FARMER'S RISK PERCEPTION AND THEIR RELATIONSHIP WITH ORGANIZATIONAL FAILURE

1 INTRODUCTION

Neoclassical economics argues that the main purpose of a company is to maximize profits, wherein profit is the difference between sales revenue and production costs. This results in the manager having the perfect knowledge of demand and costs, in addition to developing the ability of performing the calculations required for maximization. However, there are variables that hinder the calculation of profit optimization, not taken into account by neoclassical economics, such as the presence of risk, uncertainty, and incomplete information (SIMON, 1972).

Neoclassical economics also argues the vision of the *Homo Economicus,* arguing that people realize their optimal decisions based on their beliefs and expectations, impartial and well-defined preferences. Thus, your choice will always be what is best and not what is momentarily attractive, in addition to considering self-interest as a primary motivation for decision making (THALER, 2016).

However, the premises advocated by the neoclassical economics have some shortcomings. First, in many cases, people cannot solve the problems relative to optimization as they are very complex. Second, the beliefs that influence the decision-making process tend to be biased, as is the case with the presence of trust in the choice process (THALER, 2019). And third, people make the use of heuristics in their decisions, such as representativeness, availability and anchoring[1], which help make complex decisions in judgments more simple, but can lead to systematic errors (TVERSKY; KAHNEMAN, 1974).

The in-depth study of human behavior in the field of Administration is necessary, since companies are made up of people (managers and employees) and trade their products to people (customers). Thus, understanding human behavior is as important towards ensuring the longevity of the organization as understanding financial statements and operations management (THALER, 2019).

Risk management should be an integral part of the strategic management of any company. With respect to the companies that compose the agribusiness sector, they must first detect and perform the effective management of the risk (NADEZDA; DUSAN; STEFANIA, 2017) due to the vicissitudes that the industry has faced, such as changes in consumer demands, the size and structure of companies and the insertion of new technologies (BOEHLJE; ROUCAN-KANE; BRÖRING, 2011).

This makes the decision-making process of rural producers to be influenced by the increased uncertainty and risk and by incomplete information. With this, the decision made is not optimal (BOEHLJE; ROUCAN-KANE; BRÖRING, 2011; GONZALEZ-RAMIREZ; ARORA; PODESTA, 2018).

Such sources of risks make producers value their losses twice as much as their earnings (BOCQUÉHO; JACQUET; REYNAUD, 2014), being, therefore, averse to losses, that is, they prefer to accept a lower average return in exchange for less uncertainty (GONZALEZ-RAMIREZ; ARORA; PODESTA, 2018).

The perception of risk by part of individuals is influenced by macro issues, such as the country's culture, which influence their personality, and by cognitive issues, if at the time of the decision the individual prefers to take into account whether the opinion of others, or if his or

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[1] The effect of the anchoring considers that our thought behaviors are influenced by the environment in which we find ourselves (KAHNEMAN, 2012).

her decision-making process, is objective or subjective, that is, whether logic or feelings prevail in the decision-making. This makes people perceive risks in different ways (LI, 2017).

Given the above, the objective of this study is *to characterize the risk profile of rural producers in the face of organizational failures*. Organizations that fail are treated as being those which have gone through a situation of public denunciation.

2   RISK PROFILE AND COGNITIVE PROFILE: A JOINT ANALYSIS

Prior to the period of the industrial revolution, risk was easier to be managed, since manufacturing resources were obtained locally and the product was sold directly to the consumer. However, the increasing complexity of the product/service, the outsourcing of production, the advent of online businesses, globalization and the emergence of new technologies increased the risk, which is becoming increasingly complex to be managed (HARLAND; BRENCHLEY; WALKER, 2003).

The agribusiness industry is subject to the presence of various risks, some unique to the industry, other common to all businesses, possessing different sources of origin (NADEZDA; DUSAN; STEFANIA, 2017). This fact makes the production of the sector to be inherently risky (THOMPSON; BIR; WIDMAR, 2019), the decision environment is characterized by non-linear process, by the presence of incomplete information and the occurrence of errors and biases in the decisions (BOEHLJE; ROUCAN-KANE; BRÖRING, 2011), consequently, generating a decision maker who does not behave as the *Homo Economicus* (GONZALEZ-RAMIREZ; ARORA; PODESTA, 2018).

