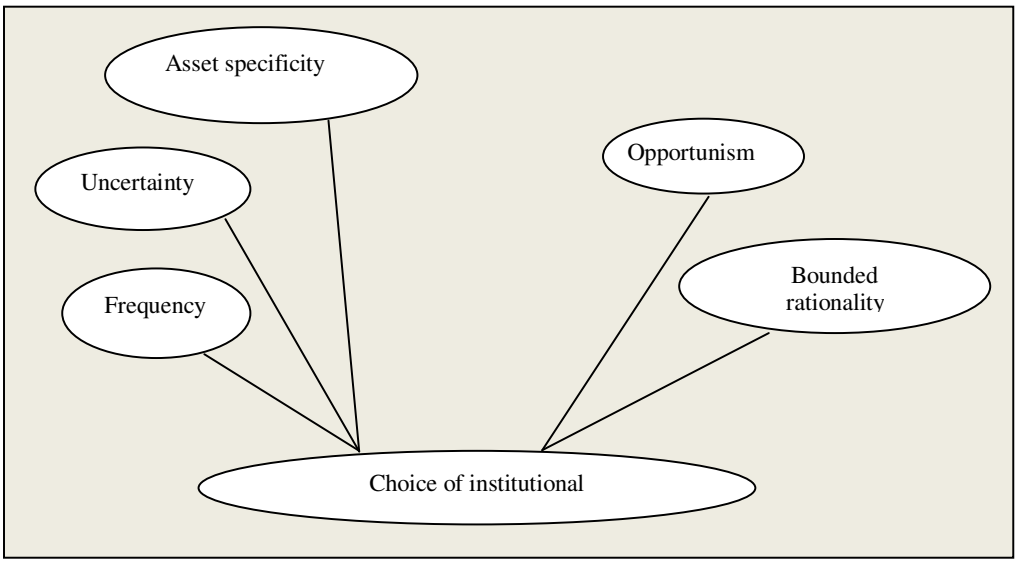


**Figure 1: Determinants of magnitude of transaction cost**
***Source:*** Adopted from Louise H. *et al.* (2008)

When bounded rationality (inability of business firms to engage in contracts which takes into account every possible contingency) is high, business firms opt for contractual business arrangement to safeguard themselves against transaction risks involved in business deals with relatively unknown trading partners and unknown future business environment. In extreme cases of bounded rationality, business firms avoid the transaction risks by entering into contractual arrangement which control all the stages of the supply chain; that is produce within the firm. Conversely when bounded rationality is low, market institutional arrangement is preferred because

future contingencies are relatively easy to predict; and therefore relatively cheaper to 'buy' than to produce within the firm. Hybrid arrangement occurs, therefore, in moderate levels of bounded rationality as it allows firms to have some flexibility for future contingencies.

When human opportunism (potential of one contracting party to take advantage of the other) is high, businesses opt for contractual business arrangement as it eliminates possibilities of external parties to deceive or cheat. On the other side, when opportunism is low, businesses opt for market institutional arrangement because there are no risks of external parties to act contrary to agreements made between contracting parties - or more precisely it makes relatively expensive for the businesses to produce within the firm than coordinating transaction in the market. Hybrid arrangement occurs, therefore, in cases of moderate levels of opportunism.

In the case of investment, when asset specificity (the extent to which transactions are supported by specialized assets) is high businesses opt for contractual business arrangement where in extreme cases the firms opt for an arrangement which controls the entire supply chain, the hierarchy. This is because whenever assets becomes more specific, businesses become subjected to a hold-up problem; in Alchian's (1978) words, the costs of hiring increase more than that of producing within the firm. The basic idea is that the business firm appears in a situation where it cannot draw up good contracts; and therefore it becomes important to allocate power (Hart, 1997); that is, enter into an arrangement which control the entire supply chain. On the other hand, therefore, when asset specificity is low business firms opt for market institutional arrangement as costs of producing within the firm become relatively greater than buying in the market. This is because transaction in the market arrangement does not involve costs of contracting and yet the hold-up threat is reduced or eliminated. With moderate asset specificity therefore, the businesses opts for hybrid arrangement. Williamson (1991) pose a model that relates the degree of asset specificity to forms of institutional business arrangements summarized in Figure 2.

