Nonmarket Environment of Brazilian Biodiesel Industry: A Qualitative Assessment

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Resumo
Brazil is one of the most relevant players in the production of biofuels worldwide. After the success of the Brazilian ethanol industry, biodiesel helps the country in the diversification of the portfolio of biofuel production. The Brazilian biodiesel industry is characterized by the presence of government agents as regulators in all stages of the supply chain since production to commercialization. From the standpoint of the concepts of nonmarket strategy, the more controlled is the industry, the more relevant is the nonmarket environment for the performance of the firm. From the learnings of Baron (1995a) and Baron (1995b), the objective of this study is to discuss the relevance of nonmarket environment for Brazilian biodiesel production firms from a business strategy standpoint. Using Grounded Theory as methodological tool for this investigation, it was found that Social Fuel is the most relevant aspect of the nonmarket environment in this industry.
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Abstract

Brazil is one of the most relevant players in the production of biofuels worldwide. After the success of the Brazilian ethanol industry, biodiesel helps the country in the diversification of the portfolio of biofuel production. The Brazilian biodiesel industry is characterized by the presence of government agents as regulators in all stages of the supply chain since production to commercialization. From the standpoint of the concepts of nonmarket strategy, the more controlled is the industry, the more relevant is the nonmarket environment for the performance of the firm. From the learnings of Baron (1995a) and Baron (1995b), the objective of this study is to discuss the relevance of nonmarket environment for Brazilian biodiesel production firms from a business strategy standpoint. Using Grounded Theory as methodological tool for this investigation, it was found that Social Fuel is the most relevant aspect of the nonmarket environment in this industry.

Keywords: Nonmarket Environment; Nonmarket Strategy; Biodiesel; Social Fuel Stamp.

1. Introduction

Brazil, which is already known in the global biofuel production scene due to its ethanol production program (Abreu, Pedrozo, & Silva, 2006; Kohlhepp, 2010; Neves, 2010), is becoming a benchmark in the production of another critical biofuel: biodiesel (Nogueira, Capaz, Souza, & Seabra, 2016). This industry, created in 2005, is being developed by the several agents involved with it, such as production firms, fuel blenders, legislators, regulatory agencies and interest groups (Castro, 2011; Távora, 2012). The fact that ethanol is questioned about its capacity to generate social and environmental gains to the society assigns to biodiesel more responsibility while the comparisons are natural (Vaz, Steckelberg, & Pietrafesa, 2015).

In addition to the heritage coming from ethanol industry related to social and environmental pressure, Brazilian biodiesel industry was born with the scars of the scandals observed within country’s fuel industry in late nineties and early in the first decade of 21st century, most of them related to tax evasion and quality problems (Soares, Saes, & Paulillo, 2015). This background requested from the public policy makers the creation of mechanisms to mitigate the risk of the new industry to incur in the same issues (Távora, 2012).

The concerns related to social development, to environmental sustainability and the preservation of tax collection, shape the regulatory framework of the Brazilian biodiesel industry (Bueno, Esperancini, & Takitane, 2009). Brazilian biodiesel supply chain is established in a way to allow the public agents to influence it towards the maximization of its role as a vector of environmental and, mostly, social development, differently from the same industries in the United States and European Union (Osaki & Batalha, 2011).

Despite the reasonable number of papers in the field of management aimed to discuss issues related to the Brazilian biodiesel industry, the massive part of them does this by adopting two main theoretical frameworks: the Supply Chain Management and the Transaction Cost Theory. Great care is provided to the efficiency of the supply chain as a role, while little attention is given to issues related to the performance of the firm in this industry. This is the case, for example, of Santos and Padula (2012), that highlight the existence of transaction costs in the relation between biodiesel production firms and family farmers in the Rio Grande do Sul.
State’s biodiesel supply chain. Similarly, César, Batalha, and Conejero (2014) and Alves, Belarmino, and Padula (2017) challenge the efficiency of biodiesel industry’s regulatory framework regarding its capacity to promote the introduction of oilseeds with potential to replace or, at least, reduce the relevance of soybean as the main raw material for this industry. In the same sense of César et al. (2014) and Alves et al. (2017), César and Batalha (2011) discuss the factors that contribute to castor bean produced by family farmers to fail as raw material for biodiesel in Brazil.

