Reasons and consequences of the bankruptcy of a sugarcane agroindustry: a case study in Engenheiro Beltrão (Paraná/Brazil)

Recebimento dos originais: 06/09/2017
Aceitação para publicação: 28/112018

Luciana Virginia Mario Bernardo
Doutoranda em Desenvolvimento Regional e Agronegócios pela Universidade do Oeste do Paraná – Unioeste
Universidade do Oeste do Paraná – Unioeste
E-mail: **lucianamario@yahoo.com.br**

Josineide Aquino da Silva Amaral
Doutoranda em Desenvolvimento Regional e Agronegócios pela Universidade do Oeste do Paraná – Unioeste
Universidade do Oeste do Paraná – Unioeste
E-mail: **jasaeconomia@hotmail.com**

Karla Cristina Tyskowski Teodoro Rodrigues
Doutoranda em Desenvolvimento Regional e Agronegócios pela Universidade do Oeste do Paraná – Unioeste
Universidade do Oeste do Paraná – Unioeste
E-mail: **karlatyskowski@gmail.com**

Pery Francisco Assis Shikida
Pós-doutor em Economia pela Fundação Getúlio Vargas/SP
Universidade do Oeste do Paraná – Unioeste
E-mail: **peryshikida@hotmail.com**

Abstract

The objective of this research is to investigate the manager's perception about the determinants of the economic bankruptcy of sugarcane agroindustry's and the influence on the economic and social aspects for the municipalities in this situation. For this, semi-structured interviews were applied with the manager of the sugarcane agroindustry, which currently has paralyzed activities and with the president of the rural workers Syndicate of Engenheiro Beltrão city (Paraná State – Brazil), where the plant operated in the past years. The results indicate that the lack of ethanol competitiveness is one of the main factors that make it possible to close the activities of these agroindustry's. In addition, there are conditions for the return of labor activities on a plant. And regarding the municipalities and their inhabitants, those are the most negatively impacted, due to unemployment, the reduction of income and the reduction of the population not absorbed by other economic activities in the place.

Keywords: Economic Bankruptcy; Sugarcane Processing and Regional Development.

1. Introduction

Brazil is considered the largest producer of sugarcane in the world (MINISTÉRIO DA AGRICULTURA, PECUÁRIA E ABASTECIMENTO, 2017). The projections made by Outlook FIESP (2013) for the production of alcohol (or ethanol) and sugar indicate a growth in domestic consumption and in the exportation of both products. When the 2013/2014 projections are compared with 2023/2024, sugarcane production will increase by 19.6%, 32.5% of production in plant tons and 11% of productivity (tons/hectare). In 2013/2014, the sugarcane production was directed at 52% for ethanol production, while in 2023/2024, this percentage can reach up to 62%.

Shikida (2014) considers the sugarcane the main processed food present in people's everyday life, such as sugar, besides other byproducts that may have different purposes and be used by animal food industries, beverages, cogeneration of electricity, fertilizer, cellulose industries, among others. These many possibilities demonstrate the importance of this production for different productive sectors. For Santos (2015), the sugarcane agroindustry, based on the greater use of specific technologies and considering national public policies, is similarly important for the country's energy matrix. However, Von der Weid (2009), criticizes this sector, claiming that it implements its own growth priority, while the sustainability tripod (Economic I, Social II and Environmental III) for the activities carried out are always in the background.

Regarding ethanol, it was observed that there was an important moment of governmental intervention with the implementation of the National Alcohol Program - Proálcool. Besides stimulating the industry, this Program has also helped to inhibit the need for competitiveness, given the subsidies that have occurred to encourage the use of this product as a substitute for automotive gasoline (CARON, 1996; RISSARDI JÚNIOR, 2015). The scenario later changed, with the opening of the market for both sugar production and ethanol in 1990, when government subsidies became restricted. This attitude requires investments in technologies from the entrepreneurs of the sector for the production diversification (RISSARDI JÚNIOR, 2015). In addition, Shikida, Azevedo and Vian (2011) warn that it is quite controversial on which basis the competitiveness of the sugarcane agroindustry is based: "[...] if predominantly in the exploitation of advantages derived from natural resources, conditions of labor supply or if it is also based on technological capabilities."

The sugarcane agroindustry presented some crisis during its history, such as in 1975, when sugar prices fell in the international market. Then, in 1989, there was an ethanol

shortage, a situation that occurred, among other reasons, due to the reduction of consumer confidence in the product (ROSÁRIO, 2008). Beginning in 2008, with the financial weaknesses presented by the production units, the closing and merging of companies or merger as a market survival action occurred (TORQUATO; BINI, 2009). Thus, the aim of this research is to investigate the manager's perception about the determinants of the economic bankruptcy of a sugarcane agroindustry and the influence on the economic and social aspects for the municipalities in this situation. In addition, an analysis is made of these perceptions in the light of the related literature, as well as interviews with the president of the Rural Workers' Union of Engenheiro Beltrão (Paraná) and with a representative of the Commercial and Industrial Association of that city.

