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Transaction Costs in Vertical Integration Contracts for Poultry Production from Farmers' Perspective in Rio Verde (Goias, Brazil)

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Abstract

This study aimed to analyze the contractual relationship between processing industry in Rio Verde (Goias, Brazil) and farmers, using a Transaction Cost Economics (TCE) approach to describe relevant aspects of producers' perception of dependence to the contracting processor. We considered the two classical analytic categories: (a) behavioral assumptions (bounded rationality and opportunism) and (b) attributes of transactions (asset specificity, frequency and uncertainty). Our findings are based on a survey with 40 farmers providing poultry to the contracting processor. Key findings are that changes in the structure of governance that manages the transaction between poultry producers and processors are efficient responses to the growth of specificity due to dedicated assets. For farmers, there is lack of information about contract content. This may enable opportunistic behavior of contracting processor. We conclude that farmers' dependence to processors is high on specialized small-scale farms and low for more diversified and larger farms.

Keywords: Transaction Cost Economics, Vertical Integration, Chicken Production

JEL codes: L1, Q13

1. Introduction

Since 1997, the municipality of Rio Verde - GO, poultry production has been considered an alternative add value to grains produced in the municipality of Rio Verde (Goiás, Brazil). Crop based protein (soybeans) and energy (corn) are converted into animal protein (poultry and pigs). The setup of the processing plant of “Perdigão Agroindustrial” in the Southwest Region of Goiás state created new economic development opportunities through enabling new income opportunities for small and middle size farms and accessing new markets. The region became nationally prominent in food processing. Processing plants moved towards the sources of raw materials (grains) in order to reduce transaction costs, taking advantage of (a) favorable environmental conditions; (b) proximity of grain producing areas; and (c) remarkable tax incentives.

The poultry industry in this context provides the possibility of generating wealth and jobs directly and indirectly. It also acts in a very dynamic, requiring constant attention regarding factors affecting their competitiveness. In this sense, the contractual relations between actors have to be seen as fundamental condition for efficient production and ensuring productivity. Contractual relations exist to make the whole chain feasible and to satisfy the participants of the production chain. Thus, this study focuses on analysis of contractual transactions in broiler production in the county of Rio Verde-GO can be justified by the following aspects: a) the importance of poultry production local, state and national level, and its synergy with grain chains; and b) the attraction of industrial plants to the state of Goiás due to tax incentives and the existence of comparative advantages in the production process. Characterizing the contractual relationship in chicken production between farmers and processing industry is relevant, since the more appropriate these relationships are, the higher the competitiveness of all actors within the chain. On the other hand, from farmer’s perspective questions arise regarding their dependence to the vertical integration scheme. Chain agents (farmers and food processing industry) enter into a market relationship linked with a long-term contract.

Therefore, our aim was to analyze this contractual relationship from vertically integrated farmers’ perspective, by using a Transaction Cost Economics (TCE) approach to describe relevant aspects of their dependence to the integrating food processor. In this sense, we analyzed the different types of contractual relations existing within the vertical integration of production, evaluated the types of agreements between the processing sector and their suppliers of raw materials, and from the perspective of integrated farmers we identified the reasons that led to the economic agreements signed between the parties.

2. Theoretical Framework

Several authors discuss the issue related to the reason for the existence of the firm. However, Coase (1937) did the main contribution with "The Nature of the Firm". Zylbersztajn (2000) considered that Coase's work established a new conceptual orientation as a determinant to explain the creation and existence of an organization. Organization is no longer seen as a relation of production only, but as a set of contractual relations, the so-called New Institutional Economics. Since 1970, the understanding of changes of firm structures and organizations are discussed. Organizations were framed on two main elements: the reasons for the existence of firms and their internal organization logic (Zylbersztajn, 2000).

With Coase's theory, the conceptual understanding of Economic Theory and the Theory of Organizations was improved. This new methodology is useful for understanding the structure and functioning of organizations.

According to Coase, these contractual relationships can occur between or within firms. However, it is necessary to analyze that any contractual relationship will require a coordinating organization. In this case, it was observed that vertical integration model contractual relations are coordinated by food processors. They have a major responsibility with the final product, which represents a great opportunity for processors to impose their rules and possibilities of negotiations with potential raw material providers (farmers).