The risk in managing the agribusiness supply chain is higher when compared to the supply chains of manufactured products due to the presence of three characteristics inherent to their products: (i) seasonality: due to seasonality, production planning requires greater attention; (ii) supply peaks: the occasional supply peaks end up demanding numerous efforts in post-harvest activities, such as processing, storage and transportation; and (iii) perishability: because of the presence of product perishability, post-harvest activities demand advanced time management, since any delay represents a substantial loss in the value of the product (BEHZADI et al., 2018).

Furthermore, the agribusiness production process is directly dependent on climatic conditions, which causes the activities to be affected by unforeseeable events throughout the year (NADEZDA; DUSAN; STEFANIA, 2017).

Due to the presence of such risks, to manage them is an integral part of the business (THOMPSON; BIR; WIDMAR, 2019). Therefore, producers adopt different strategies to alleviate the perceived risk, such as the diversification of activities, the adoption of new technologies, the reduction of production costs, the participation in cooperatives, the use of insurance, the participation in associations and the prevention of diseases (AHSAN, 2011).

Having made the considerations about the particularities of risk for agricultural business, we present some general considerations about the risk and cognitive profiles of individuals.

2.1 Risk profile

Taking into account risk preferences, individuals can present three distinct types: i) averse to risk; ii) neutral to risk; and iii) prone to risk. Therefore, the individual's risk preference can range from aversion to risk, through neutrality to risk and propensity to risk (CHILES; MCMACKIN, 1996).

Individuals with aversion to risk characteristics opt for lower risks, preferring to receive a safe profit rather than an expectation of floating profit. Risk-neutral individuals are indifferent to choices. On the other hand, risk-prone individuals opt for greater risks, preferring an expectation of fluctuating profit over a safe profit (MARCH; SHAPIRA, 1987; CHILES; MCMACKIN, 1996).

Given a parameter for individual preferences called the absolute risk aversion coefficient[2], the risk-averse individual will present a positive parameter and the risk-neutral one will have a coefficient equal to zero (MILGROM; ROBERTS, 1992).

The gain profile is widely studied in psychology, according to Kahneman and Tversky (1979) people tend to be averse to loss and, therefore, averse to risk. When faced with two situations that have the same final outcome, for example, accumulating 4 million, given two possibilities, namely, (i) earn 1 million and earn 3 million and (ii) lose 1 million and earn 5 million, the risk-averse individuals will prefer the first alternative because it limits possible losses (KAHNEMAN; TVERSKY, 1979; MARTYNOV; SCHEPKER, 2017).

Individuals who work in financial markets tend to be less averse to losses, as they do not emotionally respond to any fluctuations (KAHNEMAN, 2012). Corporate executives are also examples of risk-prone individuals, since their careers depend on how they handle risk (MacCRIMMON; WEHRUNG, 1990), while risk-prone individuals tend to be evaluated as innovative, essential for the company's success and, therefore, considered good managers (MARCH; SHAPIRA, 1987). That is, risk-prone individuals are willing to take the risks with high stakes and, in doing so, get the feeling of pleasure (CHO; LEE, 2006).

Transaction Cost Economics has two behavioral assumptions, bounded rationality and opportunistic behavior. However, there is a third behavioral assumption, less mentioned than the others, regarding risk preference[3] (WILLIAMSON, 1985). For Transaction Cost Economics, all individuals are risk neutral, for the assumption of risk aversion diverts the individual's attention from the central objective of efficiency and from institutional characteristics (WILLIAMSON, 1985).

Thus, the decision maker, endowed with a limited rationale, will select the alternative that maximizes the differences between expected gains and losses, in addition to having an indifference behavior between the alternatives that present the same expected value (MARTYNOV; SCHEPKER, 2017).

So, the hypotheses to be tested are as follows:

Hypothesis 1: Producers that would not supply to slaughterhouses that are going through some type of public denunciation have a risk-averse profile.

Hypothesis 2: Producers that would supply to slaughterhouses that are going through some type of public denunciation have a risk-prone profile.

