Socioeconomic development in the context of Uruguay: A knowledge-based approach

Abstract

Purpose – The purpose of this exploratory study is to examine the relevance and impact of knowledge in the context of Uruguay's present and future socioeconomic development through the lens of the knowledge-based theory of the firm (KBTF).

Design/methodology/approach – The perspectives of 47 key informants, predominantly representatives of public and private Uruguayan institutions, including chambers of commerce and producer associations, were gathered through unstructured, face-to-face interviews.

Findings – Aligned with the KBTF, the significance of tacit knowledge, complemented with explicit knowledge, were revealed, particularly in the more traditional industries. Indeed, industry-based (tacit) knowledge evolving for generations has been strengthened by innovative practices, enhancing the image of key commodities, and the nation's exports. Additional elements highlighted in the KBTF, such as problem solving, knowledge integration and application, and knowledge specialisation were identified.

Originality/value – Essentially, the study highlights the different associations between the KBTF, the various forms of acquiring knowledge (tacit, explicit), innovation, and resulting impacts on food quality and increased product recognition for a developing economy. Moreover, the findings, which illustrate that crucial improvements can be achieved through knowledge-based approaches, could also be considered in the context of other emerging economies that are aiming to attain further socioeconomic development through maximising the benefits of knowledge. In addition, the study addresses a theme that has been sporadically presented in the academic literature, especially when studying developing economies, and their industries.

Keywords: Knowledge, knowledge-based theory of the firm, socioeconomic development, key informants, Uruguay

1. Introduction

Numerous authors have highlighted the importance of knowledge within organisations (e.g., Kimmerle et al., 2010; Nonaka and Konno, 1998; Nonaka et al., 2000, 2006; Tolstoy, 2010). Knowledge is multifaceted; it can be represented in numbers or words (Nonaka, 1994); it is personal, dynamic, and markedly different from information, which is based on explicit communication, or from data (Sveiby, 2001). Nonaka (1991) acknowledges the work of Machlup (1983) to emphasise such distinction, referring to information in terms of "flow of messages" (p. 15), and to knowledge as being "created and organized by the very flow of information" (p. 15).

Grant (1994) underlines distinctions between different types of knowledge, for instance, subjective versus objective, and tacit versus explicit. The last two types are extensively discussed in organisational research. Indeed, tacit and explicit knowledge are two categories of human knowledge highlighted by Polanyi (1966). Nonaka (1994) draws from Polanyi's work to explain that tacit knowledge is related to personal quality and it is difficult to communicate and formalise. Moreover, it is significantly rooted in commitment or action,

whereas explicit knowledge is codified and can be transmitted in systematic or formal language (Nonaka, 1994).

Organisational charts, numbers, or words are examples of explicit knowledge, while corporate culture, hunches, subjective insights or intuitions are examples of tacit knowledge (Hedlund, 1994; Hedlund and Nonaka, 1993; Nonaka and Konno, 1998). Importantly, tacit knowledge features two dimensions, with the first being technical, and encompassing 'know-how', including informal crafts or personal skills (Nonaka and Konno, 1998). The second dimension, cognitive, consists of values, mental models, ideals, or beliefs that are deep-rooted in individuals and are often taken for granted; it shapes the way in which individuals perceive the world (Nonaka and Konno, 1998).

Furthermore, knowledge is based on the beliefs and commitments of its holders, thus, suggesting its links to human action (Nonaka, 1994). Indeed, according to Kogut and Zander (1992), "the knowledge of the firm must be understood as… resting in the organizing of human resources" (p. 385).

Various academic contributions have emphasised the links between knowledge acquisition, its operationalisation, and socioeconomic development. An earlier study (Contractor and Lorange, 2002), for instance, underlines that an economy of knowledge supports rapid response, customisation, deconstruction of the value chain and dis-internalisation. Similarly, in discussing entrepreneurial activities in developing economies, West et al. (2008) acknowledge the importance of intangible resources, specifically knowledge, entrepreneurial orientation, and political stability. Moreover, when these resources are available, "communities will find ways to source tangible resources that can be productively used in their development efforts" (West et al., 2008, p. 29).

While knowledge is a crucial source of competitive advantage, "there is limited understanding of how organisations actually create and manage knowledge dynamically" (Nonaka et al., 2000, p. 5).