In theoretical conceptualization of Transaction Cost Economics (TCE), there were works done empirically by several authors as Coase (1937), Williamson (1971, 1996), North (1994), Zylbersztajn (1995, 2000), Farina et al. (1997), just to mention a few. These authors made significant contributions to a better understanding and even to definition of methodological procedures to explain the theoretical elements that are directly and indirectly related to TCE. Therefore, authors use two analytic categories: (a) behavioral assumptions and (b) attributes of transactions. The behavioral assumptions are related to bounded rationality and opportunism. The attributes of transactions include asset specificity, frequency and uncertainty. The definition of these analytical categories is the central part of the analysis of contractual relationships of vertical integration in poultry production.

The analysis from the TCE perspective through the governance structure based on organizational elements provides more suitable contract costs, enforcement of property rights, monitoring, performance and organization of activities or adaptation of the desired production model (Williamson, 1996).

According to Fiani (2002, p.296), "transaction costs can be defined as costs that agents face every time they turn to the market. More formally, transaction costs represent the costs of negotiating, drafting and enforcing a contract".

There is some agreement among the authors mentioned above, since both agree that transaction costs are not set unilaterally, since the participation of agents is the same as agreed, by contract, their rights and duties. For both the evaluation of transaction costs in the model of vertical integration of production are needed because the industry is the agent imposing the process. The processor assumes an “authority” (Ménard, 1996) in the process of setting up an institutional structure of production. As assumption of analysis of contractual relations in a model of vertical integration, the definition of these categories is based on analytical understanding of the relationships of the object of study.

3. Methodology

This study can be defined as an applied, explanatory and qualitative research. It generates research knowledge and reflections of market practices by seeking for a better understanding of occurrences of certain transactions in the field of agribusiness without focusing on quantification of the results and use of statistical models. In a first step, we did a literature review. In a second step, we carried out a survey to collect primary data about the subject. From a population of 78 farmers that are vertically integrated to the food processor, we randomly selected 40 farmers (51%) and interviewed them. The survey was based on a questionnaire with questions seeking to capture the degree of dependence of farmers after signing a vertical integration contract with the food processor.

In order to ensure a representative sample we used the equation $n = \frac{(N.n_o)}{(N+n_o)}$, where N represents the population size and n_o the first estimation of sample resulting from the equation $n_o = \frac{1}{(E_o)^2}$, where E_o represents the sampling error. This enabled a more robust sampling size.

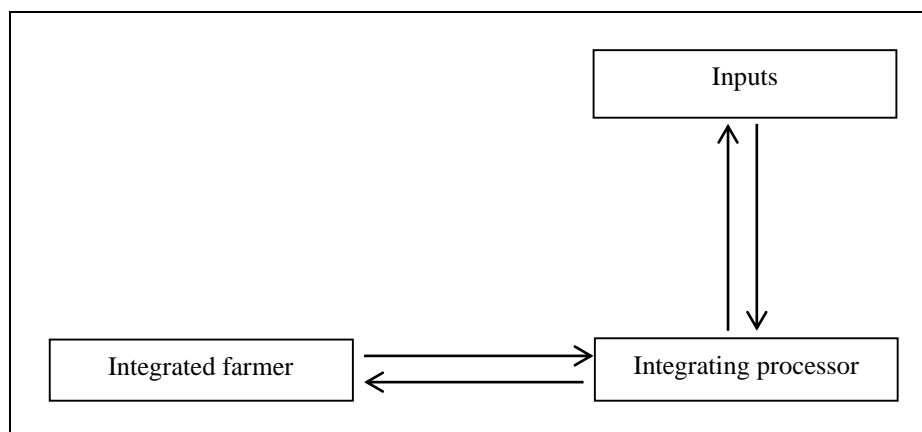
4. Results and Implications

Our results allow us to suggest that the elements that were incorporated into the vertical integration contract contribute to reduce the production and transaction costs. This confirms, at least partially, the central hypothesis of TCE. In other words, changes in the structure of governance that manages the transaction between poultry producers and processors are efficient responses to the growth of specificity due to dedicated assets, as proposed by Coase.

4.1. Analysis of transactions from integrated farmers' perspective

For a better understanding of the transactions, resulting from the broiler production in the vertical integration model will be defined as the farmer-integrating industry relation in the supply chain analysis. Figure 1 illustrates the shape of the relationship between the parties subject to review, delimitating the analyzed chain actors.