3 METHODOLOGICAL PROCEDURES

The objective of this study is to characterize the risk profile of rural producers in the face of organizational failures. For that, the hypothetical-deductive method is used, with the explanatory purpose and the quantitative approach. The intention of this research is to test hypotheses through the use of reliable standards (CRESWELL, 2010).

Primary data were used at this stage of the work, whereas the sample consisted of 100 cattle farmers who perform animal termination activities, either through the complete production cycle, or rearing and fattening, or just fattening the animals. The questionnaires were applied from October 2018 to January 2020. Part of the questionnaires (48%) was applied by technicians from the Rural Learning Service of Mato Grosso do Sul (SENAR-MS) during technical visits carried out on rural properties in the state. For this, the technicians were properly trained to understand the questionnaires and their respective application. The other 52% of the questionnaires were applied in person, by phone or by email.

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[2] Calculated by $r(\bar{I})$, where $\bar{I}$ is the average of the received values.

[3] Williamson (1985, p. 388): "*A third behavioral assumption that is also employed but to which reference is less frequently made warrants separate attention. That is the assumption of risk neutrality*"

The sample is non-probabilistic, for convenience, since the cattle farmers were chosen based on their availability (CRESWELL, 2010). Their selection took place through the "snowball" technique in which, at first, some producers were selected to answer the questionnaire. At the end, the reference of other producers who could take part in the survey was requested (BIERNACKI; WALDORF, 1981).

The beef sector was chosen for the sake of sample composition, since, in addition to the history of judicial reorganization cases in the sector, there is a larger contingent of rural producers in this activity when compared to the number of sugarcane producers in the State of Mato Grosso do Sul, where this stage of the work was carried out. In addition, there are also several reports for this sector of companies that filed for judicial reorganization and/or were the object of public denunciations.

During the 2008 crisis, the beef agro-industrial system (SAG) faced a business environment in which several slaughter and processing companies (slaughterhouses) filed for judicial reorganization as a result of the growing indebtedness of companies due to investments made for acquisitions and mergers (industry concentration) as well as internationalization. As a result, these companies did not honor the payment for animals acquired from rural producers (cattle farmers), triggering changes in the transaction pattern of animals, which went from an installment-based sale to a cash sale modality, given the need for improving SAG's guarantees chain (CALEMAN, 2010).

Also, in 2017, a new event strongly impacted the sector. The "Weak Meat" operation[4]", resulted in a decrease in beef purchases of the largest player in the Brazilian market, responsible for 50% of national beef exports. This fact, combined with the drop in domestic sales and the increased offer of animals, due to the recent investment made by cattle farmers, the price of live cattle, beef and calf decreased for most of the year (CEPEA, 2018; CNA, 2017b). Both situations experienced by the beef Agroindustrial System (SAG) represent an important opportunity to investigate the risk behavior of these industries' suppliers, the rural producers (cattle farmers).

For data analysis, first, the analysis of descriptive statistics was used, with of the objective of characterizing the interviewed producers. Subsequently, the model shown in Figure 1 were tested. Based on this model, the intention was to verify the producer's risk profile, taking into account whether the producer would supply to a company going through some type of public denunciation.

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[4]The Weak Meat operation is an operation carried out by the Brazilian Federal Police with the objective of investigating the accusations that public agents received bribes to issue health certificates, without performing inspections, to agribusiness entrepreneurs, thus facilitating the production of adulterated foods (POLÍCIA FEDERAL, 2017).