Costa (2011) is the only study found in the literature that put the biodiesel production firm in the center of the discussion, proposing a debate on the extent to which the regulatory environment impacts the formulation and implementation of strategy in a biodiesel production organization. Costa (2011)’s approach motivated the development of this study that aims to contribute with the field of management by deepening the discussion on the relevance of the nonmarket environment that surrounds a biodiesel production firm to its performance. More specifically, this paper aims to discuss the relevance of nonmarket environment for Brazilian biodiesel production firms from a business strategy standpoint. In addition to this Introduction, this paper is divided into four sections: theoretical background, methodology, presentation and analysis of results, and concluding remarks.

2. Theoretical Background

The subject strategy is explored mainly in management literature. One of the main streams considers that strategy relies on internal resources and competencies of the firm (Barney, 1986; Barney, 1991; Peteraf, 1993; Barney, 1995; Barney & Wright, 1998; Barney, Wright, & Ketchen, 2001). Other scholars, however, argue that strategy must focus not only in the internal resources but also on the aspects related to the competitive environment in which the organization is inserted (Porter; 1981; Porter, 1983; Porter, 1991; Porter, 1998; Rindova & Fombrun, 1999). In common between those two streams is the purpose of the firm’s strategy: to reach competitive advantage and, therefore, to reach superior performance (Porter, 1985; Barney, 1995; Powel, 1992a; Powel, 1992b; Powel, 2001).

Porter (1998) stated that are five the forces that determine industry competition: the threat of new entrants, the risk of substitutes, bargaining power of buyers, bargaining power of suppliers and rivalry among competitors. Despite primarily accepted in the field of management, this concept overlooks the relevance of nonmarket aspects to the firm’s strategy. Rindova and Fombrun (1999) widen Porter (1998)’s concept stating that competitive arena is formed by two different dimensions: organizational field and firm’s environment. Still, according to those authors, those two dimensions are divided into four domains: markets, resources, microculture and macroculture. Rindova and Fombrun (1999)’s macroculture is the expansion of Porter (1998)’s model.

The business environment in the agribusiness industry has additional complexities (Farina, 1999; Zylbersztajn, 2005). A firm operating in the agribusiness industry formulates its strategy with an eye on four different environments: organizational environment, institutional environment, technological environment, and competitive environment (Farina, 1999). The organizational environment is formed by corporativist organizations; public and private agencies; syndicates; research institutes; and private sectoral policies (Farina, 1999).

The institutional environment is composed of the legal system; traditions and customs; political system; regulatory framework; macroeconomic policy; and governmental sectorial policies (Farina, 1999). Firms have a set of productive resources (physical, human, economic) that must be coordinated in order to meet the rules of the competitive game (Farina, 1999).
The agents that form the organizational and institutional environments are key for the competitiveness as they can affect significatively the structure of cost of agribusiness firms (Kennedy, Harrison, Kalaitzandonakes, Peterson, & Kalaitzandonakes, 1997). Therefore, they have to formulate and implement their strategies based not only on their internal resources or on the challenges of the competitive environment but also on the aspects related to regulatory environment (Van Duren, Martin, & Westgren, 1991; Kennedy et al., 1997; Farina, 1999). The concepts of nonmarket environment and nonmarket strategy bring to the agenda of strategy aspects that go beyond traditional market issues and that can equally or harder impact performance of the firm.

Baron (1995a) and Baron (1995b) evolve in the discussions about the relevance of nonmarket aspects of the environment to the formulation and implementation of business strategy, putting together the idea that both market and nonmarket environment are equally important to firm’s strategy and, thus, to obtaining of competitive advantage. Baron (1995a) and Baron (1995b) argue that strategy management will be integrated only if it encompasses both market and nonmarket strategy.

Baron (1995a) says that, while market strategy takes care of analysis and management of internal resources and competencies of the firm (Barney, 1991; Barney, 1995) vis-a-vis the five forces that shape the competitive environment (Porter, 1998), the nonmarket strategy targets the assessment and management of internal resources and capacity of the firm against the challenges that come from the nonmarket environment.