The present study contributes to the extant literature on one stream of knowledge and organisations, focusing on knowledge as a tool for socioeconomic development, including its operationalisation at organisational (industry, firm) and institutional level. To this end, the case of Uruguay, an emerging South American economy, is examined. In the last decade, some of this country's industries have experienced rapid development. At the same time, despite its limited size, this country's significance as a food producer has increased. However, academic research, including research investigating the role and impact of knowledge on such developments, has been very limited. Fundamentally, the study will address the following overarching research question:

To what extent is knowledge important, including its acquisition and further enhancement, as a tool for socioeconomic development in an emerging economy?

For example, how is knowledge operationalised to:

a) Further strengthen existing 'traditional' commodity-based industries?
b) Help develop alternative industries?
c) Enhance the potential of future socioeconomic development?

To address these questions, the perceptions of key informants managing and representing various institutions and industries, including production of commodities, international trade, and investigation and innovation, will be gathered. The inclusion of these stakeholders represents a first key contribution of this study, providing a valuable practical component. In addition, in examining the above research questions, the study contributes to the literature on socioeconomic regional development. Third, given the links between the themes under

investigation and the knowledge-based theory of the firm (KBTF) (e.g., Grant and Baden-Fuller, 1995; Nickerson and Zenger, 2004), this theoretical framework will be applied. The study will propose a refinement of the RBTF, and a conceptualisation of the study based on the findings. Finally, in this study, the 'organisation' or 'firm' as mentioned in the RBTF literature will be primarily interpreted in the context of Uruguay's industries.

2. Literature Review

2.1 The KBTF

This study's chosen theoretical framework, the KBTF, is an extension of various lines of research, including organisational learning, competences, and capabilities, innovation, epistemology, or new product development (Grant and Baden-Fuller, 1995). In acknowledging several contributions (e.g., Demsetz, 1991; Hedlund, 1994; Kogut and Zander 1992; Jensen and Meckling, 1992; Quinn, 1992; Spender, 1992; Grant and Baden-Fuller, 1995) propose some of the rudiments of the theory. These rudiments highlight various assumptions, such as "knowledge and the firm, a rationale for the existence of the firm, and analysis of knowledge integration within firms" (p. 17-18). Fundamentally, Grant and Baden-Fuller (1995) propose the following assumptions:

1) Knowledge represents an essential productive resource for firms, contributing to strategic significance and value added.
2) Knowledge includes technology, skills, know-how, and information; it can be tacit and explicit.
3) Individuals can acquire knowledge, and also store tacit knowledge.
4) Because people exhibit cognitive as well as time-related limitations, they must become more specialised in acquiring knowledge. Thus, a trade-off must occur, in that, by increasing their depth of knowledge, individuals must sacrifice breath of knowledge.
5) Production, or creating value by transforming inputs into output, usually demands the application of many forms of specialised knowledge (Grant and Baden-Fuller 1995).

Another contribution (Grant 1996) identifies a key assumption of the KBTF, namely, that knowledge is vital in production and as the main source of value. Grant (1996) postulates that firms are institutions for integrating knowledge, that knowledge exists within individuals, and that the fundamental role of organisations is in applying- rather than creating- knowledge. Grant (1996) also underlines that directives and rules in the knowledge-based firm "exist to facilitate knowledge integration" (p. 118); the source of these rules and directives "is specialist expertise" (p. 118) found throughout an organisation.

Nickerson and Zenger's (2004) research also attempts to develop the KBTF. These authors explain that knowledge formation and problem solving are core elements of the theory, and hypothesise that the creation of valuable new knowledge is managers' knowledge-based goal. However, managers "cannot simply choose new knowledge to acquire" (Nickerson and Zenger, 2004, p. 618) because such knowledge usually is not available. Consequently, managers need to identify 'valuable problems' that, if solved, can yield desirable capabilities or knowledge (Nickerson and Zenger, 2004). After a problem is chosen, managers organise searches for solutions that can optimise the cost, speed, or likelihood "with which valuable solutions are discovered" (p. 618). Such search for relevant knowledge can be accessed internally, within the firm, or externally (Nickerson and Zenger, 2004).