Figure 1- Econometric models to be analyzed
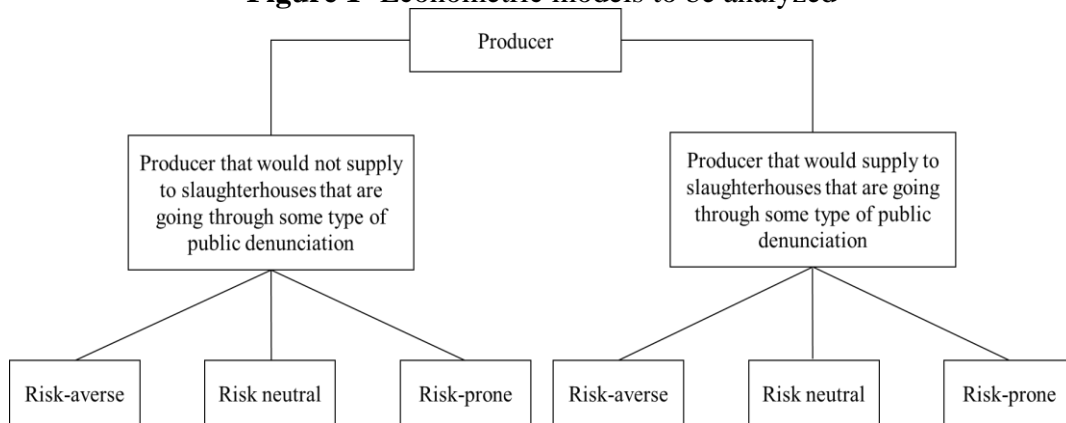
Source: Prepared by the author.

From the data obtained by the survey, logistic regression is used, using the *SPSS software*. Logistic regression is chosen when the dependent variable has only two groups, that is, it is a dichotomous variable (HAIR et al., 2005). The questionnaire used for data collection presents multiple choice questions and a 7-point Likert scale, with "1" being attributed when the respondents strongly disagree and "7" when they strongly agree. Such questions are related to: (i) producer profile; (ii) transaction pattern; (iii) institution and (iv) producer's risk perception. It should be noted that the risk perception variable is a latent variable (PENNINGS; GARCIA, 2001), that is, the perception of risk is not a directly observable variable, where its measurement is performed by other measurable variables (GUJARATI; PORTER, 2011).

To verify the existence of multicollinearity between variables, the IVF test was performed (Table 1). If the IVF of a variable is greater than 10, the variable presents the problem of multicollinearity (GUJARATI; PORTER, 2011).

Table 1- IVF for logistic regression

Variable	Coefficient variance	FIV
Not receiving payment	0.606	1.649
Age	0.375	2.665
Gender	0.699	1.431
Time in activity	0.274	3.644
Diversification of agricultural activity	0.561	1.782
Education	0.593	1.687
Production volume	0.600	1.665
Ownership structure	0.665	1.503
Productive process stages	0.575	1.738
Specific asset	0.463	2.158
Commercialization	0.790	1.266
Technological level	0.515	1.943
Payment receiving pattern	0.605	1.654
Association	0.547	1.827
Trust in justice	0.711	1.406
Supply preference	0.509	1.963
Exposure of risk preference - Q1	0.714	1.400
Exposure of risk preference - Q2	0.386	2.588
Exposure of risk preference - Q3	0.341	2.929
Exposure of risk preference - Q4	0.392	2.551
Exposure of risk preference - Q5	0.504	1.985
Exposure of risk preference - Q6	0.439	2.278

Source: Research results

According to the results presented in table 1, the variables do not have the problem of multicollinearity (all have IVF<10).

To prepare for the logistic regression, the backward elimination method was used. First, the model is prepared with all the independent variables (model 1) and then, if there is a variable that does not significantly contribute to the model, it is eliminated. Afterwards, the model with the other variables is prepared again, and the step of eliminating the non-significant variables is applied until all the remaining variables are statistically significant (model 2). This method was used because it allows finding the best estimates for logistic regression (HAIR et al., 2005).

4 RESULTS AND DATA ANALYSIS

For the data analysis procedure, first, the data descriptive statistics are presented, followed by the econometric analysis.

4.1 Data descriptive statistics

Characterizing the profile of the interviewed cattle farmers (table 2), it was ascertained the preponderance of respondents aged over 41 years (68%), wherein most were men (85%) and with high education (65% have graduated from university and 12% are post-graduates). Livestock represents the only agricultural activity for 68% of respondents, wherein 92% of the sample have their own area for agricultural production. Furthermore, 63% of the respondents adopt the production technique of the complete breeding cycle (breading, rearing and fattening) and the technique of semi-confinement of the animal is adopted by 47% of respondents. On average, the respondents have worked in the livestock activity for 23 years and slaughter 947 cattle units per year.