The concept of nonmarket strategy pops up from the relevance of the nonmarket environment for the performance of individual firms in specific markets (Baron, 1995a; Baron, 1995b; Baron, 1997a; Bach & Allen, 2010). Nonmarket strategies generally are driven to public policies that affect the structure and functioning of markets and, thus, the competitive advantage sources (Baron, 2001; Oliver & Holzinger, 2008). The achievement of sustainable competitive advantage relies on the capacity of the firm to deal with social, political and environmental aspects more than just manage competitive-environment-related aspects (Hillman & Hitt, 1999; Baron & Diermeier, 2007; Bach & Allen, 2010).

According to Baron (1995a) and Baron (1995b), the nonmarket environment may be defined by four “I’s”: issues, institutions, interests, and information. The first “I” (Issues) is related to subjects to which nonmarket strategies are developed to (Baron, 1995a; Baron, 1995b). The second “I” (Institutions) concerns to individuals or groups that have preferences or participation in specific issues existing in the nonmarket environment, such as non-governmental organizations, syndicates, press, among others (Baron, 1995a; Baron, 1995b). The third “I” (Information) refers to the knowledge that the involved parts have or think to have about the possible actions of the individual agent about certain issue (Baron, 1995a; Baron, 1995b).

The relevance of nonmarket strategy for the performance of the firm is directly linked to the degree of control that the State has on the market opportunities (Baron, 1995a; Bonardi, 2008). Considering the degree of control of the State on the market opportunity as a graduated ruler, one would find, in one end, the full control of the State, while, on the other end, it would be found the full power of the opportunities by the market (Baron, 1995a). The more the market opportunities are in the hands of the State, the more relevant is the nonmarket strategy to firm performance (Baron, 1995a; Bonardi, 2008).
3. Methodological Procedures

The methodological procedures adopted in this study are based on the phenomenological perspective (Coltro, 2000; Moreira, 2004; Boava & Macedo, 2011), with special care to capture the impressions of the agents involved with the biodiesel industry through rigorous research strategy (Pinto & Santos, 2008). The research strategy adopted to the development of this study was the Grounded Theory (Strauss & Corbin, 2008; Corbin & Strauss, 2015). The use of this strategy aimed at the exploration of perspectives and experiences of agents that are directly involved with the biodiesel industry in Brazil.

The procedures adopted to the implementation of the Grounded Theory strategy were the following (Strauss & Corbin, 2008; Charmaz, 2014; Corbin & Strauss, 2015): collection of primary data; open coding; axis coding; memo writings; selective coding; and theorization. The stages of open coding, axis coding, memo writings, and selective coding were carried out with the software Atlas.ti 8. Two cycles of saturation (Strauss & Corbin, 2008; Charmaz, 2014; Corbin & Strauss, 2015) were carried out to reach the Grounded Theory. The results presented in this study are the ones obtained up to the stage of axis coding.

In order to perform the first stage of the research strategy (collection of primary data), it was chosen prior to the fieldwork two types of categories to be interviewed: a) professionals with experience working within a Brazilian biodiesel firm (group A); and b) professionals with experience working in organizations and institutions part of the biodiesel industry’s nonmarket environment (group B). The division of the interviewees in two different categories attempted to capture views of actors playing roles in different spheres of the business on the same topic.

The in-person interviews occurred between April 2018 and August 2018. The interviews occurred in five Brazilian cities, being them São Paulo (SP), Brasília (DF), Curitiba (PR), Campinas (SP) and São Carlos (SP). All interviewees allowed the interviews to be recorded, although none of them allowed their identification. A total of 14 interviews were carried out, being five of them with people pertaining to group A, and nine with agents of group B.

From the total number of interviews, eight of them were carried out within the first cycle of saturation, and five were done during the second cycle of saturation. All the 14 interviews were featured by 11 different agents, which means that three interviewees were interviewed twice (in the first and in the second cycle of saturation), as per Grounded Theory research strategy guidance (Charmaz, 2014; Corbin & Strauss, 2015). Figure 1 characterizes each interviewee.