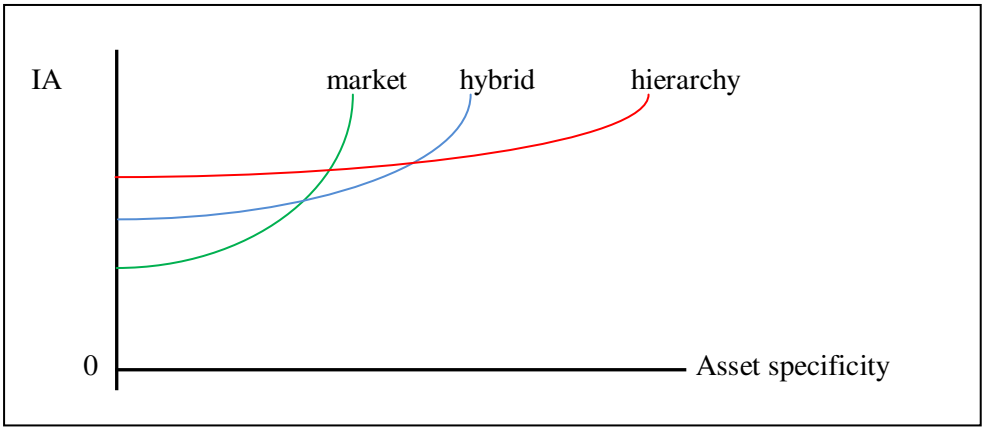


**Figure 2**: **Institutional arrangements (IA) and asset specificity model**
***Source*:** Williamson (1991)

The model predicts that hierarchy arrangement is preferred to market and hybrid arrangements in situations of very high asset specificity, while market arrangement is preferred to hybrid and hierarchy arrangements in situations of low asset specificity, and hybrid arrangement is preferred to hierarchy and market arrangements when asset specificity is at intermediate levels.

Another dimension to be considered in the analysis of factors that determine choice of institutional arrangement is uncertainty (that is, it is impossible to foresee future events such that contractual arrangements cannot *ex-ante* establish price, delivery dates, quality and acceptance of the goods negotiated). When uncertainty is low, elaboration of contracts relatively complete is possible and therefore firms opt for market institutional arrangement because it becomes relatively cheaper than producing within the firm. When face high uncertainty, on the other hand businesses favor contractual arrangements or in extreme cases control the entire supply chain. This is due to the fact that business firms in this arrangement have ability to adapt to the future business environment without opportunistic haggling from its trading partners; and more specifically costs of buying in the market become relatively greater than that of making within the firm. Putting asset specificity and uncertainty attributes together, Williamson argues that firms are preferred to markets and hybrids in situations of very high asset specificity and uncertainty, and markets to hybrids in situation of low asset specificity and low uncertainty, with hybrids optimal when both asset specificity and uncertainty are at intermediate levels (Williamson, 1991).

The other factor which determines choice of institutional arrangement by business firms is frequency of transactions. When frequency is high business firms opt for contractual arrangements. This is because with high transaction frequency - a clear understanding between the trading partners, is required to ensure a desirable performance, and thus requires a written agreement. High frequency provides incentive for a firm to control the entire supply chain. This is because the overhead costs of the hierarchical institutional arrangement are easier to be recovered to recurring transactions (Williamson, 1985); it eliminates chances of opportunism; and it also, makes possible for the businesses to tape economies of scale (efficient use of capacity). Occasional transactions can, on the other hand be outsourced to external parties as costs resulting from opportunism are relatively lower than when production is done within the firm.

## METHODOLOGY

### Design and Sample

This study used a cross-sectional design and was conducted in Dar es Salaam and Singida regions in Tanzania between January 2011 and March 2011. The two regions were selected due to a number of reasons. Firstly, both regions have formal and informal contract PFBs (informal contracts are in forms of agglomerations of poultry businesses producing and distributing poultry products). Secondly, Dar es Salaam region is a potential market for poultry produces (in forms of hotels, bars, restaurants and many other consumers) and it is a potential producer of exotic poultry birds. Thirdly Singinda region, is one among the potential producers of

traditional poultry stock in the country. The study employed binary logistic regression and linear regression methods. The analysis was based on information gathered from a sample of 170 respondents. Out of the total respondents, 128 (75%) were individual business entities operating in market institutional arrangement referred to in this paper as institutional arrangement 1 (IA1); and 25 percent were contractual business arrangement (including partnerships, women groups, contract farming and the like) referred to in this paper as institutional arrangement 2 (IA2).

**Empirical analysis of the determinants of choice of institutional arrangement in the PFBs**

The analysis employed binary regression model in investigating the determinants of choice of institutional arrangement. It involved predicting factors which determine PFBs to opt for market institutional arrangement or otherwise (that is, opt for contractual business arrangement), a case of dichotomous choice. In this case the probability of a business firm to opt for market institutional arrangement took the value 1; and value 0 with the probability of not opting for market institutional arrangement. Probabilities of all the alternatives therefore, add to 1. A variety of statistical models can be used to establish relationships between dependent and determining factors in research. Linear regression method is the popular tool of analysis used in this kind of studies as it is easy to apply and interpret. It was however, found to be inappropriate for this study because it has a number of limitations such as: (a) It may generate predicted values outside the 0 – 1 intervals and violate the basic tenet of probability (b) The variance of the disturbance term in this model is heteroschedastic implying that error term is the function of dependent variable; and therefore violate another assumption of regression theory and (c) The assumption of normality in the disturbance term in linear regression analysis is not justifiable as the error term is not normally distributed because probability takes only two values; violating yet another assumption of regression theory. These limitations prompted the use of a non–linear regression model.

***Dependent Variable***

The dependent variable in this analysis was the choice of institutional arrangement (CIA), defined as the probability of PFBs to opt for market institutional arrangement or otherwise. Thus the CIA was measured as a dichotomous variable with two categories: opting for continue operating market institutional arrangement (coded as 1) or opting for contractual business institutional arrangement (coded as 0).