Table 2 - Producer profile

	Frequency	Percent
Age		
18 to 30	3	3%
31 to 40	29	29%
41 to 50	25	25%
51 to 60	27	27%
61 or over	16	16%
Gender		
Male	85	85%
Female	15	15%
Diversification of agricultural activity		
No	68	68%
Yes	32	32%
Education		
Incomplete elementary education	6	6%
Complete elementary education	0	0%
Incomplete secondary education	1	1%
complete secondary education	12	12%

	Frequency	Percent
Ownership structure		
Own	92	92%
Leased	8	8%
Productive process stages		
Complete cycle	63	63%
Rearing and fattening	33	33%
Fattening	4	4%
Technological level		
Confinement	14	14%
Semi-confinement	47	47%
Pasture	39	39%
	Medium	**Standard deviation**
Time of activity	23.37	12.07439
Production volume	947.16	179.2013

	Frequency	Percent
incomplete university education	4	4%
complete university education	65	65%
Post-graduate	12	12%

Source: Research results

Analyzing how producers sell their products (table 3), it is ascertained that most do not sell the animal with specificity (53%), most sales are made through contracts (60%), the form of payment for the sale of the animal is upfront (59%) and the producers have been supplying to slaughterhouses, on average, for 12 years.

In table 3, it is also possible to see that the majority of cattle farmers (80%) never went through the experience of not receiving payment for the sale of animals to slaughterhouses. The propensity of supplying to a slaughterhouse that is at risk of filing for judicial reorganization is small (12%), but the possibility of supplying to a slaughterhouse undergoing some type of public denunciation is 45%.

Table 3- Transaction pattern

	Frequency	Percent
Specific asset		
Yes	47	47%
No	53	53%
Commercialization		
Contract	60	60%
Spot market	40	40%
Payment receiving pattern		
Upfront payment	59	59%
Installments	41	41%
	Medium	**Standard deviation**
Supply time	12.83	8.3104

	Frequency	Percent
Experience of not receiving payment		
Yes	20	20%
No	80	80%
Would supply to slaughterhouse filing for judicial reorganization		
Yes	12	12%
No	88	88%
Would supply to slaughterhouses in public denunciation		
Yes	45	45%
No	55	55%

Source: Research results

Table 4 shows that there is a predominance of associated producers (63%), and that if they require the aid of justice to guarantee receiving payment for the animals sold, but not paid, the degree of confidence of the producers is low.

Table 4- Institutions

	Frequency	Percent
Membership in association		
Yes	63	63%
No	37	37%
Trust in justice		
1	38	38%
2	19	19%
3	10	10%
4	16	16%
5	12	12%
6	3	3%
7	2	2%

Source: Research results

The answer regarding risk preference exposure of the producers can be seen in table 5.

Table 5- Risk

	Frequency	Percent
Choice of slaughterhouse		
Whoever pays the highest price for the goods, but the slaughterhouse runs the risk of filing for judicial reorganization.	4	4%
Whoever pay a lower price than the previous slaughterhouse, but it is a more consolidated company in the market.	79	79%
No preference	17	17%

Percent							
	1	2	3	4	5	6	7
When I sell cattle at the slaughterhouse, I prefer to be financially certain rather than financially uncertain.	1%	0%	0%	2%	0%	13%	84%
I like to take financial risks	68%	9%	5%	7%	10%	0%	1%
When I sell cattle at the slaughterhouse, I prefer to take a high financial risk to get high rates of return	55%	17%	3%	15%	6%	3%	1%
I like to "play safe"	4%	0%	5%	7%	1%	14%	69%
In relation to running the business, I am averse to risk.	11%	1%	6%	5%	10%	12%	55%
In relation to running the business, I prefer to be financially certain rather than uncertain.	5%	1%	0%	5%	3%	7%	79%

Source: Research results

Relative to risk perception of producers, when faced with a fictitious scenario containing two slaughterhouses that feature the same purchasing power, most producers (79%) prefer to trade with the slaughterhouse that pays a lower price and it is more consolidated in the market.

When asked about risk preference (referring to statements on a Likert scale, whereby 1 means strongly disagree and 7 strongly agree), it is interesting to note that only 11% of them like to take financial risks, 77% say they are averse to risk and 10% prefer to have a high financial risk to obtain high rates of return. Such data demonstrate that cattle farmers do not like to take risks, even if this indicates a greater financial return.