Figure 1 - Simplified flow of transactions from integrated farmers' point of view.



Source: Own draft.

- a) Integrating processor: responsible for acquisition and availability of inputs like drugs, vaccines, one day old chicks, ration, technical assistance, transportation, commitment to purchase totality of production, processing and marketing, ensuring sustainability to the whole production process;
- b) Inputs: In this production scheme the input providers define their relationship only with the integrating industry, as the industry standardizes all services and inputs provided to the integrated farmer, as far as this provision of those items is part of responsibilities of the industry;
- c) Integrated farmer: Known as producing agent is responsible to provide the infrastructure, labor, legal guarantees, commitment to supply totality of production to the integrating industry, acquisition of inputs and partial manages the production process.

Through this transaction flow, we can observe that all agents linked in the integration model are important to the process. However, the industry is the major representative of the whole production process, behaving as responsible for ensuring final product quality and standardization to the market. Therefore, it is for the industry to define every situation that may threaten the goods at the consumer market. From integrated farmers' perspective, these definitions are clear from the industry, leaving her to take all the sanctions of the market on their manufactured products.

In this model of production, we observe the producer's total subordination to the production process, since farmers receive all inputs necessary for the production of broilers, as well as acceptance of all production rules imposed by industry as a criterion of better control over their supplied production.

In this sense, it is remarkable, that most integrated farmers see this dynamics of the integration model as a natural systematic in which the industry should not immobilize large land areas and production structure in ensuring its industrialization. So farmers consider the model intelligent by the industry, as it transfers production responsibility to those farmers, willing to invest in this activity.

The main difference of vertical integration of poultry chain in Rio Verde (GO) to other Brazilian regions is the farm size. The processing industry preferred to reduce the number of farms (providers) in to keep transaction costs lower. That smaller number of larger farms have higher investment capacity. Most of vertically integrated farms (72.5%) have more than 500 hectares of land (Table 1). They can be considered as medium and large farms.

Table 1 - Size (ha) of vertically integrated farms in Rio Verde – Goiás state, Brazil.

Area (ha)	Number of farms	(%)
100 – 300	5	12.5
301 – 500	6	15.0
501 – 700	17	42.5
More than 700	12	30.0
TOTAL	40	100.0

Source: Research results.

In the region of Rio Verde (GO), most farms have larger areas. They use to have diversified activities (crops and animal production). Usually, poultry production is not their main source of income. Only 10% of farms obtain the main part of their income from poultry production. All others earn the main part of their income from annual field crops (82.5%), fruits and vegetables (5.0%) and cattle (2.5%). Thus, one can say that poultry production is a secondary activity on most of the vertically integrated farms (Table 2). In other Brazilian regions, where vertically integrated poultry farms are much smaller, the activity uses to be the main source of income.

Table 2 - Main source of income of vertically integrated farms in Rio Verde, Goiás state, Brazil.

Activity	Number of farms	(%)
Annual field crops	33	82.5
Cattle	1	2.5
Fruits and vegetables	2	5.0
Poultry	4	10.0
TOTAL	40	100.0

Source: Research results.

According to information received from farmers, the poultry processor is creating incentives for farmers to increase the share of income obtained from poultry production. If farms install additional poultry fattening houses, the number of contracted farms could be reduced even more. Increasing the number of fattening houses per farm would increase the share of the activity in farm income. Still, poultry represents a production diversification activity, with low contribution to farm income (Table 3). The low participation in farm income shows the tremendous expansion potential of the activity in the region, if market conditions are favorable.

Table 3 - Contribution of poultry activity to farm income.

Share of farm income (%)	Number of farms	(%)
<= 5%	10	25
5% < 10%	16	40
10% < 30%	8	20
=> 30%	6	15
TOTAL	40	100

Source: Research results.

The potential of expansion can be confirmed by the small amount of land that is currently being used by poultry production. On 90% of keeping farms, poultry uses no more than 30 hectares. Only 10% of farms use more than 30 hectares for the activity (Table 4). Those areas consider only the fattening and storage houses (buildings). Fields to grow the grains for feed are not included.

Table 4 - Area used by poultry production on vertically integrated farms in Rio Verde (GO).