This way, we justify the relevance of this research considering the background of the previous global economic crisis alongside with the reduction of the demand for ethanol and sugar. These reductions provoked the economic bankruptcy process of different sugarcane agroindustries in Brazil, especially those that presented financial problems to some extent or were in the process of judicial recovery (SILVA; MENDES, 2017). It is pointed out that the risk of bankruptcy is generally related to the use of third-party capital in organizations. Considering that this capital tends to put pressure on the company through the values referring to interest and amortizations. Failure to pay these amounts may increase the risk of bankruptcy due to the financial difficulties the company may face (DENIS; MCKEON, 2012). The unfolding of the economic bankruptcy of an enterprise is related to a scenario of uncertainties and extrapolates the walls of the same. Thus, bankruptcy can result in different situations regarding individuals related to the organization. With regard to workers, for example, it is pointed out that bankruptcy is one of the causes of suicide in the workplace (CLEARY, 2012). Finally, it is worth mentioning that in October 2018 the terms (i) “economic bankruptcy" and "sugarcane agroindustry" and "economic bankruptcy" and “sugar mill" were investigated in Periódicos Capes, resulting in the identification of two publications. This result may indicate a small number of researches related to the subject.

This paper has six sections, including this introduction (1). Following the introduction, concise expositions of a panoramic portrait of sugarcane agroindustry in Brazil are made (2) and on organizational economic bankruptcy (3). The other sections deal with methodology (4), results and discussion (5), while conclusions (6) complete this work.

2. Panoramic of Sugarcane Agroindustry in Brazil

As a way of settlement and exploration, the Portuguese Crown began its first agricultural activity in Brazil with sugarcane. This activity, in the Brazilian colonial period, was handled and processed by the slave labor. Regarded as a low capital investment and lowcost labor, this practice and, above all, its product - sugar - was inserted into the country's internal and external commerce (CARVALHEIRO; SCHALLENBERGER, 2009). For Moraes (2007), after centuries of existence, the products originating from sugarcane in Brazil, starting in 1930 (with the export problem caused by the Great Depression), were the control focus of the federal government. State intervention was carried out through the creation of the Sugar and Alcohol Institute (IAA), which had, among other purposes, the aim of identifying a correct product supply to the market and improving market conditions for Brazil.

There were several ways of governmental intervention in this activity. Among the interventionist measures for the sector development was the creation of a Plan to stimulate the use of ethanol. The National Alcohol Program (called Proálcool) had as one of its purposes the creation of a market for alcohol (ethanol) in Brazil, either from better techniques or from new commodities for agroindustry (ANDRADE; CARVALHO; SOUZA, 2009). With strong subsidy support, Rissardi Júnior (2015) shows that, since mid-1975, ethanol became part of Brazil's energy matrix. The Ministério de Minas e Energia (2016) points out that in 2015, the supply of energy generated from sugarcane bagasse corresponded to 5.5% of the national energy matrix, considering the internal consumption of the agroindustry and having surpluses. Meurer (2014) points out that ethanol and energy cogeneration in this sector account for 15.7% of all domestic energy supply in Brazil.

For Shikida (2014), Proálcool and the sugar cane agroindustry went through different phases. The first phase was known for the moderate growth of agroindustry (1975 to 1979), led by anhydrous alcohol added to gasoline. The second phase was characterized as accelerated expansion (1980 to 1985), with emphasis to hydrated alcohol (single fuel). And the third phase (1986 to 1995) was the deceleration and the crisis of the Proálcool, undergoing a state deregulation process. For Oliveira Neto, Jacobina and Falcão (2008), the fiscal crisis faced by the State in the 1980s reduced its capacity to intervene, contributing to the extinction of the Sugar and Alcohol Institute (IAA) in 1990, and the end of the Proálcool in the late 1990s. The difficulties in balancing the economic, environmental and social issues involved in sector deregulation explain the fact that this process has been slow and gradual. The subsequent phases, according to Shikida (2014), were: the intensification of deregulation, an

explicitness of the structural weakness and the emergence of diverse interests in the sugarcane agroindustry (during 1996/1997 to 2002/2003); advances and setbacks - ethanol rebound, caused by the flex-fuel car market and lack of planning (during 2003/2004 to 2012/2013).

Nevertheless, the government incentives for the sector in the period of the Proálcool gave the sugarcane agroindustry strong dissemination on some Brazilian states. As an example, the first initiatives in the production of ethanol in the Central-South region occurred in São Paulo, Minas Gerais and Paraná. Success enabled non-traditional states in this segment to become, at the time, exponential producers, such as the case of Paraná and Minas Gerais (VIAN, 2003; CAMPOS, 2015). For Carvalheiro and Schallenberger (2009), Paraná boosted all its sugarcane agroindustry with the investments coming from Proálcool. The Program has provided incentives for the installation of several distilleries, mainly in the northern part of the state. According to Rissardi Júnior (2015), with this support and resourcefulness, Paraná became the second largest producer of sugarcane in the country. However, data from the 2015/2016 harvest indicate that this state holds 5.96% of all Brazilian sugarcane production, being surpassed in this respect by São Paulo (51.97%), Goiás (10.24%), Minas Gerais (10.01%) and Mato Grosso do Sul (6.90%).