4.2 Econometric analysis

To perform logistic regression using the backward elimination method, you must first present the model with all the independent variables, which is shown in table 6.

Table 6- Logistic regression with all independent variables (model 1)

	Model
Dependent variable	*0 = Would not supply to slaughterhouses that are undergoing some type of public denunciation.* *1 = Would supply to slaughterhouses that are undergoing some type of public denunciation.*
Variable	
Constant	-18.364 (0.021)**
Age	-0.32 (0.501)
Gender	-2.202 (0.122)

Time of activity	-0.049
	(0.324)
Diversification of agricultural activity	0.368
	(0.693)
Education	-0.388
	(0.154)
Production volume	0.000
	(0.281)
Ownership structure	0.692
	(0.579)
Productive process stages	-1.081
	(0.142)
Specific asset	2.106
	(0.035)**
Commercialization	0.220
	(0.696)
Technological level	-0.590
	(0.394)
Payment receiving pattern	3.122
	(0.003)***
Experience of not receiving payment	1.061
	(0.377)
Membership in association	3.162
	(0.001)***
Trust in institutions	-0.299
	(0.282)
Choose between two slaughterhouses	1.105
	(0.225)
Exposure of risk preference - q.1	2.677
	(0.014)**
Exposure of risk preference - q.2	-0.024
	(0.945)
Exposure of risk preference - q.3	0.241
	(0.461)
Exposure of risk preference - q.4	0.081
	(0.794)
Exposure of risk preference - q.5	-0.226
	(0.349)
Exposure of risk preference - q.6	-0.498
	(0.256)
R² Nagelkerke	0.664
Prob (χ^2)	0.000

** significant at 5%
* significant at 10%
Source: Research results

The backward elimination method was applied for model, that is, for the likelihood of the producer supplying or not to slaughterhouses that are going through some public denunciation. Chart 2 shows the removed variables, at which stage the removal occurred and its statistics:

Chart 1 - Variables eliminated in the backward method

Stage	Variable	Statistics
2	Exposure of risk preference - Q2	0.945
3	Exposure of risk preference - Q4	0.787
4	Commercialization	0.693
5	Diversification of agricultural activity	0.631
6	Ownership structure	0.585
7	Age	0.512

8	Exposure of risk preference - Q5	0.518
9	Exposure of risk preference - Q3	0.377
10	Choose between two slaughterhouses	0.303
11	Production volume	0.339
12	Trust in institutions	0.335
13	Productive process	0.280
14	Gender	0.259
15	Time of activity	0.277
16	Education	0.396
17	Technology	0.196

Source: Research results

Thus, the variables presented in chart 2 are not significant to explain the probability of supplying to slaughterhouses that are going through some public denunciation.

Table 7 presents the logistic regression with the significant variables after using the backward elimination method (model B). As the method eliminates non-significant variables, all logistic regression variables are significant at 1%, 5% or 10%.

Table 7- Logistic Regression (Model B)

Variable	Coefficient	S.E.	Wald	Df	Sig.	Odds ratio
Constant	-18.628	5.250	12.588	1	0.000***	0.000
Specific asset	1.152	0.605	3.628	1	0.057*	3.166
Payment receiving pattern	2.653	0.734	13.052	1	0.000***	14.192
Experience of not receiving payment	1.312	0.777	2.849	1	0.091*	3.715
Membership in association	2.243	0.717	9.782	1	0.002**	9.426
Exposure of risk preference: - When I sell cattle at the slaughterhouse, I prefer to be financially certain rather than financially uncertain (Q1).	2.340	0.732	10.234	1	0.001***	10.383
Exposure of risk preference: - In relation to running the business, I prefer to be certain rather than uncertain (Q6).	-0.553	0.280	3.899	1	0.048**	0.575
R² Nagelkerke	0.580					
Prob (χ²)	0.000***					

*** significant at 1%
** significant at 5%
* significant at 10%
Source: Research results

Table 8 - Classification table

	Forecast		
Observed	**0**	**1**	**Correct Percentage**
Would not supply to slaughterhouses that are undergoing some type of public denunciation	46	9	83.6
Would supply to slaughterhouses that are undergoing some type of public denunciation	14	31	68.9
Global percentage			77.0

Source: Research results

It is ascertained that the variables included in the model, together, are significant at 1% of (prob (χ²) = 0.000) to explain the probability of the producer to supply or not to

slaughterhouses that are undergoing some type of public denunciation. These variables together explained 58% (R^2 Nagelkerke = 0.580) of the data variance.