<table>
<thead>
<tr>
<th>Interviwee</th>
<th>Cycle of saturation</th>
<th>Group A</th>
<th>Group B</th>
<th>Professional background</th>
<th>Academic background</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>1º</td>
<td>X</td>
<td></td>
<td>Biodiesel firm</td>
<td>Bachelor degree or specialization</td>
</tr>
<tr>
<td>E2</td>
<td>1º e 2º</td>
<td>X</td>
<td></td>
<td>Biodiesel firm</td>
<td>Bachelor degree or specialization</td>
</tr>
<tr>
<td>E3</td>
<td>1º</td>
<td></td>
<td></td>
<td>Biodiesel firm</td>
<td>Bachelor degree or specialization</td>
</tr>
<tr>
<td>E4</td>
<td>1º</td>
<td></td>
<td></td>
<td>Biodiesel firm</td>
<td>Bachelor degree or specialization</td>
</tr>
<tr>
<td>E5</td>
<td>1º</td>
<td>X</td>
<td></td>
<td>Regulatory agent, Social Fuel Stamp</td>
<td>Master of Science</td>
</tr>
<tr>
<td>E6</td>
<td>1º e 2º</td>
<td>X</td>
<td></td>
<td>Biodiesel producer association</td>
<td>Master of Science</td>
</tr>
<tr>
<td>E7</td>
<td>1º e 2º</td>
<td>X</td>
<td></td>
<td>Biodiesel producer association</td>
<td>Doctor of Science</td>
</tr>
<tr>
<td>E8</td>
<td>1º</td>
<td>X</td>
<td></td>
<td>Ministry of Mines and Energy</td>
<td>Bachelor degree or specialization</td>
</tr>
<tr>
<td>E9</td>
<td>2º</td>
<td></td>
<td></td>
<td>Specialized press</td>
<td>Bachelor degree or specialization</td>
</tr>
<tr>
<td>E10</td>
<td>2º</td>
<td></td>
<td></td>
<td>Academic research</td>
<td>Doctor of Science</td>
</tr>
<tr>
<td>E11</td>
<td>2º</td>
<td></td>
<td></td>
<td>Congressman</td>
<td>Doctor of Science</td>
</tr>
</tbody>
</table>

Figure 1: Characterization of Interviewees.
Source: the authors.
It was adopted semi-structured questionnaires to collect data from both groups (Gil, 2008; Vergara, 2012). It was deployed four different types of questionnaires. The first model, formed by 10 questions, was used with interviewees of group A interviewed in the first cycle of saturation. The second model, formed by eight questions, was used with interviewees of group B interviewed in the first cycle of saturation. The third model, formed by seven questions, was used with interviewees of groups A and B interviewed in the second cycle of saturation.

The fourth model, formed by six questions, was used in the interview with the congressman (group B) in the second cycle of saturation. The modification of the questionnaires according to the characteristics of the interviewees and/or according to the evolution of the saturation process is part of the Grounded Theory research strategy procedures (Corbin & Strauss, 2015). Figure 2 presents the types of questionnaires used in each cycle of saturation and in each interview.

<table>
<thead>
<tr>
<th>Cycle of saturation</th>
<th>Interview</th>
<th>Agent</th>
<th>Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>1</td>
<td>Biodiesel firm professional</td>
<td>Type 1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Biodiesel firm professional</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Biodiesel firm professional</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Biodiesel firm professional</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Regulatory agency professional</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Biodiesel producer association representative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Biodiesel producer association representative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Policy maker from government ministry</td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td>9</td>
<td>Biodiesel firm professional</td>
<td>Type 3</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Specialized press professional</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Academic researcher</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Biodiesel producer association representative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>Biodiesel producer association representative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Congressman</td>
<td>Type 4</td>
</tr>
</tbody>
</table>

**Figure 2:** Types of Questionnaire per Cycle of Saturation and Interview.
Source: the authors.

### 4. Presentation and Analysis of Results

Data analysis shows that the most relevant aspect of the nonmarket strategy to the performance of biodiesel firm is the regulation related to the Social Fuel Stamp. Before diving in the details of the analysis that shows the relevance of the Social Fuel Stamp to the performance of the firm, it is proposed a section that shortly describes the main concepts that sustain Social Fuel Stamp norms. This section was developed based on the information collected during the interviews.