As an effect thereof, the production expansion in the sector is concentrated in the Center-South region, mainly through the use of land previously used for other types of agricultural production (SILVA; FRANÇA; OYAMADA, 2014). For Bernardes (2013), there is an intrinsic relationship between the production of the raw material of sugarcane and its agroindustry, due to the sucrose loss of the sugarcane when traveling great distances. This characteristic reflects the need for the production of the raw material to be close to the sugarcane agroindustry, in order to reduce production process losses. In addition, Avelhan and Souza (2011) point out that the productive scenario of the sectors related to sugar cane is constituted by tensions and uncertainties associated with environmental issues and the business environment. This characteristic demands a continuous production innovation process for the reduction of negative impacts.

An important aspect to be emphasized in this concise panorama on sugarcane agroindustry in Brazil is the technological capabilities in this activity. According to Shikida, Azevedo and Vian (2011), a survey of the mills and distilleries of São Paulo, Paraná and Minas Gerais, presented, in general, an expressive domain of basic and intermediate technological capabilities. However, in terms of advanced technological capability, which reflects the state-of-the-art technology of a given segment, there is much room for progress,

especially in process innovation and Research and Development. This demonstrates a limitation that undoubtedly affects the competitiveness of the productive units of this sector and that also relates to the capacity of the companies to remain in the market.

3. Organizational Economic Bankruptcy

It is necessary to be attentive to the market opportunities when undertaking a business. This attention allows individuals to identify profitable activities before others make this discovery. From this concern to perceive opportunities, organizations are created and expanded (KIRZNER, 1979). However, organizations need monitoring in order to remain active. For Aldrich and Pfeffer (1976), the environment is influential on the organizations and on the decisions that are made within them - Resource Dependency Theory. Rossetto and Rossetto (2005) refer to this theory starting from the direction of the management, to raise the necessary resources for the success of its operation, considering that there may be changes in the organizational environment derived from the relationship between the characteristics that are external to the company and their interests, which may influence the availability of resources.

In the organization context, Dumais, Ellison and Glaeser (2002) refer to the company lifecycle from the elements: job creation (opening or expansion of companies in the sector); change of the company's sector (company's performance in other activities); and extinction of jobs (merger, acquisition or closure of companies). The final stage of the life cycle, more specifically the closure, is emphasized. For Roggia, Colombo and Terra (2015), the main factors for corporate failure, in the international context studies, are:

Chart 1: Influential factors in organizational failure

Factors	1	2	3	4	5	6	7	8
Lack of Money	X		X		X			
Precarious cash flow	X							
Availability of corporate loans	X				X			
Personal collateral for corporate loans	X							
Availability of equity for the business	X							
Inadequate sales	X							
High cost of loans	X							
High operating expenses	X							
Insufficient administrative knowledge		X		X		X	X	X
Management and planning								X
Commercial relations								X
Competitive environment								X
Premature growth and business expansion								X

Key: 1. Carter and Van Auken (2006); 2. Tornhil and Amit (2003); 3. Baptista (2003); 4. Hayward (2001); 5.

Pullig and Chawla (1998); 6. Birley and Nikitary (1996); 7. Sheldon (1994); 8. Gaskil, Van Auken and Mannig (1993)
Note: The authors cited in the key are in this source.
Source: Adapted from Roggia, Colombo and Terra (2015).

Altman (1968) considers organizations that use daily accounting information can predict risk situations. The use of accounting instruments to analyze the balance sheet may indicate that a company may bankrupt in a short time. Oliveira and Souza (2013) say that accounting is a way of representing the reality of an organization. Thus, management decision-making must be based on this control system so that the information is more assertive and can help in the permanence of the company´s financial health.

Another relevant aspect is related to the companies' capital structure. This structure is linked to the decisions made by managers (KAVESKI et al., 2015). Locatelli, Nasser and Mesquita (2015) refer to this structure as being the way in which the company is financed, in other words, it is constituted of own capital and/or capital of third parties, as well as the proportion of each capital. For Durand (1952), there is an optimal capital structure, which is when the cost of third-party capital is stable. From this characteristic, a different structure to this can offer, for the organization, greater risk of bankruptcy. Thus, Gitman (2010) shows that, in the organization context, economic and financial elements can cause greater risks to the company's life cycle if the decisions taken increase the risks of non-compliance with the obligations assumed with third parties.

Another variable considered in researches that addresses the issue of organizations bankruptcy is corporate governance and its relationship with anticipations of possible bankruptcies or corporate recovery (DAILY; DALTON, 1994; UZUN; SZEWCZYK; VARMA, 2004; CHAN et al., 2016). When using corporate governance, a company determines ways of controlling the organization (SHAILER, 2004). For Liang et al. (2016), governance indicators can be used in models that assist managers in preventing bankruptcy. The results presented when comparing the use of these indicators, together with financial indicators, are better than when only the financial indicators are used.

Moreover, Nascimento et al. (2013) demonstrate that intangible aspects may be linked to the closure of a company. The lack of tacit and explicit knowledge of employees - in other words, lack of knowledge -, especially the managers' lack of knowledge, can increase the company's bankruptcy risk. These elements, if well-known, can help to make better decisions, both for short and long-term actions, by identifying the resources and investments needed to make these decisions successful. In fact, such knowledge, if reduced within organizations, can

result in mistaken decisions or non-planning execution with most of the demanded requirements, making it difficult for companies to meet their obligations and making them more likely to go bankrupt.