***Independent Variables***

The model had three independent variables namely search and screening cost, negotiation cost; and monitoring and enforcement cost (the components of total transaction cost).

***Search and screening cost (SEARCHTOTAL)***

This is the cost incurred to obtain information about reliability and trustworthiness of potential trading partners. The cost includes opportunity cost on time spent in the search and screening exercise and financial expenditure on phone calls and

advertisement. The financial expenditure includes also travel expenses in terms of bus and taxi fares, meals and accommodation on visits to the potential trading partners. It includes in addition, hiring selling stalls, payments made for Local Authority levy and business permit. The costs per production cycle in the sample area are summarized in Table 2.

**Table 2: Search and screening cost**

| Transaction costs | N | Minimum | Maximum | Mean |
|---|---|---|---|---|
| **Search and screening costs (Tshs)** | 170 | 0.00 | 78,875.00 | 5,383.00 |
| **Search and screening time (hours)** | 170 | 992.00 | 33.5 | 3.14 |
| **Search and screening time in money terms (Shs 750.00 @ hour)[a]** | 170 | 1500.00 | 25,125.00 | 32,300.00 |
| **Total search and screening costs (Tshs)** | 170 | 1500.00 | 104,000.00 | 24,222.00 |

[a] Minimum wage rate in Tanzania is Tshs 180,000.00 per month; that is Tshs 6,000.00 per day (and thus value of time spent per hour was taken as Tshs 750.00 equivalent to US $ 0.499).

The mean SEARCHTOTAL in the study area is Tshs 24,322.00 (about US $ 16.2) with maximum value of Tshs 104,000.00 (about US $ 69.3) and minimum of Tshs 1,200.00 (about US $ 0.8). The main component of SEARCHTOTAL is financial expenditure, but opportunity cost of time spent by producers waiting for buyers in market places contributes also to the cost. Time spent for this purpose is significantly high in villages and may sometimes reach up to five working days (33.5 hours) in some of the surveyed area.

***Negotiation cost (NEGOTOTAL)***

This is the cost incurred to facilitate negotiations for the terms of sale and breaking a deal. The cost includes financial expenditure on (legal) advice on arbitration and setting safeguards against misuse of the agreements. The safeguards in terms of agreements may be put into formal (written) or informal (verbal) contracts. The costs includes also: opportunity cost of time spent on bargaining and negotiating, costs on visits to possible traders/customers in terms of expenditure on transport, meals and accommodation during visits to potential buyers. The cost may include also: payments to negotiators if done by an agent, meals, allowances during negotiation meetings, bribery and other forms of legitimate and illegitimate payments to smoothen the negotiation process. Table 3 depict a summary of negotiation costs.

The mean NEGOTOTAL in the study area is Tshs 20,309.00 (about US $ 13.5) with maximum value of Tshs 97,500.00 (about US $ 64.9) and minimum value Tshs 1,500.00 (about US $ 0.99). It indicates therefore that at least every PFB incurs some costs in negotiating sale price and sometime the cost may be very high.

**Table 3: Negotiation cost**

| Transaction costs | N | Minimum | Maximum | Mean |
|---|---|---|---|---|
| **Negotiation time (hours)** | 170 | 1 | 130.00 | 27.00 |
| **Negotiation time in money terms (Tshs 750@hour)** | 170 | 0 | 0 | 0.00 |
| **Transaction total negotiation costs (Tshs)** | 170 | 750.00 | 97,500.00 | 20,309.00 |

***Contract monitoring and enforcement cost (ENFORCETOTAL)***

This is a cost incurred to keep track of performance of contract implementation in order to reduce possibility of breach of agreement. In credit sale agreements (formal or informal), the seller is forced to make regular inspections at various intervals of marketing. This is made to ensure that the creditor does not engage into strategic default or behave contrary to the agreements. In the present study, for example, respondent indicated that it is necessary to inspect the product in order to ensure that the birds do not lose weight or die of disease attacks or from any other reason. In addition, the seller incurs contract enforcement costs to ensure that, the creditor pays in time; and takes appropriate action (often through the legal system) in events of delay payment or default. The costs includes therefore: payments related to legal filling of cases, levies to relevant institutions including police force, courts, and local government authorities. The costs may as well be payments to a third party commissioned to enforce the contract on behalf of the seller. It may also be expenditure incurred to maintain good relationship with the creditor in forms of phone calls, visits, gifts and other legitimate and illegitimate payments made to ensure smooth enforcement of the contract. The costs per production cycle in the sample area are summarized in Table 4.