In table 8, it is possible to check the predictive capacity of the model. The current model correctly classifies 83.6% of producers who would not supply to slaughterhouses undergoing some type of public denunciation ($Y = 0$). For producers who would supply, the model correctly classifies 68.9% of cases ($Y = 1$). In general, the global classification accuracy is 77%, that is, when only the constant was included, the model correctly classified 55% of the observations, and with the inclusion of the variables this value rose to 77%.

Significant variables at 10% are: i) specific asset and ii) experience of not receiving payment. The significant variables at 5% are: i) participation in association and ii) question 6 of exposure of risk preference. And the significant variables at 1% are: i) pattern of receiving payment and ii) question 1 of exposure of risk preference.

The probability of the producer supplying to the slaughterhouse that is undergoing some type of public denunciation is negatively affected by question 6 of the exposure of risk preference. While the pattern of receiving payment, the experience of not receiving payment, participation in association, asset specificity and question 1 of exposure of risk preference positively impact the probability of supply.

The *odds ratio* column of table 7 provides an understanding of how the occurrence of the variable affects the probability of the event occurring (FIELD, 2009). Therefore, the chance of the producer receiving payment in installments for the sale of the animal and supplying to the slaughterhouse with some public denunciation is 14 times greater than that of producers who are paid upfront.

If the meat sold by the producer has any specificity, that is, the meat is organic, young steer, sustainable or if the meat is listed in the Trace List, the chances of the producer supplying to the slaughterhouse that is undergoing a public denunciation is 216 % higher compared to the chances of a producer who does not sell meat with any specificity. (PENNINGS; SMIDTS, 2000).

Belonging to a trade association increases the chances of the producer supplying to the slaughterhouse undergoing a public denunciation by 842% compared to producers who do not belong to any association. This fact corroborates the results found by Caleman (2010) and Ahsan (2011) in which the association decreases the risk perception of the producers, consequently they have a greater propensity to assume a risk-prone profile.

The experience of not receiving payment by part of the slaughterhouse increases by 271% the probability of the producer supplying to slaughterhouses that are undergoing some type of public denunciation. This fact can be explained by Caleman (2010) who found that producers who have already had a problem of not receiving payment tend to belong to associations, which contributes to the producer's perception of risk. In the sample, 80% of producers who have already faced a problem with receiving payment belong to an association. From another point of view, eventually, producers who went through the not receiving payment experience, upon becoming the company's creditors, equated their credits later. Also, the possible absence of other purchasing companies in the region of the rural property could lead the producer to have to reconnect with companies that, in the past, may not have honored their commitments.

The fact that the producer prefers financial certainty to financial uncertainty, in the sale of cattle to the slaughterhouse, increases the chances of supply by 10 times. This fact contradicts the results that Pennings and Smidts (2000) found, in which risk-averse people have actions that enhance their financial security.

Finally, producers who in regards to running business prefer to have a certainty reduce the chances of the producer supplying to the slaughterhouse by 42.5%, compared to those who prefer uncertainty. This event confirms the findings of Pennings and Smidts (2000) where individuals that prefer certainty in running their business are risk-averse.

Chart 2 presents a summary of the expected and achieved results.