However, it is necessary to decide between continuing the life cycle of the company or shutting it down. "Bankruptcy will be the best solution if its costs - social and economic - are lower than those expended to recover the company" (MELLO; FICHMANN, 2013, p.2152). In Brazil, Campos and Bainha (2014) emphasize the importance of the Bankruptcy and Recovery Law - Federal Law No. 11.101/2005. This Law considers that in times of crisis, the restructuring of the organization in difficulty is encouraged, reducing the number of companies that are at risk of going bankrupt. Santos and Souza (2015) show that an organization closure can be linked to failures generated by different factors and referring to socioeconomic issues. However, the Bankruptcy and Recovery Law addresses principles previously not observed in the previous law:

> Principles such as company preservation, worker protection, speed and procedural efficiency, creditors active participation and the company´s social function were incorporated and the institutes subject to the study of bankruptcy law were adapted to the provisions, rights and guarantees set forth in Constitution of the Federative Republic of Brazil of 1988 (CRFB/88), especially those principles delineating the economic order (SANTOS; SOUZA, 2015, p.89).

The approach to these principles helps in reducing the negative aspects present in the organization´s bankruptcy process. In this way, it is considered that the Law in question constituted a juridical advance of the country, providing that the social aspects present in the organizations can be preserved in times of crisis (SANTOS; SOUZA, 2015).

4. Methodology

This research refers to a case study with a qualitative approach. For its development, the procedures presented by Yin (2001) were considered. In order to start data collection, an initial contact was made by telephone with the sugarcane agroindustry that ended its operations in 2015. This unit is the Sabarálcool Plant (located in Paraná, however, the persons surveyed will not be identified, thus ensuring their anonymity, according to ethical agreement). The manager responsible for the company was identified and willing to participate in the survey. Next, an interview guideline was drawn up, a semi-structured script. In this tool and for the interview the following aspects were considered: company history;

reasons that led the sugarcane agroindustry to go bankrupt; and the economic and social impact to the municipalities where the units of this agroindustry were located.

In order to promote the triangulation of information, the Rural Union and the Commercial and Industrial Association of Engenheiro Beltrão were also contacted to identify the perceptions, of these institutions, about the consequences of suspending the activities of the sugarcane agroindustry. The availability for an interview participation was verified, (also with a semi-structured script). The approach was held and dealt with the economic and social aspects resulting from the studied sugarcane agroindustry closure.

Both interviews were recorded and transcribed, forming the research database. After the transcription, the information was received by Content Analysis technique. For Caregnato and Mutti (2006), this type of analysis is a research technique that identifies text as an individual form of expression. For this analysis, the following steps were established: i) pre-analysis, with the organization and reading of collected material; ii) exploration of the material, establishing analysis categories according to the reference and sequencing of categories; and iii) interpretation, with identifying the analysis material contents, having the referential support (BARDIN, 1977; SILVA; FOSSÁ, 2013).

As the need for complementary information was identified, there was a new dialogue with the sugarcane agro-industry manager. At this moment, the information collection adapted from Roggia, Colombo and Terra (2015) was used, which listed factors that are determinant for the stoppage of a company's activities. With this instrument, it was possible to identify which factors were considered determinants, in the case of the investigated agroindustry. It was also used the collection of secondary data that confirmed the influences that the closure of the sugarcane agroindustry brought to the municipalities of its performance, directly or indirectly. For this, data were collected and inserted in the article with origin DataViva (2017); CAGED (2017); IBGE (2010); IPARDES (2017) and National Confederation of Commerce of Goods, Services and Tourism (2017).

5. Results and Discussion

During the interview, the manager described two crisis in the sugar and ethanol market. Figure 1 tries to illustrate the elements related to the first crisis:

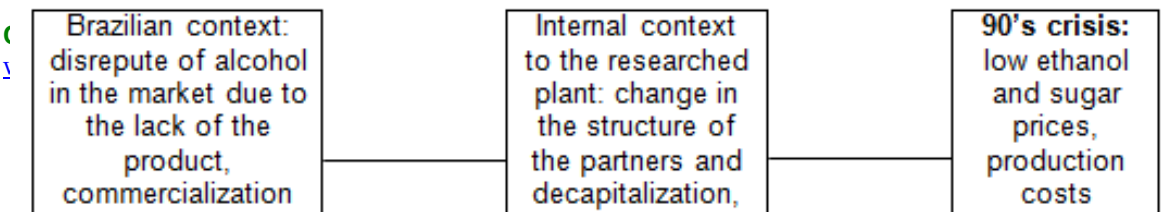

Figure 1: Crisis in the sugar and alcohol sector in Brazil, 1990s
Source: research data (2017).

The manager reported experiences of the sugar and ethanol productive sector that can be considered as a set of factors influencing the economic failure of the agroindustries. In the late 1980s and early 1990s, Brazilian ethanol had problems in commercializing due to the lack of products on the market. The situation has negatively influenced consumption due to the consumer's distrust in buying cars fueled by the product fearing not being able to use it due to lack of fuel in the market. For Shikida (2014), this period corresponds to the deceleration and crisis of Proálcool. Amongst the characteristics of the period is the deregulation of the sector, as mentioned by the interviewee. This is supported by Oliveira Neto, Jacobina and Falcão (2008) when they consider that this deregulation is related to the fiscal crisis that occurred in the 80s.