**Table 4: Monitoring and enforcement cost**

| Transaction costs | N | Minimum | Maximum | Mean |
|---|---|---|---|---|
| **Number of visits** | 169 | 1.00 | 7.00 | 1.426 |
| **Costs of visits** | 169 | 500.00 | 12,000.00 | 2797.60 |
| **Agent cost** | 169 | 100.00 | 14,200.00 | 1,275.70 |
| **Transaction total enforcement costs** | 169 | 1000.00 | 14,200.00 | 7,581.10 |

The estimated mean ENFORCETOTAL in the study area was Tshs 7,581.00 (about US $ 5.1) with maximum value of Tshs 142,000.00 (about US $ 94.7) and minimum value of Tshs 1,000.00 (about US $ 0.67). The mean, maximum and minimum values of SEARCHTOTAL, NEGOTOTAL and ENFORCETOTAL show that, at least every PFB incurs transaction costs which may be too high to be neglected as it is in neo-classical economics. In addition to the monetary transaction costs, the seller may incur non-monetary transaction costs, which in North's (1986) literature are referred to as 'non marketed transaction costs'. The costs include:

unanticipated shocks, embarrassments and frustrations which business actors do suffer during the exchange process. The costs have a great impact in discouraging businesses to produce and therefore, inhibit growth. In-depth views of most of the informants in the study area on the non market transaction costs may be summarized as:

> *'... in PFB, it is difficult to get an honest customer, negotiate and successfully sell the birds. In first place, when the chicken birds reach harvest time thieves gets chance of entering the farmers premises on pretext of window shopping of the birds but end up stealing some of personal belongings of the farmer – poultry farming is perceived by some people as an invitation of thieves to their homes. Secondly, in some incidences, particularly when the farmer is not careful in counting during the exchange exercise, dishonest buyers usually do squeeze two or three birds at a go and show that it is only one bird. Yet the customers visiting the farms may be transmitters of dangerous poultry diseases – including those which can kill all the birds in a shed in one or two days'.*

**Model Specification and Estimation**

In theory, the decision by business firms on whether to remain operating as independent business entities in market institutional arrangement or enter into contractual arrangements is a discrete binary choice, which depends on magnitude of utility (transaction costs economizing potential). In this case the dependent variable is an indicator of whether or not a business enters a particular institutional arrangement. Let $U_a$ and $U_b$ represent a firm's utility of the two choices that is, remain operating as independent business entity in market institutional arrangement or entering into contractual business arrangements respectively. The firm's utility for each choice is unobservable but firms reveals their preferences by choosing the alternative with higher level of utility. In the present study $U_a$ and $U_b$ are presented as:

$$U_a = \beta_a B_0 + \beta_a B_1 X_1 + \beta_a B_2 X_2 + \beta_a B_3 X_3 + u_a \quad \cdots \quad \cdots \quad \cdots \cdots \cdots \cdots \cdots (1)$$

$$\text{and; } U_b = \beta_b B_0 + \beta_b B_1 X_1 + \beta_b B_2 X_2 + \beta_b B_3 X_3 + u_b \quad \cdots \quad \cdots \quad \cdots (2)$$

Where: $X_1$ = Search and screening cost

$X_2$ = Negotiation cost

$X_3$= Monitoring and enforcement cost

$\beta_a B_0$ and $\beta_b B_0$ = intercepts

$u_a$ and $u_b$ = Stochastic elements

The determinant of choice between the two alternatives is revelation of ranking of preferences the firm makes. Thus when $U_a > U_b$ that is;$(\beta_a B_0 + \beta_a B_1 X_1 + \beta_a B_2 X_2 + \beta_a B_3 X_3 + u_a) > (\beta_b B_0 + + \beta_b B_1 X_1 + \beta_b B_2 X_2 + \beta_b B_3 X_3 + u_b)$ the firm chooses to remain operating as independent business entity in market institutional arrangement; and chooses to enter into contractual business entity arrangement if the opposite is true.

The commonly used analytical techniques when the dependent variable is dichotomous are binary logit and probit models. In principle the two models are indistinguishable from each other except that logit has fatter tails (Gujarati, 2003).

The choice of whether to employ probit or logit regression analysis is largely of one's convenience and conversion, since the substantive result are indistinguishable (Long, 1997). The probit model was not an option in the present study because of nature of variables used as it assumed cumulative normal distribution. The logistic regression model was preferred because it is in addition computationally simple.
The probability that a PFB chooses to remain operating as an independent business entity or otherwise is therefore determined by solving a logistic regression function. The regression function in the present study is defined as:

$$PB = \frac{1}{1 - e^{Z}} \quad \cdots \quad \cdots \quad \cdots \quad \cdots \quad \cdots \quad (3)$$

Where: PB= Probability of a PFB remaining operating as independent business entity.

Z = Measure of total contribution of all independent variables used in the model, often referred to as the logit. Larger values of Z, corresponds therefore to greater probability of opting for remaining operating as independent business entity. It is therefore a set of independent variables defined in the current study as:

Where: $B_0$ = Intercept
$X_1$ = Search and screening cost
$X_2$ = Negotiation cost
$X_3$ = Monitoring and enforcement cost
Equation (4) can therefore be rewritten as:

Survey data collected in the study area were used to estimate equations (4) and (5). Table 5 present descriptive statistics for values of $X_1$, $X_2$ and $X_3$ the inputs for the binary logistic regression analysis. The logistic model was then estimated using SPSS windows software.