Figure 1 proposes a refinement of the KBTF based on the extant literature. First, a general conceptualisation of knowledge is associated with some of the theoretical contributions previously discussed. The links between the firm, the environment, and information are first

highlighted as affecting one another. Newly created or gathered information results in messages; the flow of these messages constitutes a source of knowledge creation and organisation (Nonaka, 1994). Second, the different assumptions concerning knowledge (Grant and Baden-Fuller, 1995), and postulations (Grant 1996; Nickerson and Zenger, 2004) with respective forms of operationalisation are suggested to have a subsequent impact on the firm, or, in the case of the present study, on a nation's most traditional and strongest industries. Third, information gathering, its flow resulting in new knowledge, and the various objectives and outcomes are assumed part of a continuous cycle, whereby, among other stakeholders, industry, firm, and government representatives need to scan the internal and external environment. In doing so, new knowledge, particularly explicit knowledge (e.g., new technologies, regulations, market trends, emerging consumer markets) is identified. This knowledge helps complement, reinforce, or strengthen existing, tacit knowledge, which is vital in exploiting opportunities or in minimising threats.

Figure 1 Here

Contemporary investigations have incorporated the KBTF in various contexts. Li and Scullion's (2010) conceptual research, for example, proposes a knowledge-based framework designed to develop local competence of expatriate Chinese managers. The framework is divided in three levels (external, individual, and corporate), and reveals relationships between knowledge, socialisation, articulation, and integration (Li and Scullion, 2010). In fact, the different forms of knowledge (tacit, explicit) that appear in the first two levels (external, individual) cascade down into the corporate level, which highlights integrated, corporate tacit knowledge, and corporate explicit knowledge. In turn, these three forms of knowledge lead to supporting decision-making, and finally to corporate decisions (Li and Scullion, 2010).

Concerning regional development, Etzkowitz and Klofsten (2005) propose a knowledge-based model of 'the innovating region' using an existing case (Linköping, Sweden) and previous academic literature identifying the transformation of knowledge-based regions in Europe and the United States. The model features four different stages (incipient, implementation, consolidation and adjustment, and self-sustaining growth), and complements these stages with as many goals, structure, processes and activities (Etzkowitz and Klofsten, 2005).

Apart from the KBTF, other important theoretical frameworks associating knowledge and entrepreneurship have been developed. One of them, the knowledge spillover theory of entrepreneurship (KSTE) (Acs et al., 2009) facilitates explanations of the roles of firms and individuals in an economy. Moreover, the theory rests on the premise that "Agents with new economic knowledge endogenously pursue the exploitation of such knowledge, implying that the existing stock of knowledge yields spillovers" (Acs et al., 2009, p. 16). Thus, the theory underlines strong relationships between entrepreneurial activity and knowledge.

In addition, Nonaka and Konno (1998) propose the SECI model, which brings together four conversion patterns or modes: socialisation, externalisation, combination, and internalisation. Furthermore, the model is based on the notion that the interaction between tacit and explicit knowledge results in creating new knowledge (Nonaka and Konno, 1998). Moreover, this interaction also leads to the conceptualisation of the four conversion patterns or modes above; each of them "can be understood as processes of self-transcendence" (Nonaka and Konno, 1998, p. 42). Self-transcendence illustrates "the boundary between self and other [individuals], as knowledge is created through the interactions amongst individuals or between individuals and their environment" (Nonaka et al., 2000, p. 8). In the process of knowledge creation, both macro (the environment) and micro (the individual) levels interact

with one another; through this interaction, changes occur, and the individual can influence or be "influenced by the environment with which he or she interacts" (Nonaka et al., 2000, p. 8).

2.2 The geographic context of the study

With only 3.42 million people (World Bank, 2015), Uruguay is one of South America's smallest countries; two of the region's largest and most influential economies surround its territory, Argentina to the south and Brazil to the north. Dubbed the 'Switzerland of South America' (Renfrew, 2009) in earlier decades, Uruguay has a history of political and social stability, high literacy, and relatively low rates of poverty (World Bank, 2015). In 2015, Uruguay's gross domestic product (GDP) was $US 53.4 billion, growing one percent from the previous year (World Bank, 2016a). Foreign direct investment (FDI) experienced constant and significant growth between 2000 (nearly $US 1 billion) and 2006 ($US 7.7 billion). However, since then it lowered, reaching $US 3.27 billion in 2015 (World Bank, 2016b). Employment in agriculture (people aged 14 and above) rose from 4.6 percent in 2005 to 11.6 percent in 2010, falling to 9.6 in 2013 (United Nations Statistics Division, 2016).