In addition, the interviewee considered that the sector's huge crisis in the 1990s was due to the connection between sugar production and the production of hydrated alcohol, since hydrated alcohol, in his opinion, was never competitive in relation to gasoline, therefore there was a large stock in that time due to repressed consumption:

> [...] since Proálcool, the sugar and alcohol market are vessels that communicate through the sugar cane. An excess of alcohol production results in a decrease in the alcohol price, which results in a new production mix with sugar. As Brazil has a huge market share in the world market, it sugar price fall, which occurred in the late 1990s and influenced the corporate change in this company (agroindustry manager).

This context of sugar and alcohol production described by the interviewee can also be observed in Campos (2015), based on his considerations on the government incentives that existed in the Proálcool period, so that there was a productive expansion in the Brazilian states, mainly in the Center-South states.

Vian (2003) also emphasizes a "race to ethanol", where many producers were not prepared enough to sustain an oligopoly activity. Rissardi Júnior (2015, p.66) supports this

aspect with robust econometric methods, in which many mills and distilleries have failed and/or closed their activities in Brazil, "because some F_1 factors (modernization of sugarcane agroindustry and specialization of sugar cane in Brazil) and F_2 (agricultural and industrial incomes) have been negative over the years, demonstrating a deficiency in management, not only reflecting the management´s lack of preparation, but also the macroeconomic context experienced by sugarcane agroindustry that, even in times of deregulation, is still suffering from government interference. Adding:

> [...] there is a problem that seriously affected the alcohol segment, at a time when flex cars dominate the market. [...] the fact that the federal government, through Petrobras, started to sell fuels in Brazil at a lower price than it pays on the international market, avoiding inflation to reach higher levels internally, caused the loss of the competitiveness of ethanol. Thus, this strategy has directly contributed to discouraging the consumption of ethanol and favoring the consumption of petroleum products (especially gasoline), which has become less attractive to the consumer, even with the contribution of modern technologies that have been and are being used in the production. Moreover, after the discovery of the pre-salt, petroleum-based fuels have once again gained notoriety, contributing to relegate ethanol to a secondary plan. (RISSARDI JÚNIOR, 2015, p. 42).

Regarding the hydrated alcohol, the interviewee believes the product has to be better appreciated through differentiated taxation in relation to its substitute, due to its positive, environmental and economic externalities, so that it is competitive in the market, both in relation to gasoline and future innovations. Figure 2 demonstrates the elements linked to the second crisis:

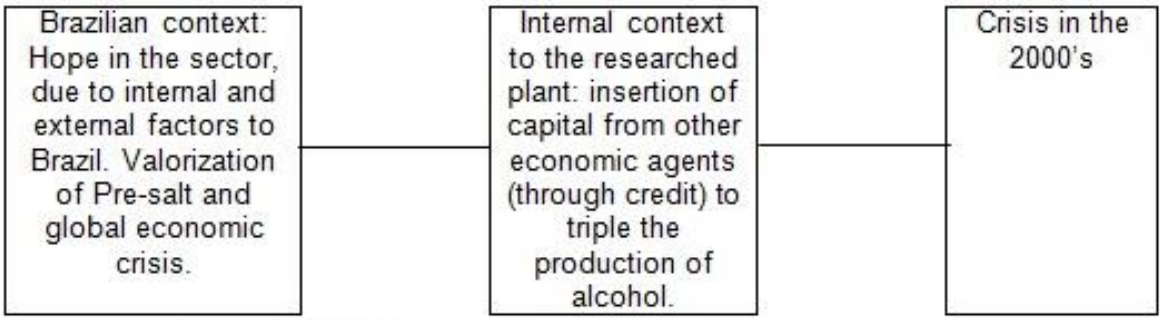

Figure 2: Crisis in the sugar and alcohol in the sector in Brazil, 2000
Source: research data (2017).

For the period after the first crisis, the interviewee quoted a set of Brazilian internal and external factors, favorable to ethanol production increasement. The World Trade Center and the US invasion of Iraq were events that caused a rise in the price of oil. In addition, the world economy was on the rise and the dollar was at a low price, alcohol had environmental

advantages regarding gasoline, and therefore, it was believed that there would be an increase in the world consumption. In Brazil, there was the insertion of flex-fuel car in the market and the election of a working-class president, who suggested an appreciation of the mill owners. From this scenario, the entrepreneurs of the sector perceived the market opportunities, referred by Kirzner (1979), making it possible for the companies to be set up and expanded to supply the consumer needs.

Differently, however, after the increase in ethanol production, from 2007, the Brazilian government changes its strategy for the energy sector due to the discovery of Pre-Salt (Petrobras, 2017), reducing the emphasis given to the product. In addition, in 2008, the global crisis influenced the commercialization of ethanol. In addition, since ethanol commercialization was influenced by exported sugar, the prepayments of the sugar export contracts that helped to finance the production activities of the Brazilian mills were reduced, making the agribusiness activities even more difficult.

> [...] the sector has been larger than the market, the foreign ethanol market has virtually disappeared because the Americans were efficient to implement an extremely competitive industry, producing the double that is produced of ethanol in the Center-South of Brazil, with a simpler raw material to be processed, commercializing internally and externally. In the domestic market, due to falling oil prices, exchange rate changes, ideological change of government, domestic market demand it did not grow as expected. With the internationalization of the sector, many invested a lot of money and lost a lot money without being affected (Agribusiness Manager).