Chart 2- Summary of results

Variable	Signal/Result expected	Hypothesis raised	Sign/Result achieved	Hypothesis Validation
Specificity of the asset	(+) Producer who sells meat with some specificity is more likely to supply to slaughterhouses that are undergoing some type of public denunciation.	H2b: Producer who sells meat with some specificity tends to be prone to risk.	+	Does not reject the hypothesis
Payment receiving pattern	(+) Producer who sells meat in installments is more likely to supply to slaughterhouses that are undergoing some type of public denunciation.	H2d: Producer who receives in installments tends to be prone to risk.	+	Does not reject the hypothesis
Experience of not receiving payment	(+) Producer who has experience of not receiving payment is less likely to supply to slaughterhouses that are undergoing some type of public denunciation.	H1e: Producer who has already gone through the experience of not receiving payment tends to be averse to risk.	+	Rejects the hypothesis
Membership in association	(+) Producer who sells meat to some trade association is more likely to supply to slaughterhouses that are undergoing some type of public denunciation.	H2e: Producer who belongs to associations tends to be prone to risk.	+	Does not reject the hypothesis
Exposure of risk preference: When I sell cattle at the slaughterhouse, I prefer to be financially certain rather than financially uncertain. (q.1)	(-) Producer who prefers to be financially certain rather than financially uncertain is less likely to supply to slaughterhouses that are undergoing some type of public denunciation.	H1g: Producer who prefers to be financially certain rather than financially uncertain tends to be averse to risk.	+	Rejects the hypothesis
Exposure of risk preference: In relation to running the business, I prefer to be certain rather than uncertain. (q.6)	(-) Producer who prefers certainty to uncertainty is less likely to supply to slaughterhouses that are undergoing some type of public denunciation.	H1j: Producer who in relation to running the business prefers to be certain rather than uncertain tends to be averse to risk.	-	Does not reject the hypothesis

Source: Research results

5   FINAL CONSIDERATIONS

This research stage investigates the cognitive profile and the risk profile of rural producers in the face of failures. Therefore, logistic regression was used to test two hypotheses: i) H1: "producers that would not supply to slaughterhouses that are undergoing some type of public

denunciation have a risk-averse profile" and ii) H2: "producers that would supply to slaughterhouses that are undergoing some type of public denunciation have a risk-prone profile".

For this, an econometric model was developed to verify the risk profile of the producers. The model measured the producer's risk profile by providing the probability of supplying to slaughterhouses that are undergoing some type of public denunciation. In this model, logistic regression was used by way of the *backward* exclusion method. The significant variables were: i) to sell meat with some specificity; ii) experience of not receiving payment; iii) payment receiving pattern; iv) participation in association; v) preference to having financial certainty rather than financial uncertainty and vi) in relation to running the business, prefer to have the certainty.

It was ascertained that risk-prone producers are more innovative, take longer to get paid, participate in associations and have already gone through the experience of not receiving payment.

There was a contradiction between the supply decision and the risk profile that producers claim to have. Producers classified as averse to risk, that is, prefer to have financial certainty rather than a financial uncertainty in trading animals are more likely to supply to slaughterhouses that are undergoing some type of public denunciation. This event can be explained by the fact that producers report the lack of choice of slaughterhouses to trade with (market concentration), leading to a limitation in their choices.

Most majority of the cattle farmers interviewed have a risk-averse profile, however, due to the high market concentration of the meat processing industry in the state of Mato Grosso do Sul (SOUZA, 2010), the supply decision is not made using only logic, since the market concentration causes the producers' profile to shift towards the risk prone one. Thus, the presence of heuristics and biases in the decision-making process of producers is confirmed.

With this, hypothesis 2 cannot be rejected, that is, producers who would supply to slaughterhouses that are undergoing some type of public denunciation have a risk-prone profile. Regarding hypothesis 1, it was rejected due to the lack of variability of the sample.

This research contributes to the empirical study of limited rationality in the producers' decision-making, when they are faced with a possible organizational failure (public denunciation), demonstrating the presence of heuristics and biases in the decisions. Academically, the study contributes to the understanding of the factors that influence the risk profile of the producer in the face of organizational failures.

Furthermore, evidence has been found in this research that variables related to the macro-analytical level - market concentration (PINDYCK; RUBINFELD, 2006) and institutions (associations) (CALEMAN; ZYLBERSZTAJN, 2013) – and with the meso-analytical level - asset specificity (WILLIAMSON, 2005) and payment receiving patterns - influence the managers' decision-making process - micro-analytical level.

Thus, it is observed that organizational failures are a complex phenomenon and, in this particular case, with potential effect for the occurrence of failures in organizations managed by rural producers, since given their behavioral risk profile they consider the possibility of selling their animals to slaughterhouses that are undergoing some type of public denunciation, which could cause them some kind of loss or injury.

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