Area used by the activity (ha)	Number of farms	(%)
5 <= 10 ha	10	25
11 <= 20 ha	14	35
21 <= 30 ha	12	30
31 <= 40 ha	2	5
> 40 ha	2	5

Source: Research results.

The poultry processor consider contracted farms based on their number of heads that are simultaneously kept. Each poultry-fattening unit considers 100 thousands of heads, kept in four fattening houses with 25 thousands heads each. Table 5 shows the number of poultry fattening units per farm. One fifth of farms have the capacity of keeping simultaneously 100 thousand chicken. One quarter can finish 200 thousand chicken. One third are able to finish 300 thousand chicken. Together, they represent 75% of vertically integrated farms in Rio Verde (GO). The other 25% of farms are able to keep 400 thousands and more chicken. They represent those farms with the highest investment capacity and ability to expand their production even more.

Table 5 - Number of poultry fattening units per farm in Rio Verde (GO).

Number of poultry fattening units	Number of farms	(%)
1	8	20.0
2	10	25.0
3	12	30.0
4	3	7.5
> 4	7	17.5
TOTAL	40	100.0

Source: Research results.

Considering the processing industry' new approach, to prefer bigger chicken providers, those 25% of farms represent the most promising providers. From processor point of view, growing in scale represents lowering the costs of transaction, logistics and supply. Reducing the number of transacting partners (farmers) will improve prosperity of processors' business.

From farmers' point of view, this new scheme becomes exclusionary to smaller farms, since they may not be able to cope with the additional investment requirements of the poultry processor. This may exclude smaller farms from future growth in the region.

The integrating industry describes the activity as of low risk to farmers, since they will have the guarantee to sell all their production, and the activity is very profitable even on small farms.

According to

Table 6, for farmers becoming a vertically integrated broiler grower is not only an issue of reducing risk, but also to get access to credit at lower rates.

Table 6 - Main aspects that motivated farmers to become an integrated broiler grower in Rio Verde (Goiás state, Brazil).

Relevant aspects	Farmers	
	Number	%
Subsidized credit	21	52.5
Diversification of activities	8	20.0
Risk	6	15.0
Business alternative	2	5.0
Profitability	2	5.0
Quality of life	1	2.5
Transaction costs	-	-
TOTAL	40	100.0

Source: Field research.

It was observed that for integrated farmer the aspects that encouraged them to opt for the production of broilers, via integration contract, is supported by the availability of credit at subsidized rates to finance the entire structure demanded by the model. This was the main reason for the majority (52.5%) of farmers. To diversify on-farm activities was the main reason for one fifth of farmers to become a vertically integrated broiler grower. Lower risk of production was the main reason of only 15% of farmers. Only 5% of farmers stated the high profitability of the activity as main reason to become a contracted broiler grower. This low expectation of farmers regarding profitability justifies the governmental role in providing credit at subsidized rates to fund this production process in the region of Rio Verde (Goiás state, Brazil).

4.2. Analysis of behavior assumptions in integrated farmers' perspective

In this topic we analyze the behavioral assumptions and attributes of transactions, as theoretical background of assessment of contractual relationship between economic agents. The main aim is to identify the supposed dependency of contracted farmers to the analyzed production model.

4.2.1. Bounded rationality analysis in the vertical integration model

The behavioral assumptions as the basis of methodology of analysis of relationships contracts is timely given since they represent fundamental conditions of interpretation of behavior of market

agents. The theoretical framework was applied to understand the attributes that may represent failures and inconsistencies in the production model through vertical integration contracts.

The behavioral assumption bounded rationality seems to fit well in the analyzed production scheme, due to errors and or questions about contracts between economic agents. In this assumption emphasizes the lack of full rationality of the agents in the definition of contracts, given the complexity of the goals of each contractual relationship.

The integration contract as an analysis object prevents a series of questions since the parties do not have a full understanding about their rights and obligations. The integrated farmer has to accept a contract determined by integrating industry, since the industry defines itself as supposed responsible agent for the production, processing and marketing of products provided by contracted farmer.