#### 4.1. The characteristics of the Social Fuel Stamp

The Social Fuel Stamp regulation can be defined as a set of norms or rules that has as the main target to stimulate biodiesel production firms to include family farmers in their raw material supply chains (Bueno et al., 2009; Mourad & Zylbersztajn, 2012). It establishes that biodiesel production firms are obliged to provide free technical assistance to the family farmers that are part of the firm’s raw material supply chain. The Social Fuel Stamp regulation is the most relevant aspect of the biodiesel industry’s nonmarket environment. The complexity of
Social Fuel Stamp rules create a second arena for companies to compete. The most successful firm in this competition is the one that is more capable to influence legislators and regulatory entities towards creation of (licit) advantages to the influencer or (licit) challenges to competitors.

Social Fuel Stamp regulation determines the quantity of raw material that each biodiesel producer firm must buy from family farmers (Secretaria…., 2018). The basis of calculation that is used to determine this quantity is the amount of money that the firm expects to spend with the totality of raw material purchases to the biodiesel production (Secretaria…., 2018). As soon as this basis of calculation is defined, it is estimated the total amount of raw material from family farmers that the biodiesel production firm needs to buy to meet Social Fuel Stamp requirements (Pedroti, 2013; Secretaria…., 2018). In addition to that, the geographic region in which the family farmers are located and the type of raw material that they can supply influence in the math behind the total quantity of raw material purchases to be done within the Social Fuel Stamp program (Bueno et al, 2009; Pedroti, 2013; Secretaria…., 2018). All of those rules are a wide battlefield in which firms and associations can act in order to influence the regulators to change the rules according to specific interests.

4.2. Open Codes Related to Social Fuel Stamp regulation

The primary source of information was the set of transcribed interviews. From this material, it was possible to start the open coding. This process consisted of a careful reading of the transcriptions and the subsequent process of grouping text fragments with similar meanings into open codes (Charmaz, 2014; Corbin & Strauss, 2015; Vergara, 2015). It was identified 538 text fragments in the transcription of the interviews carried out in the first cycle of saturation, and 94 text fragments in the transcriptions of the interviews carried out in the second cycle of saturation. Together, both cycles of saturation resulted in 632 text fragments.