Although the services industry, particularly tourism, has grown over the years (Renfrew, 2009), commodities continue to form the backbone of Uruguay's economy. Indeed, for centuries, Uruguay has been predominantly a cattle and lamb producer and exporter (Renfrew, 2009). In 2014, agriculture-related production, particularly beef and dairy products, represented close to 75% share of Uruguay's total merchandise exports (WTO, 2015). Of the nearly USA$ 8 billion worth of exports in 2015, meat, live animals, and dairy products alone accounted for 30.7% or USA$ 2.4 billion (Uruguay XXI, 2016). Importantly, Uruguay's cattle industry has repositioned itself; it holds an enviable sixth position in the world in top-quality beef production; beef products are exported to over 100 nations (World Bank, 2015).

While the cattle industry has continued to play a leading role in exports and revenues, in recent decades, other commodity based industries, such as soybeans, forestry (cellulose, pulp), and rice have grown significantly (Renfrew, 2009; Uruguay XXI, 2015a, 2015b, 2016; World Bank, 2015). Despite the significance of natural resources for the country's economy, most of Uruguay's population (92.3%) lives in urban areas (WHO, 2014), with Montevideo, the capital (Renfrew, 2009) being by far the largest city.

3. Methods

In selecting the case of Uruguay, this exploratory study examines the significance of knowledge for a country's socioeconomic development through the lens of the KBTF.

Given the nature of the study, which is mainly based on the perceptions of managers and representatives of various institutions, such as chambers of commerce, food producer association and government agencies, a case study research strategy was selected. This strategy helps examine contemporary phenomena in real-life contexts, particularly when the boundaries between phenomena and context are not obvious (Yin, 1981). Case studies involve close examination of issues, topics or people (Hays, 2004), and usually entail answering 'how' or 'why' questions (Yin, 1994). Researchers choosing case study research scrutinize cases expecting to discover unusual or new interactions, explanations, interpretations, events, or cause-and-effect associations (Hays, 2004). The study also features multiple case studies, which are useful when replication logic may reveal support for results that are theoretically similar, or to contrast findings (Yin, 1994).

Typically, different data collection methods, including interviews, observations or archives are combined in case study research, with the evidence being qualitative or quantitative (Eisenhardt, 1989). Following this convention, a qualitative data collection approach based on interviews, observations, and written information was chosen in this

study. The interview method is also in line with Polkinghorne (2005), who recommends choosing "people who are willing to describe their experience to a researcher" (p. 140). The key informants identified in this study agreed to not only describe their experience, but also discuss the themes under investigation, including the overarching research question. To complement the interviews and observations, both paper- and internet-based information about Uruguay and the studied entities, industries, and businesses was collected.

Various types of literature were considered to gain understanding of the appropriate research question design. In particular, the KBTF literature (e.g., Grant, 1996, Grant and Baden-Fuller, 1995; Nickerson and Zenger, 2004), empirical research applying the KBTF (e.g., Etzkowitz and Klofsten, 2005), as well as research addressing socioeconomic development in Latin America (e.g., Requier-Desjardins et al., 2003), and strategy in emerging economies (Hoskisson et al., 2000) was consulted.

In mid-2014, internet search in Uruguayan industry and government websites helped identify 30 entities, the large majority private and public Uruguayan entities, predominantly producer associations, chambers of commerce, ministries, and export and economic development agencies. Most of these entities were selected based on their national and international relevance. For example, given the economic significance of beef, wood, rice and other products, various rural associations, federations, societies and other institutions were chosen. In the following weeks, formal contact was established with representatives of these entities via email.

The message included a brief introduction of the research project, and a request for individuals in management or similar leadership positions to participate in the study. This initial contact allowed for the preliminary arrangement of interviews with 21 of the 30 entities between December of 2014 and January of 2015. These interviews, which lasted approximately 45 minutes on average, were digitally recorded with participants' agreement.

Importantly, through their recommendations and knowledge, various interviewees helped identify 23 other entities, including model Uruguayan family businesses, rural-based groups, federations, and societies, chambers of commerce, and export and innovation agencies.

Between the first week of December and January, 47 face-to-face interviews were conducted in 36 of 53 contacted entities (Table 1). These entities included 14 rural-based societies, associations, federations, and institutes, nine chambers of commerce, three family businesses, three other chambers (technology, industry, and business), two cooperatives, two national agencies, one union of exporters, one technological laboratory, and one national educational (language) institution. The size of these participating entities ranged between three (e.g., chambers of commerce), and more than 30 employees (family businesses, government agencies) (Table 1). However, in various cases, particularly among chambers of commerce, participants volunteered their time, and had a different full-time occupation.