**Table 5: Descriptive statistics for transaction costs**

| Variable | N | Definition | Descriptive Statistic | |
|---|---|---|---|---|
| Institutional arrangement 1 | 127 | Probability for opting for IA1<br>1 = IA1; 0 = Otherwise | 1= 127 observations<br>0 = 43 observations | |
| Search and screening cost ($X_1$) | 170 | Total searching and screening costs (TShs) | Min =<br>Max =<br>Mean = | 1,500.0(<br>104,000.0(<br>24,322.0( |
| Negotiating cost ($X_2$) | 170 | Total negotiating costs (TShs) | Min =<br>Max =<br>Mean = | 750.0(<br>97,500.0(<br>20,309.0( |
| Enforcement cost ($X_3$) | 169 | Total monitoring & enforcement costs (TShs) | Min =<br>Max =<br>Mean = | 1,000.0(<br>14,200.0(<br>7,581.1( |

The descriptive statistics show in general that, total transaction cost per cycle is too high to be neglected when computing total costas it is with neo classical economics when determining total costs.In comparison with price of chicken birds (TShs 5,000.00 per bird on average which is about US $ 3.3)) for example, the mean

search and screening cost (Tshs 24,332.00 (about US $ 16.2)) is equivalent to about five birds. Similarly, the mean value for negotiation cost is equivalent to about four birds, and it is about two birds for monitoring cost. It can therefore be concluded that, for the poultry birds to reach the consumers in one production cycle, about Tshs 55,000.00 (about 11 birds equivalent to about US $ 36.7) is spent as cost of participating in the market. This is a substantial amount of money income to a farmer and may have great impact on de-motivating production. The amount may sometimes be even greater depending on different factors including for example, geographical distance to the market and thin demand for the poultry harvest.

## RESULTS AND DISCUSSIONS

### Binary Logistic Regression Analysis Output

The logistic regression analysis was interpreted based on Wald statistics. The regression output for the model is depicted in Table 6.The regression results presents the following: relationship between the dependent and independent variables, impact of the independent variable on choice of institutional arrangement, and the relative contribution of each independent variable on the dependent variable.

**Table 6: Binary logistic regression output**

| Variables in the model | B | S.E. | Wald | Df | Sig. |
|---|---|---|---|---|---|
| **SEARCHTOTAL** | 4.300 | 1.450 | 8.744786 | 1 | 0.003105 |
| **NEGOTMSHS** | 4.580 | 2.240 | 4.195447 | 1 | 0.040533 |
| **ENFORCETOTAL** | 7.470 | 3.430 | 4.735357 | 1 | 0.029549 |
| **Constant** | -2.350 | 0.6758 | 12.09902 | 1 | 0.000504 |

Hosmer- Lemeshow = 0.962
Nagelkerke $R^2$ = 0.22

The indices of goodness-of-fit show that the model adequately fits the data as indicated by Hosmer- Lemeshow statistics (>0.05) and Nagelkerke squared (= 0.22). In addition all the variables in the logistic regression model are statistically significant (<0.05) confirming that the estimated coefficients are reliable values of the parameters for the model. All the computed Wald coefficients in the model are statistically significant ($P < 0.05$) suggesting that the decision to opt for IA1 or otherwise is influenced by simultaneous interaction of all the three components of transaction cost (NEGOTMSHS, NEGOTOTAL and ENFORCETOTAL). The regression output shows also that all the independent variables are positively related to the dependent variable, implying that, probability of the business firmsto opt for market institutional arrangement increases as transaction cost increases. The Wald parameters show in addition that, search and screening cost is the greatest determinant of the firms' choice of institutional arrangement.

The positive relationship between the independent variable and choice for market institutional arrangement shows that, an increase in transaction risks prompts business firms to opt for market institutional arrangement rather than contractual business arrangement. This provides an explanation on why most of the PFBs are independent business entities operating in market institutional arrangement. The factors which are likely to motivate PFBs to opt for IA1 rather than IA2 are summarized in the subsequent sections.

***Inadequate Legal Protection***

The institutional environment for PFBs in the country is generally very weak as investors are not well protected by legal institutions (World Bank, 2011). The institutions are not functioning properly to an extent that business firms rarely use police and courts to solve business problems. The legal system is perceived, for example by some of the respondents who participated in this study as being both expensive and subject to manipulation because it can be bribed. It is also perceived by most of the respondents that court rulings are helpless as in most cases the creditors are poor and do not have enough assets that can be seized for compensation in case of default or any other kind of dishonest. In order to avoid the transaction risks resulting from inability of legal institutions to adequately protect businesses in cases of contract disputes the farm businesses choose to opt for IA1.

***High Opportunistic Behavior***

The business actors in the study area are characterized by high opportunistic behaviour. In rating the degree of trustworthiness among business actors in the study area, most of the respondents indicated that, trustworthiness is very low. Similar conclusion is also made by Fatchamps (2004) indicating that, business firms in Africa are in general unreliable and optimistic; they usually delay payments, calls for contract renegotiation and characterized by high rate of default. In such a situation where there is low trustworthiness among business actors, and the 'rules of the game' are not properly functioning, firms opt for market institutional arrangement so as to avoid transaction risks that may occur from opportunistic breaches by business partners.

***Perishability of Poultry Products***

The PFBs are also prone to high uncertainty resulting from perishable nature (temporal asset specificity) of the poultry harvests. Poultry products need a constant follow up of sales and prompt search for alternative outlets in case the intended buyer declines the deal. The problem of low trustworthiness makes it difficult and costly to monitor behaviour of a business partner(s) or sales representatives; more precisely it involves high agency costs.