This methodological assumption makes clear the impossibility to foresee all situations inherent to a contractual relationship. In this regard, it is noted that this relationship is unilateral in defining the contract by industry. This could bring harmful effects to the process since the integrated farmer may feel hurt and thus terminate its commitment as broiler grower. Table 7 illustrates this, showing that formatting and discussion of the vertical integration contract is not in full understanding of the parties. It is observed that only 5% of the respondents had guidance from the industry over all rights and obligations of the contract they were signing. Most farmers (95%) did not obtain the same orientation, which may raise a series of questions about the model. From farmers' perspective, there are already some conditions under agreement that were changed due to opposition of the integrated farmers. These changes are implemented through differentiation in prices farmer receive for the broilers they provide do processing industry.

Table 7 - Number of farmers having access to their rights and obligations before signing the vertical integration contract.

Level of access	Farmers	
	Number	%
Full access before signing	2	5
Almost full access before signing	12	30
Access to main clauses before signing	26	65
TOTAL	40	100

Source: Field research.

Table 8 shows the condition of the integrated farmers regarding knowledge on the standard remuneration sheet, as well as the mathematical formulas used to determine the standard remuneration per produced broiler batch.

Table 8 - Access to knowledge about the formulas to determine values of farmer remuneration.

Level of access	Farmers	
	Number	%
Full access	2	5.0
Partial access	9	22.5
Only access to final result	29	72.5
TOTAL	40	100.0

Source: Field research.

It can be seen in Table 8, once again the inequity of the integration model, since 95% of the integrated farmers did not obtained full access to the information about the methodology defined by the industry to determine the payment amount for each broiler batches. Furthermore, we observed that some farmers opposed to know the process, which leads one to question the level of interest of the integrated farmers.

Therefore, in the aspect of application of the bounded rationality assumption, it is observed that when one party gives up questioning, or participate and monitor their rights, it is the other party set all the rules to be followed, even though its limitations.

To this end, we identify a state of alert by the integrated farmers since its absence in the definition and / or redefinition of production contracts could open gaps for opportunistic behavior of agents involved in the process, which is discussed in the next section.

4.2.2. Opportunistic behavior analysis in the vertical integration model

This assumption is complementary to the reasoning of TCE, being considered by several authors, the situation in which some agents use to benefit themselves when identifying a major bounded rationality of the related party. In this sense justifies this reasoning because sometimes the integrated farmer is considered only as an instrument of production in the model of integration and in other situations itself as not working properly in the integration process due to his condition as producer only.

It is noted that the integrated farmers restricted themselves to the condition of being subordinated due to not understanding the process as a whole. According to the data, 87% of respondents consider this business model too complex for understanding emphasizing its absence in most contractual settings. Theoretically it is identified by the integrated farmer their limited participation and inquiry due to lack of expertise. This may create situations of opportunistic actions by industry, which is difficult to be detected by the integrated farmer since they are not able to absorb and interpret this set of information.

Within this context, we identify the industry's role in translating the technical information in an easier language to be understood by the integrated farmers, thus reducing its risk of being asked about the vertical integration model that may practice.

It is noteworthy that opportunistic actions may be practiced by the processing industry without integrated farmers realizing that. However, it is advisable to clarify that not all agents have opportunistic behavior on the market, since that sanctions concerning these practices can have crucial consequences to the agents involved.

4.3. Analysis of transaction attributes from integrated farmers' perspective

At this stage of analysis will be applied to theoretical foundation of behavioral assumptions of TCE, to evaluate the “degree of employability and or alternative uses of the analyzed assets, without losing its value in the process”, noting through its attributes defining the level of dependence on this type of contract.

4.3.1. Asset specificity of broiler production in a vertical integration model

According to Williamson (1996), the asset specificity can be defined in the determination of six evaluation methods: locational, physical, human, dedicated, brand and temporal, which are followed by parameters in our study.

In

Table 9, there is a determination of the degree of asset specificity in terms of theoretical parameters determined by Williamson (1996), based on relevant criteria of analysis from the perspective of the integrated farmers.

Table 9 - Matrix to determine the degree of specificity of the asset “broilers” in the vertical integration contract in Rio Verde (Goiás, Brazil).

Asset specificity parameter	Level from integrated farmer’ perspective		
	Low	Average	High
Locational		X	
Physical			X
Human		X	
Dedicated			X
Brand			X
Temporal			X

Source: Parameters defined by Williamson (1996); Matrix defined by the authors based on a vertical integration contract in force.