The characteristics described is in accordance with the observations made by Avelhan and Souza (2011) on the productive scenario of sectors linked to sugarcane, constituted by situations of tension and uncertainty, related to environmental and business issues. For these authors, the solution to reduce negative impacts in the sector lies in the innovations of the productive process. The issue is how it could be done, once the sugarcane agroindustry is a segment that has little expression in terms of advanced technological capabilities [as seen in Shikida, Azevedo and Vian (2011)].

In addition to these factors, in 2012, Paraná, southern São Paulo and Mato Grosso do Sul suffered from climate change, such as lack of rain and severe winter. In 2013, winter with heavy frosts and rainy spring caused a production break, because it was not possible to harvest the sugarcane. Adding business and environmental factors, it became difficult to fulfill the companies' liabilities. Thus, Kaveski et al. (2015) consider that the capital structure of the company is a relevant aspect for the managers. Gitman (2010) points out that the extension of the company's life cycle is related to the economic and financial elements, as

well as to the increase or reduction of risks caused by the decision of the managers. In this way, it becomes imperative to be attentive to these characteristics mentioned above.

The interviewed manager considered that the main factor for the bankruptcy of sugar cane agroindustry is the lack of competitiveness of hydrated alcohol, which influences the price of other sugarcane products. He believes that society needs to be aware of the social and environmental benefits related to the use of ethanol, so that there is value to the product, allowing its greater competitiveness. In addition, from his point of view, ethanol production technology is being produced at low speeds compared to other clean energies, making product competitiveness even more difficult in the future. Another issue is the high production cost of ethanol from sugarcane compared to other raw materials, due to the high percentage of water contained in sugarcane, the need for high investments in industry, labor and long cycle of production.

These factors can mostly be considered inputs to the production of sugar and ethanol. In this regard, Aldrich and Pfeffer (1976) consider that the environment has an influence on the organization. Rossetto and Rossetto (1976) indicates that the decision-making process must attenuate the relationship between the company's internal and external aspects and the influence of these variables on its functioning.

The activities of the Sabarálcool plant have been stopped since 2015. The manager interviewed classified the factors presented by Roggia, Colombo and Terra (2015) as determinants or not for this closure. The manager's answers considered that 70% of the factors listed were determinant for the closure of the agroindustry activities. In addition, the manager added a new factor, which was evidenced as the main factor (Table 1):

Table 1: Determinant factors for the closure of sugarcane agroindustry plants

Factors	0	1
Lack of Money		X
Precarious cash flow		X
Availability of corporate loans		X
Personal collateral for corporate loans		X
Availability of equity for the business		X
Inadequate sales (regarding the low prices and the sales)		X
High cost of loans		X
High operating expenses	X	
Insufficient administrative knowledge	X	
Management and planning		X
Commercial relations	X	
Competitive environment	X	
Premature growth and business expansion		X
Direct costs increase (*e.g.*: workforce)		X

0 – Not determinant for stopping the activities. **1** – Determinant for stopping the activities.

Source: Adapted from Roggia, Colombo and Terra (2015).

Evaluating the technological dynamics of Sabarálcool agroindustry, Shikida et at. (2001) have reached the following conclusions:

> As a corollary, two points stand out from this study: first, although general raw material data revealed a growing scale for total milling and harvested area numbers (except for two years-crops falling in the growth rate), Sabarálcool agroindustry has been experiencing a difficult financial situation, consubstantiated by the long-term trend of the prices of products sold, a recent crop failure, a seasonal increase in the price of sugarcane and a decrease in the agricultural income index, which increase the final production costs. As a consequence, the indebtedness emerges as a way to make the financial routines of the plant feasible. Second, even in the context of this conjuncture, this company has had the perception that the sugarcane agroindustry, once subject to a series of institutional arrangements that linked the organized interests of the sector with the state's decision-making structures, must now be attentive to the calculation of costs, to the development of new technologies and economic use of byproducts, as a way of defining what is relevant to a more competitive situation (SHIKIDA et al., 2001, p.1).

5.1. Conditions for the reopening of a sugarcane agroindustry

Regarding the reopening of a sugarcane agroindustry, the interviewee considered three conditions (Figure 3):

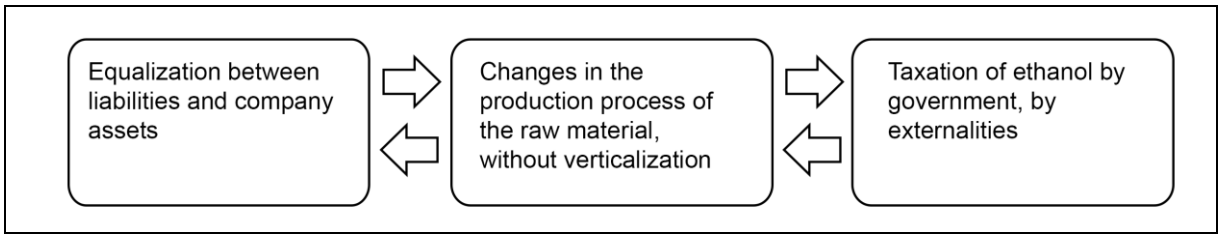

Figure 3: Conditions for the reopening of a sugarcane agroindustry
Source: research data (2017).