The main cause of the costs is prevalence of information asymmetry especially in the rural society. A farmer, for example in remote area in Singinda, who sells to Dar es Salaam consumers is not well informed on the day-to-day condition of the market; and as a result cannot effectively monitor behaviour of the business partner or agent. In such circumstances the business firms opt for IA1 in order to avoid transaction risks resulting from both environmental and behaviour uncertainty.

***Fear of Free Rider Problem***

The PFB actors are in fear of transaction risks resulting from human behaviour of working less harder when in groups than when working alone. The phenomenon is consistent with the theory of social loafing in social psychology and 'free-rider' theoryin the orthodox economics. Since the firms cannot institute a mechanism to control this behaviour, business actors choose to remain operating as independent business entities in fear of transaction risk resulting from this problem. The informants' views in the study area on this problem may be summarized as:

> *'In nature most of the people works less hard when are in group businesses (including for example partnerships, cooperative, women groups and in other contractual arrangements) than when they are alone due to a number of reasons. Firstly, people puts less effort in contractual businesses in poultry farming because they are in most cases engaged in other farm or non farm income generating activities like civil service, crop production and large animal (cattle and goat) livestock keeping as their main employment; they undertakes PFB as a part time business activity. Secondly, there is tendency for one or two members of contractual arrangements to portray in front of the society that they personally own or control the business; and as such the other members remains unnoticed and therefore cannot benefit successes in terms of respect which the firm earns from the society. Thirdly, it is difficult to control plans of the business because each of the business members has his own inclination; and hopes that most of the work will be done by other members. Fourthly, people fear the problem of unequal distribution of costs and profit as in most cases the farmers are unable to draw good contracts on group businesses.'*

The regression output shows also that search and screening cost (Wald = 8.744) is the greatest contributing factor for the PFBs to opt for IA1 followed by monitoring and enforcement cost (Wald = 3.430) and negotiation costs (Wald = 2.240).
The following are some of the explanations on why search and screening cost is greatest contributing factor which motivates PFBs to opt for IA1:

***Lack of Business Experience***

Most of the PFBs do not have enough business experience. The respondents in the surveyed area indicated, for example, that only 38 percent had more than four years experience in business while the rest 52 percent are new in business and therefore do not have enough entrepreneurial skills to get reputable business partners. In such a situation the firms are for example not able to easily identify reliable trading partners and can easily be deceived in business.

***Lack of Trust***

Most of the business partners are not honest by nature and are likely to work less hard in search for buyers because they may be busy with some other personal businesses. They may as well wish to benefit from the business at expense of other members of the contractual arrangement by for example inflating sale price in order to pocket the difference. They may even report deflated price than market price in order to pocket the difference when actual transaction is done. The moral

malpractice is likely to occur because the business actors have imperfect knowledge on behaviour of their business partners mainly due to information asymmetry in the study area. In such circumstances the businesses feel safe to opt for market institutional arrangement rather than entering into contractual business arrangement.

***Geographical Distance to the Market***

Additional search and screening costs is incurred during transportation of the produces to the market. This is due to the reason that most producers carry the birds with them when searching for buyers. The more distant the farmers are from the market the greater the likelihood of incurring more search and screening risks resulting from opportunism particularly when it is done by an agent or sale representative. Geographical distance to the market prevents effective monitoring of the business partner or agent on search for customers – making the search and screening exercises to involve high transaction risks.

**Analysis of the Determinants of Total Transaction Cost**

The analysis employed linear regression model (equation 2) in investigating factors determining total transaction costs (TTC); and establishing elasticity of each of the independent variables. As indicated in the previous section,, the dependent variable in this model is TTC. The independent variables are hypothesised to include: search and screening transaction costs, negotiation costs, monitoring and enforcement costs; and choice of IA1. The choice of IA1 variable is included in the model because in theory, the option for a PFB to enter into IA1 entails an increase in transaction costs as the firm becomes isolated instead of operating in an alliance or contractual arrangement. The TTC has the following hypothesized functional relationship with its independent variables:

$$TTC = a + b_1X_1 + b_2X_2 + b_3X_3 - b_4IA \quad \cdots \quad \cdots \quad \cdots \quad \cdots \quad (6)$$

Where: TTC = Total transaction costs

X1 = transaction total search and screening costs

$X_{2=}$ transaction total negotiation costs

$X_{3=}$ transaction total monitoring and enforcement costs

IA1 = choice of IA1

The model (equation 6) was estimated using survey data presented in Table 5. A backward regression technique was employed in estimating the model. In principle the method eliminates over-fitted variables (in a model) sequentially depending on strength of each variable. Table 7 summarizes the regression output of the regression analysis; it indicates that Model 2 is parsimonious TTC model because it has all the variable parameters statistically significant ($P < 0.05$). It shows also, that the choice for IA1 variable was eliminated in the model. This implies that, the variable was too weak to be included in the TTC equation – it was an unreliable variable.