The asset specificity has different dimensions:

- a) Locational specificity: Average level of specificity based on the determined maximum distance of 70 km from industrial plant. This geographically limits the number of farmers potentially having access to this activity. This is a restriction imposed by the industry due to the high transportation costs;
- b) Physical specificity: High level of specificity as the product strongly dependent of a standardized raw material as guarantee of productive and economic efficiency;
- c) Human specificity: Average level, despite the activity requires high production technology and well trained labor force; the labor can be trained quickly, if literacy is available;
- d) Dedicated specificity: High level, through the difficulty in replacing the infrastructure as well as the difficulty in adaptation of the infrastructure to other uses or activities;
- e) Brand specificity: High level, because it is linked to a brand well known in the market, i.e. high level of standardization and product quality;
- f) Temporal specificity: High level, it is a live product and strictly determined production criteria by time of fattening. This attribute determines the level of economic efficiency of the asset.

According to the asset specific matrix (

Table 9), broiler fattening it is high specificity asset. It reduces transaction costs for industry and the producer due to determine long-term contracts. There are difficulties in breaking the contracts, due to the characteristic of the traded asset. However, in this condition of analysis the integrated producer would be dependent on the industry if broiler fattening is considered as particular activity.

Table 10 shows the degree of risk of the broiler fattening activity from the vertically integrated farmers' perspective, even being aware of the condition of asset specificity of their productive activity.

Table 10 - Degree of risk of broiler fattening activity from integrated farmers' perspective.

Level of risk	Farmers	
	Number	%
No risk	1	2.5
Low	6	15.0
Average	25	62.5
High	8	20.0
TOTAL	40	100.0

Source: Field research.

From integrated farmers' perspective, the activity of fattening broilers is of average risk for the majority of interviewed producers. For 15% of farmers this activity represents low risk, but 20% of farmers consider the risk associated with the activity as high. In this sense, even knowing all the benefits the vertical integration contract may provide from industry perspective, farmers do consider a certain level of risk associated with this kind of production.

On the other hand, when asked about what the use of the infrastructure would be in the case of contract breach or termination of this production scheme, 80% of farmers did not know what to do with the assets; 5% have other alternative uses and 15% did not think of this possibility, proving the high asset specificity.

Regarding the aspect of dependence on the producer's perspective, 70% of producers had to be tied to the process. The other 30% of producers do not consider themselves bound by this activity, mainly justified based on this activity to be the option of diversifying activities on their farms.

The integrated farmers were asked if they had ever thought of leaving this activity, and 28% said yes and another 73% said no. This situation is confirmed by the satisfaction of the integrated farmers with the model of poultry production in the region (

Table 11).

Table 11 - Level of satisfaction of farmers with the integrated model of production.

Satisfied with the vertical integration	Farmers	
	Number	%
Yes	28	70
No	12	30
TOTAL	40	100

Source: Field research.

It is noted that even under all conditions imposed by industry to the production process, the integrated farmers are satisfied with the present model. This confirms the Porter theory on integration contract, which can enable transaction cost savings by reducing the market uncertainties, as well as reduce the opportunistic actions of the agents involved. Moreover, the risk of the activity is reduced, since the industry has committed to purchase the whole production amount, which supposedly provides constant profit, if the integrated farmers use of all concepts indicated by the processing industry.

4.3.2. Analysis of frequency and uncertainty attributes in the vertical integration model

As additional categories to the behavioral assumptions and asset specificity, frequency and uncertainty represent important attributes in defining productive dependency by considering variables of contract stability.

For integrated farmers there are no doubts as to the frequency of asset transaction in the integration contract, once it comes to high investments and assets with high specificity and biological nature. On the other hand, industry needs to ensure constant supply of its industrial plant pre-establishing long-term contracts, which turn feasible the investments made by integrated farmers and the industry itself. In this sense, the attribute frequency can be measured by the industry's commitment to purchase the lots produced on average every 44 days, depending on the characteristics of raw materials demanded by industry.

This contract provides some security to the producer since they do not have to compete for prices in the spot market, subject to losing their production or have to deliver at prices below market rates. Therefore, it must be remembered that the frequency of trading and the reduction of uncertainty due to the contract creates the possibility of dependence and subordination to the industry, which will dictate all the rules of this business model.