The first condition consists in paying all the debts that the company has, making the payment in the order: employees; suppliers; and government. In the case of the studied company studied, while in operation, as production expansion became a need, there was a verticalization process by leasing land. The interviewee believed that there should be a change transforming the industry into a raw material. The third condition refers to the appreciation of positive social externalities (employment generation and regional development of inner cities) and environmental (reduction of environmental impacts - if ethanol is compared to gasoline), through governmental measures throughout a regulatory framework linked to differentiated taxation, which encourages such production and makes it competitive in the market.

The conditions presented are related to the principles addressed by Santos and Souza (2015) regarding the Bankruptcy and Recovery Law in Brazil. For Campos and Bainha (2014), this Law encourages the restructuring of the company so that it remains active. Even if the sugarcane agroindustry researched has not been legally bankrupt, it should be treated with caution, as well as considering legal factors predicted in case of company closure.

In relation to the reopening of the company, the representative of the Rural Union Workers of Engenheiro Beltrão (Paraná), where the raw material processing of this agroindustry was located, believes that the company will return to its operation:

> [...] they are making agreements with the workers, they are paying everything according to what has been agreed, so they have already greatly reduced their debt. We do believe in their return. We do not know if for this year, nothing for sure either. But it would be very good for the municipality if they returned (Union representative).

It is also worth mentioning that this economic activity in Paraná has advanced a lot due to the investments and subsidies provided by Proálcool, mainly in the northern region of the state (CARVALHEIRO; SCHALLENBERGER, 2009). In addition, the activity continues to be important for tax collection and regional development. According to Shikida and Souza (2009), the establishment of a sugarcane agroindustry stimulates the income growth of the affected municipality, strengthening activities that meet the local demands, such as trade, construction, services, etc.

5.2. Influences of the closure of a sugarcane agroindustry on the municipalities

It is possible to identify that the production of sugarcane in the municipality of Engenheiro Beltrão is related to other agricultural production in the same locality. The economic importance of the production of this crop for the municipality is related to the processing of the raw material, by the sugarcane agroindustry, as well as by its connections with other developed agricultural activities (Figure 4).

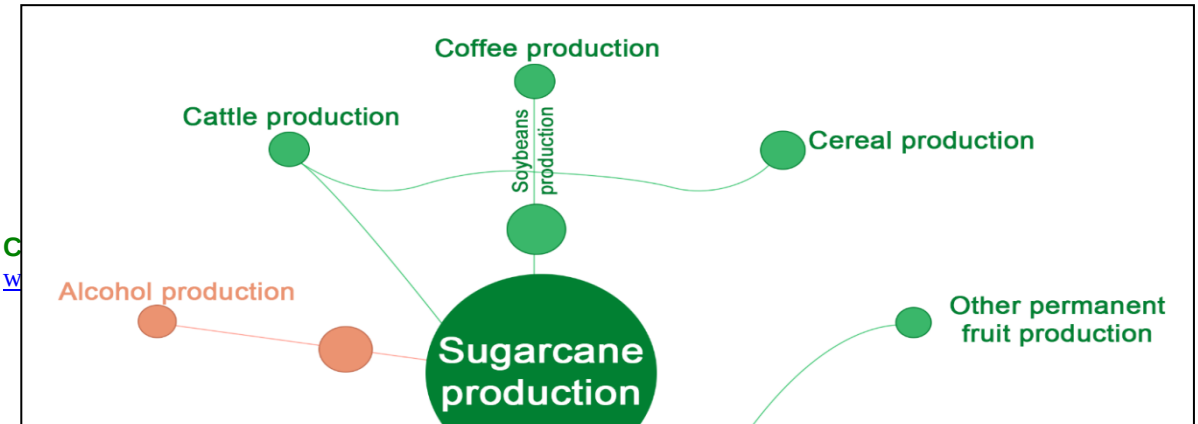

Figure 4: Connections for Sugarcane Cultivation, Engenheiro Beltrão – 2014
Data source: Extracted from DataViva (2017).

In the perception of the manager interviewed, the bankruptcy or stoppage the activities of a sugarcane agroindustry bring immediate negative consequences to the municipalities:

> [...] when we stopped the activities here, because we were causing harm for many years, we were operating in a very complicated situation, the society was going to feel a lot more the closure than the company itself and that's what happened, we stopped employing more than 2,000 people directly (Manager of Agribusiness Sugarcane).

For the union representative, the closure of the company also caused serious problems to the municipality of Engenheiro Beltrão:

> [...] unemployment increased, many families left the municipality, population declined, stores began to dismiss employees because they have decreased the volume of purchases. So in all respects it was very bad to close this company (Union representative).

Therefore, former employees of the sugarcane agroindustry, after their business shutdown, needed to be reallocated in other economic activities, either in the same municipality or in others.

> [...] a part went to the city (urban zone), changed their destination. There was a small part that went to work in other mills. Some began to work for themselves, or even working as autonomous, others are working as street vendors (Union representative).

The representative of the Industrial and Commercial Association of Beltrão believes that the former employees of the sugarcane industry were not from the city, but from the North, Northeast and Midwest regions of the country.