Prior to interpretation of the model, a test of presence of multicolineality threat was conducted. The diagnosis was done using the Valiance Inflation Factor (VIF). Basically, the VIF shows how the variance of an estimator is inflated by presence of multicolineality (Gujarat, 2003). As a rule of thumb if VIF of a variable exceed 4 it

warrants further investigation of the variable, while if VIF exceed 10, it indicates presence of serious multicolineality. The SPSS results in Table 7 show that the VIFs for all the variables in the model were very small (VIF < 4). After it was confirmed that there was no threat of multicolinerity, the model parameters were used in interpreting variables of the model.

**Table 7: Estimated linear regression model**

| Model | Independent Variables | Unstandardized Coefficients | | Standardized Coefficients | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | Tolerance | VIF |
| 1 | (Constant) | -510.35 | 142.285 | | 0.00 | | |
| | Search Costs | 1.009 | 0.003 | 0.596 | 0.00 | 0.880 | 1.14 |
| | Negotiation Costs | 1.006 | 0.005 | 0.437 | 0.00 | 0.984 | 1.02 |
| | Enforcement Costs | 1.001 | 0.004 | 0.486 | 0.00 | 0.885 | 1.13 |
| | Choice for IA1 | -14.595 | 157.636 | 0.000 | 0.93 | 0.984 | 1.02 |
| 2 | (Constant) | -513.80 | 136.901 | | 0.00 | | |
| | Search Costs | 1.009 | 0.003 | 0.596 | 0.00 | 0.882 | 1.13 |
| | Negotiation Costs | 1.006 | 0.005 | 0.437 | 0.00 | 0.989 | 1.01 |
| | Enforcement Costs | 1.001 | 0.004 | 0.486 | .000 | 0.890 | 1.12 |

The econometric results indicate that there was a positive and significant relationship between TTC and all of its three reliable independent variables. The regression parameters show that a 100 percent increase in search and screening cost increases TTC by 59.6percent. That is an increase in for example, time spent waiting for buyers or travel expenses to potential buyers when searching for buyers results into an increase of total transaction cost by more than a half of the prevailing costs. The results show also that a 100 percent increase in negotiation cost increases TTC by 43.7 percent. It implies that an increase for example in time spent bargaining, amount of money paid to an agent and cost of legal advice on arbitration increases total transaction costs to nearly a half of the existing one. The econometric results show in addition that, an increase in monitoring and enforcement costs by 100 percent increases TTC by 48.6 percent. This shows that an increase in costs due to for example, increase in fees for hiring lawyers during business disputes, expenditure on visits to inspect progress of sale or costs to maintain of good relationship with the creditor, increases total transaction costs to nearly a half of the existing one.

The regression coefficients indicate that TTC is relatively more responsive to changes in search and screening cost than it is with the other two independent variables. It shows also that it is not responsive to decisions by business firms to change their organization structure say form IA1 to IA2 or the reverse. It follows therefore that, given the prevailing institutional environment, level of uncertainty and opportunism; a shift of PFB from independent business entity arrangement to contractual business arrangement has no impact on reduction of TTC. One of the

informants summarized the impact of increase of enforcement cost and of negotiation cost as compared to search cost as follows:

> '*An increase in monitoring and enforcement costs including for example cost of hiring lawyers during business disputes and expenditure on visits to inspect progress of sale have little impact on increase on total transaction costs. This is because PFBs rarely sell their products on credit terms – they mainly sell on cash terms. Similarly, an increase in negotiation cost due to, for example, increase ontime spent bargaining, cannot increase transaction risks very much because the business actor can bargain sale price while doing other business activities. They as well rarely use formal legal institutions to settle business disputes and therefore an increase in costs of legal advice on arbitration cannot increase transaction risks very much'.*

**CONCLUSION**

The paper shows in summary that, decision by business firms to opt for independent business arrangement or enter into contractual business arrangements depends on relative magnitude of transaction risks. The businesses choose an arrangement which is perceived to have relatively lower transaction risks than the alternative. Most of the PFBs in the study area perceive that contractual business arrangement is relatively more risky due to existence of high opportunistic behaviour among business actors and high uncertainty (behaviour and environmental); which is accompanied with weak legal institutional framework. The business firms opt for market institutional arrangement in order to avoid the transaction risks. The discussion shows also that, search and screening cost is the greatest contributing factor on decisions by the PFBs to opt for market institutional arrangement rather than entering into contractual business arrangements. It is followed by monitoring and enforcement cost; and negotiation cost shows to have the lowest impact on the decisions. Policy intervention should therefore be focused on reducing search and screening cost followed by enforcement cost; and then negotiation cost in descending order of preference.

In regards to elasticity the paper shows, that total transaction cost (TTC) is relatively more responsive to changes in search and screening costs than other independent variables. More specifically, an increase in search and screening cost has greater effect on increasing TTC than an increase in other factors determining TTC. This is followed by enforcement cost and the negotiation cost has a relatively lowest elasticity. The paper indicates also that, given the prevailing institutional environment the decision by individual business firms to shift from operating as independent business entities in market institutional arrangement to contractual business arrangement have no impact on reduction of TTC. The empirical result showed in addition that, decision by PFBs to enter into contractual business arrangement or otherwise is not a reliable determinant of total transaction cost. This suggests therefore that policies to encourage farm business firms to enter into contractual business arrangement have zero impact on reducing total transaction cost. Policy implication in this matter therefore is that, with the prevailing weak institutional environment in the country, TTC can be reduced and therefore stimulate growth of the PFBs, by instituting measures to reduce the main

components of transaction costs rather than encouraging producers to enter into contractual poultry farm business arrangements.