The set of text fragments obtained in the first cycle of saturation resulted in 143 open codes. The set of text fragments that came from the second cycle of saturation resulted in 20 open codes. Together, both cycles of saturation totaled 163 open codes. Based on the number of text fragments associated with each open code, it was ranked the 15 most relevant open codes obtained from the transcriptions. Those open codes and the number of text fragments pertaining to each of them is presented in Figure 3.
From the total number of codes presented in Figure 3, seven of them explicitly refer to issues related to Social Fuel Stamp regulation. The seven open codes that mention the Social Fuel Stamp show two different approaches associated with this regulation: as a key regulatory aspect to the performance of biodiesel production firm and as key aspect for supply chain competitiveness. As the focus of this study is to discuss the relevance of the nonmarket environment for the performance of the firm, the Figure 4 brings the five open codes that refer to this topic, as well as excerpt of transcriptions that justify each open code.
<table>
<thead>
<tr>
<th>Open Code</th>
<th>Excerpt of transcription that justify the open code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>“Social Fuel Stamp regulation requires nonmarket strategy”. “As we were discussing about the Social Fuel Stamp, a multiplier that aids, a multiplier that aids or a percentage that aids a firm to reduce this cost [the cost of the Social Fuel Stamp] by half, means that this firm will become much more competitive than its competitors, with much higher chances of participating of the market. Therefore, the strategy, to get involved with the regulatory environment, I think it is the first step to manage properly a biodiesel firm” (Interviewee 10)</td>
</tr>
<tr>
<td>2</td>
<td>“Social Fuel Stamp regulation requires specialized professionals”. “You must have to understand exactly the rule [of the Social Fuel Stamp] to play with it properly. There are locks, there are things that you can do that are very strategic, and I believe that if the person does not understand very well, he/she will not be able to use those tools. They are not illicit tools. They are just tools that, if it is well deployed, the firm may reduce the risk, anyway, to improve performance somehow”. (Interviewee 2)</td>
</tr>
<tr>
<td>3</td>
<td>“Social Fuel Stamp regulation as complex, subjective and guided by political ideology”. “So, if the firm argue with the regulator, ‘why you are asking for this, this does not have nothing to do with the program [the Social Fuel Stamp program]’. Well, it is in this moment that you see the political aspect of the things. This political bias sometimes distorts the focus of the regulation [of the Social Fuel Stamp]. The other day I heard from the regulator, for example, ‘you know what, we could install solar panels in the family farms…” (Interviewee 6)</td>
</tr>
<tr>
<td>4</td>
<td>“Inconsistency, subjectivism and incoherence of Social Fuel Stamp rules”. “Firm must bear the cost of technical assistance to family farmers; thus, this is an additional cost to the firm. In addition to that, firm generally pays a premium price on the raw material coming from family farmers. Market names this bonus; a bonus on top of the base price, in this case soybean. So, if the soybean is being traded at BRL60.00 per bag in the market, a biodiesel firm must pay BRL60.00 per bag plus a premium of BRL1.30 per bag, plus BRL0.70 pertaining to technical assistance, for example. So, the soybean will be BRL2.00 per bag more expensive to a biodiesel firm than it is to a firm that buys it for any other end, for example, for the export market. It does not make any sense. It is the same soybean” (Interviewee 1).</td>
</tr>
<tr>
<td>5</td>
<td>“Social Fuel Stamp rules expose firms to risk”. “A standalone biodiesel production firm that doesn’t have soybean crushing plant integrated to the biodiesel facility, because of the Social Fuel Stamp regulation, is forced to enter in a market that the firm is not familiar with [family farming soybean market]. It is required from this firm working capital to buy this type of product [oilseeds from family farmers], this purchase must be one year upfront, and the firm needs to make a forecast on what it will be the volume sold of biodiesel in the next year to match the volume of oilseeds bought from family farming. This is, indeed, an unnecessary cost. The firm needs to have a team in the field to originate soybeans, it must have cash dedicated to buy and sell this product, all of this in a market that is totally different from the biodiesel market, it a dollarized market, it is a market controlled by the big grain trading houses. A firm that only produces biodiesel does not have any knowledge of this market [the soybean market].” (Interviewee 1).</td>
</tr>
</tbody>
</table>

**Figure 4:** Open Codes that Make Clear Reference to the Relation Between Social Fuel Stamp and Performance of the Firm.
Source: the authors.

The open coding analysis performed on the qualitative data collected from the interviews shows the relevance of the nonmarket environment on the biodiesel production firm. The Social Fuel Stamp regulation is highlighted as the central aspect of the nonmarket environment that influences the biodiesel production firm. The next section goes deeper in the discussion of the results by presenting the axis coding analysis.

### 4.3. Axis Code Related to the Relevance of the Nonmarket Environment

Based on the open codes obtained in the first and the second cycles of saturation, it was developed the axis codes (Mendonça, Remonato, Maciel, & Balbinot, 2013; Corbin & Strauss, 2015; Vergara, 2015). From a total of 64 axis codes, 57 came from open codes obtained in the
first cycle of saturation, while seven were obtained from the second cycle of saturation. The three most relevant axis codes were “Nonmarket environment impacts the performance of the firm” (with 18 open codes associated with it), “Nonmarket strategy is key for the success of the biodiesel production firm” (with 17 open codes associated to it), and “Nonmarket environment impacts the performance of the supply chain” (with 14 open codes associated to it). As the focus of this study is to discuss the relevance of the nonmarket environment on the performance of the firm, the analysis is restricted to the first axis code mentioned.

From the 18 open codes that form the axis code “Nonmarket environment impacts the performance of the firm”, five of them are related to Social Fuel Stamp regulation. The five open codes that compound the axis code in discussion are: “Social Fuel Stamp rules expose firms to an unknown business”; “Social Fuel Stamp rules expose firms to risk”; “Social Fuel Stamp is a fixed cost to the firm”; “Social Fuel Stamp demands financial robustness”; and “Losing Social Fuel Stamp causes big losses to the firm”. Among them, the most relevant open code is “Social Fuel Stamp rules expose firms to risk”, with 31 text fragments associated to it. Figure 5 brings to light two text fragments that illustrate the capacity of the Social Fuel Stamp rules to expose biodiesel production firms to risk.