> [...] with the closure of Sabarálcool, many ex-employees returned to their places of origin, however, when it closed, the duplication of the highway began, which absorbed a lot of this workforce, and many moved in due to the duplication because the company had work in other locations and they ended up going along with the company. Another thing that has grown a lot here is the provision of service, many people who worked in Sabarálcool, began to provide general maintenance services (Representative of the Commercial and Industrial Association of Engenheiro Beltrão).

Information was provided [which are: Estimated Population, Formal Employment (Admissions and Layoffs), Tax on Goods Movement and Service Provision (ICMS) and Mortality of micro and small companies - in Engenheiro Beltrão] indicated changes in municipal characteristics in the year after the closure of the sugarcane agroindustry (Table 2):

Table 2: Engenheiro Beltrão municipal information

Year	Population	ICMS	Employed	Dismissed	Mortality of micro and small businesses
2011	13,893	3,745,790	2,008	1,848	29
2012	13,880	1,371,737	1,949	1,897	13
2013	14,298	2,078,662	2,149	2,075	13
2014	14,303	1,867,277	1,506	2,070	17
2015	**14,307**	**1,191,573**	**688**	**811**	**41**
2016	14,073	858,062	639	756	28

Source: research data from CAGED (2017); IBGE (2017); IPARDES (2017); Confederação Nacional do Comércio de Bens, Serviços e Turismo (2017).

Table 2 shows that the estimated population is decreasing in Engenheiro Beltrão from 2015 on. The tax collection on the commercialization of goods and services in the municipality in 2016 decreased approximately 28% compared to the previous year. The hypothesis is that the reduction of jobs due to the closure of the sugarcane agroindustry reduced the population's purchase and service acquisitions volume. Regarding formal jobs, starting in 2014, the number of dismissed workers became greater than those admitted, indicating a lack of absorption of the workforce in the municipality. The elements characterized can help to demonstrate the effects of the closure of the sugarcane agroindustry to the municipality, as indicated in the interviews.

Campos and Bainha (2014) and Santos and Souza (2015) emphasize the importance of the Bankruptcy and Corporate Recovery Law in order to minimize the negative externalities implicit in the closure of a business. An organization consists of different elements, among them there are people, who depend financially on the success of it, to remain economically active.

It is also observed that the number of mortalities of micro and small enterprises is higher than in other years observed in Table 2 (see last two years). There is, therefore, a

relationship between the closure of the sugarcane agroindustry and the closure of the activities of the companies.

> [...] Sabarálcool was of fundamental importance to the municipality, but most people only realized it after it closed. Several companies in the city closed because of this, the money that circulated in the city, with the generation of jobs and people that came to the city to work, diminished. Several sectors were affected, for example, there were four estates in the town, half of them closed because they were almost fully funded by houses rent for Sabarálcool workers. In addition, non-payments have risen sharply in the city. With the operation of Sabarálcool a company sold 50 products, with its closure it started to sell 15 (Representative of the Commercial and Industrial Association of Engenheiro Beltrão).

6. Final Considerations

This research's objective was investigating Sabarálcool's manager perception about the sugarcane agroindustries economic bankruptcy and its influence on economic and social aspects for the municipalities in this situation. For this purpose, interviews were conducted with social actors linked to sugarcane agroindustries (agribusiness manager, the Rural Workers' Union representative and the representative of the Commercial and Industrial Association of Engenheiro Beltrão). These two last ones enriched, with their information, the scope of this paper, mainly, with respect to the economic and social impacts resulting from the closure of the plant.

The dialogue with the manager made it possible to identify his perspective on the factors that influence economic bankruptcy. The main factor, according to this professional, is the level of competitiveness of hydrated alcohol - basically low level -, which influences the price of the other products derived from sugarcane. There is a need to raise the awareness of the Brazilian population about the positive social and economic externalities associated with the processing of sugarcane in order to solve this issue. This awareness can enable, from the manager's perspective, government decision-making in favor of a regulatory framework that improves this competitiveness.

Regarding the externalities with a focus on the social aspects, when considered by the interviewee, he said that they are more concrete than the environmental ones due to their visibility related to regional development, since factors such as job generation and income are, directly and indirectly, linked to the sugarcane agroindustry. It is observed that the generation of employment is the object of agreement between the manager and the union representative regarding the problems caused to the municipalities of the region, when the sugarcane agroindustry stopped its activities. In this way, the unionist's report portrays a reality of

difficulties in reallocating the workers who worked in this deactivated company. As a consequence, there was an increase in the emigration of these workers from the city - migration in search of new opportunities in other places -, among other negative and detrimental situations for regional development.

Therefore, knowing how to determine the characteristics that may lead to the bankruptcy of a sugarcane agroindustry can help to better understand the characteristics of this company. This also allows us to predict the consequences of the stoppage of production activities for the local and regional community and minimize impacts such as exemplified bankruptcy. Further studies will certainly contribute to qualify this discussion. Thus, this research contributes to the literature, as it addresses to the issue of economic bankruptcy in relation with sugarcane agroindustries. The few researches identified on the subject reinforce this idea. Drawing information about organizational failure is an arduous task, as people do not like to talk about their negative experiences. In addition, the text allows the reader to know the perceptions of different actors related to the economic bankruptcy of the agroindustry. Furthermore, when addressing issues related to the subject, the presence of people who work for their own sustenance and the family should be taken into consideration, so it can be sensitive subject to these individuals.

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