## References

Alabi, R. and Aruna, M. (2005). Technical Efficiency of Poultry Production in Niger Delta: *Journal of Central European Agriculture*. Volume 6 (2005) No. 4 http://www.arg.hr/jcea/issuee/jcea6-4/pdf/jcea4-17.pdf

Business anti-corruption portal; Tanzania profile 2012 (www.business-ant-corruption.com/...Tanzania)

Christos, P. (1993). *Transaction Costs, Markets and Hierarchies*. Blackwell Publishers: Oxford UK.

Cooper, D. and Schindler, P. (2003). *Business Research Methods*. McGraw Hill Companies.

David, D. (1996). *Advanced Macroeconomics*. McGraw-Hill Co.: New York.

Emuron, N., Magala, H., Kyazze, F., Kugonza, D. and Kyarisiima, C. (2010). Factors influencing the trade of local chickens in Kampala city markets: Livestock Research for Rural Development 22 (4) 2010http://www.lrrd.org/lrrd22/4/emur22076htm

Gereffi, G. (2004). 'New realities of industrial development in East Asia and Latin America: Global, regional and national treands' in R. Appelbaum and J. Henderson, (eds), *States and Development in the Asian Pacific Rim*. Newbury Pack: Sage.

Hair, J., Babin, B. and Sanduel, P. (2003). *Essentials of business research models*. Ley Publishing: USA.

Gujarat, D. (2003). *Essentials of econometrics*, Second Edition. McGraw Hill: New York.

Humphrey, J. (1995). Principles of Promoting Clusters & networks of SMEs; Paper commissioned by the small and medium Enterprises Branch, Institute of Development Studies, University of Sussex.

International Chicken Reports (2006). Marketing and Economic Features http://www.thepoultrysitehttp://www.fao.org

Kothari, C. (1990). *Research Methodology: Methods and Techniques*. WISHWA Publication Ltd.

Louis, H. Laura, A. and Arjen (2008). *Institutional Economics Organisation Theory: An Integrated Approach*. Wageningen Academic Publisher: Netherlands.

Mapiye, C. and Sibanda, S. (2005). Constraints and opportunities of village chicken production systems in the smallholder sector of Rushinga district of Zimbabwe Livestock Research for Rural Development 17 (10) 2005http://www.lrrd.org/lrrd17/10/mapi17115.htm

Marketing and Economic Featured Articles (2008) http://www.thepoultrysite.com/articles

Mlozi, M. Kakengi, M. Minga, U. Mtambo, M. and Olsen, J. (2003). Marketing of free range local chickens in Morogoro and Kilosa urban markets, Tanzania

Livestock Research for Rural Development 15 (2) 2003http://www.lrrd.org/lrrd15/2/mloz152 htm.

Munga, M. Mtambo, M. Katule, S, (2005). Improving the health and productivity of rural chicken in Africa: Research and development efforts in Tanzania; aciar.gov.au/file/node/2131/chapter27.pdf

Musgrave, P. (2004). *Public Finance in Theory and Practice*. Tata McGraw–Hill Publishing Company.

Nelson, E. (2003). The Voluntary Formalization of Informal Enterprises in a Developing Economy – Tanzania, PhD Dissertation, University of Twente

Ngaruko, D. (2003). Response of Agro Credit Transaction Arrangements to Economic Reforms in Tanzania: A New Institutional Economics Approach, PhD Dissertation, University of London.

Pitelis, C. (2002). Transaction costs and historical evolution of the capitalist firms, *Journal of Economic Issues*, volume 2

Schmitz, H. (1999). 'Flexible Specialization: A New Paradigm of Small-Scale Industrialization' IDS Discussion Paper N0 261, Briton. Institute of Development Studies, University of Sussex (unpublished).

Stein, H. (1995). 'Institutional theories and structural adjustment in Africa' In: Harris, J., J. Hunter eds.(1995). *The new institutional economics and Third world development*, London: Routledge.

Swai, E. Karimuribo, E. Kyakaisho, P. and Mtui, L. (2007). Free-range village chickens on the humid coastal belt of Tanga, Tanzania: their roles, husbandry and health statusLivestock Research for Rural Development 19 (8) 2007http://www.lrrd.org/lrrd19/8/swai19104 htm.

Tanzania: Ministry of Livestock Development (2005, 2006, 2007). Budget Speeches, Government Printers.

Tanzania: Ministry of Livestock Development (2006). *The National Livestock Policy 2006*. Government Printers.

Tanzania: Bank of Tanzania (2012) Government Printers

Williamsons, O. (2004). *The Economics of Transaction Costs*. Edward Edgar Publishing Ltd.: UK.

Williamson, Oliver E. (1981). The Economics of Organization: The Transaction Cost Approach. *The American Journal of Sociology*, 87(3), p p, 548-577.