<table>
<thead>
<tr>
<th>Text fragment that sheds light on how Social Fuel Stamp exposes biodiesel production firms to risk by forcing them to enter into a market they do not have expertise about.</th>
<th>Text fragment that sheds light on the lack of safety generated by the rules of Social Fuel Stamp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are biodiesel firms that were forced to get into this supply chain [of production of soybean from family farmers], building up a soybean crushing plant, and enter in the business of soybean origination, and enter in the barter fertilizer business in exchange for soybean and that, in many cases, almost took the firms to bankruptcy as they were not familiar with such kind of markets. (Interviewee 1).</td>
<td>[…] let’s not take the merit of the Social Fuel Stamp, but it needs to be improved because, the way it is shaped today, you have relevant lack of safety in the environment, you don’t have any predictability. In chats with several people of the industry, you have a huge delay of three years, four years to get responses from them [the regulatory agents that take care of Social Fuel Stamp] about very simple stuffs […]. (Interviewee 2).</td>
</tr>
</tbody>
</table>

**Figure 5:** Text Fragments that Shed Light on the Capacity of the Social Fuel Stamp to Expose Firms to Risk.  
Source: the authors.

The set of evidences presented corroborate to the understanding that Social Fuel Stamp is an important component of the nonmarket environment. Likewise, it is possible to affirm that the Social Fuel Stamp has a direct influence on the performance of the biodiesel production firm. Therefore, the integrated strategic management embracing both the market strategy and the nonmarket strategy (Baron, 1995a; Baron, 1995b) can be pointed out as key for a firm that wishes to thrive on the Brazilian biodiesel industry.

5. CONCLUDING REMARKS

Given the complexity of the Brazilian biodiesel industry regarding the relevant regulatory framework established by the government for the control of the activities, this research sought to discuss the relevance of nonmarket environment for Brazilian biodiesel production firms from a business strategy standpoint. To that end, it was established a qualitative approach that, from the phenomenological perspective and using the Grounded Theory as a research strategy, allowed the authors to understand the standpoints of key people in the industry about the objective established to the research.
The analysis of the data collected through in-person interviews showed that the central aspect of the nonmarket environment of the biodiesel industry is the Social Fuel Stamp regulatory framework. This regulation, aimed, by essence, to stimulate the biodiesel production firms to incorporate in their raw material supply chains the family farming production, has proven to be a fertile field in which firms and associations manage actions to change rules and bring advantages to themselves or to cause problems to competitors. Baron (1995a), Baron (1995b), Baron (1997a) and Baron (1997b) define nonmarket strategy precisely as a set of actions managed by a firm aimed to alter the nonmarket environment in its behalf.

In the begging of the qualitative analysis (open coding), it was already clear that Social Fuel Stamp would have an important role in the strategic moves of the biodiesel players. Proof of this is the fact that, from the 15 most relevant open codes, seven were directly linked to the subject Social Fuel Stamp. According to the open coding analysis, Social Fuel Stamp is relevant for both the performance of the individual firm and the performance of the supply chain.

From the set of open codes originated since the text fragments of the transcriptions of the interviews, it was generated 64 axis codes. Among them, “Nonmarket environment impacts the performance of the firm” was the most relevant as it was formed by 18 open codes. From this total, five of them were directly linked to Social Fuel Stamp, meaning that this topic is very relevant for the nonmarket environment that, in turn, is very relevant for the performance of the biodiesel production firm.

As limiting factor of this study, it is mentioned the impossibility to show quantitatively if nonmarket environment issues are relevant to the performance of the biodiesel production firm in Brazil. On the other hand, this study contributes to the literature by standing as a reliable explanatory base to studies that intend to make this quantitative evaluation. It is also important to mention that this study can serve as support to practitioners in discussions about forms to establish a business strategy for a firm in the Brazilian biodiesel market.

References