4.4. Contracts in broiler production from TCE' perspective

The view of Coase opened the possibility of studying contracts, whether formal or informal protected by laws in the first case and safeguard in the second. Attention then turned to consider the firm as a nexus of contracts whose structure - form of governance - varies according to variables that can be analyzed, guided by institutional rules.

In Brazil, according to Zylbersztajn (2005), poultry follows the same trend as the U.S. economy. The contributions of Nogueira (2003) and Zylbersztajn (2003) show the adoption of contracts in the Brazilian poultry industry, highlighting this distinction in adoption among states in the country. Statistics from the Brazilian Association of Chicken Exporters (ABEF) indicate that 59.5% of export-oriented production comes from vertical integrated companies. The number is an underestimate, because the southern contracts between producers and integrators come close to 100%, keeping the same trend in the state of Goiás.

4.5. Vertical integration contracts in Rio Verde (Goiás, Brazil) from TCE perspective

In the vertical integration of poultry production, producers receive technical assistance and inputs such as feed and drugs. The payment for services (fattening) is performed upon delivery of the lots to the slaughterhouse.

The advantage of this system for producers, it is guaranteed market for their lots of chicken and transfer of risk (variation in grain prices and lack of buyer market of poultry meat) to processing companies. Still it remains a risk, arising from the need to remunerate the farmer in cases of keeping chickens on farms for a longer period of time, in times when the market is out of balance (supply exceeding demand). In these cases, the integrated producer also has problems because it ends up receiving less and his job is to be increased, i.e., his profitability falls.

The insertion of the contracts as the predominant form of coordination occurs at the same time that it elevates the process of specialization and scale of enterprises. However, there are no elements in the analyzed contracts that evidence this situation. The processing companies seek to raise the scale of its suppliers (producers of chicken), with the intention of reducing costs of production and logistics. The specialization of the facility for a greater share of poultry in total farm income does not seem to be associated with contracts, but the automation and increasing the scale of poultry production due to limited availability of capital, labor and land.

5. Concluding Remarks

In the contract analysis undertaken in this study can be indicated that the elements that were being incorporated to the contract contribute to the reduction of joint costs of production and transactions, which confirms, in part, the central hypothesis of TCE. In other words, for changes in the governance structure that manages the transaction between poultry farmers and processors were efficient responses to the growth of specificity due to dedicated assets, as predicted by the proposition of Coase.

For integrated producers, there is some lack of information what raises questions on the efficiency of this model adopted in the region. The contract makes clear the unfairness of the process where there are previously defined clauses in a relationship called as bilateral, but is implemented unilaterally.

In view of TCE, this type of agent behavior opens questions, as well as enables possible opportunistic behavior once it is high specificity asset with productive contract submission, according to the rules imposed by integrating industry.

It is found that the condition of the integrated farmer in this model is only linked to the production process with attributes of industrial subordination. On the other hand means that because of transaction of highly specific assets it is not the producer taking responsibility related to the aspects like processing and marketing which reduces the risk of the activity to the farmers.

On the other hand the integrated farmers used as a rule of decision making credit facility subsidized by the government to enter the system. This indicates the infeasibility of the system, if the producer has to use own capital. In this sense, we can say that the government subsidy was the great attraction of this activity, which justifies the lack of participation of the integrated farmers in the development of contract and all rules imposed by the industry.

In terms of policy implications, efforts have to be done in order to ensure farmers are aware of all clauses inside the contracts they are signing to ensure information symmetry and, thus, less potential for transaction costs that may arise later during contract implementation.

Finally, states that the integrated farmer, just as a producer of this activity, is highly dependent on the process thus proving the overall goal of this research. However, according to data collected, and depending on property size and the degree of diversification, it appears that this activity has little expression in the share of total income of the producer and does not use large areas of farms, which can lead to the design of small dependence of the integrated production.

It has to be reminded that the results of this research and conclusive statements do not close the discussion on this subject. Instead, it serves as a basis for new thinking from the viewpoint of integrated farmers. It is hardly touched in the analysis of competitiveness of production chains, even though it represents a link that ensures the sustainability of the industrial agents. Moreover, it is

expected that the analysis serve as reflection point to the industry integrator rethink sustainability of the model the industry indicates as efficient.

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