Once transcribed, content analysis was employed to analyse the resulting qualitative data. According to Hsieh and Shannon (1995), this method consists of subjectively interpreting "text data through the systematic classification process of coding and identifying themes or patterns" (p. 1278). With content analysis, categories can be created with the available data (Graneheim and Lundman, 2004), requiring the focus on selected areas of meaning, especially those areas related to the overarching research question. Thus, through this process data are reduced (Schreier, 2014).

The data management software NVivo, version 9 was used. Despite the very high knowledge and expertise of participants, it is recognised that many other knowledgeable and experienced individuals working at Uruguayan institutions or model private businesses may exist. However, the gathered data from individuals with very extensive expertise and knowledge of several of Uruguay's industries, as well background knowledge of the country's state of socioeconomic development provide invaluable insights with practical

value. Given word count requirements, only selected verbatim comments from these participants are provided; these comments will be coded as P1 (Participant 1), P2 (Participant 2) and so on.

3.1 Demographic characteristics of participants

Participants represented a wide diversity of industries and entities, from public and private institutions to various family firms. Illustrating their expertise and knowledge, 18 indicated having at least one decade of experience in their role. However, 22 others had previously worked in managerial/representative positions; at the time of the study, 17 of the participants held the position of director, manager, or chairperson. In the case of family firms, P45, and P47 were members of the second generation of business owners, and P44 was a member of the ninth generation. Finally, compared to female participants (17), males (29) clearly represented the majority of interviewees.

Table 1 Here

4. Results

4.1 Significance of knowledge in the context of Uruguay's socioeconomic development

The content analysis of the interviews with different public and private stakeholders revealed various common threads. Asked about the importance of knowledge at both industry and government level, one fundamental commonality was participants' perception of knowledge as a key element in solving problems in various forms. Among others, knowledge was perceived as strengthening historically relevant commodity-based industries, such as beef and lamb production, or in the process of developing alternative industries. Indeed, participants representing chambers of commerce, who were involved in international trade, or in commodity-based industries, emphasised the increased knowledge and recognition of Uruguay's rural products in international consumer markets, in particular beef and forestry products:

> P13: *Uruguay is well positioned with its beef in the world. Before, there were people selling Uruguayan beef saying it was Argentine beef, because consumers associated good beef with Argentine products...*
>
> P25: *Today, Uruguayan wood is exported to every continent… Europe, North America, Asia (China, South East Asia)… even small quantities to Australia.*
>
> P32: *Uruguayan rice is recognised worldwide for its high quality; this recognition means that it achieves the best market prices… 95 percent of rice in this country is exported…*
>
> P33: *Uruguayan rice has quality and international prestige, which allows us to compete successfully against such strong producers as the United States.*

Regarding the beef industry, the existing foundation of tacit knowledge, particularly among producers, cooperative representatives/managers, and development agencies, with several centuries of history, contributed to the receptiveness of new knowledge. Importantly, some participants' comments revealed that explicit knowledge, complementing tacit knowledge, has partly been built upon the support from international organisations and investors. This support included investments from neighbouring companies and individuals, international bank loans (International Monetary Fund, Inter-American Development Bank), and expertise from international partners, including the United States Department of Agriculture (USDA).

For instance, P5 referred to Argentine farmers who *"initiated the agricultural revolution"*, buying or leasing land in Uruguay, and bringing new techniques, processes, and machinery.

Moreover, as P13 stated: *"Argentine farmers brought innovation to Uruguayan agriculture, which… contributed to a bonanza in various regions of Uruguay that had never experienced the work of a seed drill [agriculture sowing machine]."* Thus, existing tradition, experience, and intuition in agriculture representing tacit knowledge were now significantly supported by explicit knowledge, in the form of innovation, new techniques, and equipment.

P11 reflected on the pioneering technological developments occurring in Uruguay's cattle/beef industry, with the emergence of traceability, a technology where Uruguay is now internationally recognised for its leadership, which allows for transparency throughout the product cycle and supply chain. These knowledge-based activities, coupled with the country's traditional image as a cattle producer, have contributed to transforming Uruguayan beef into a sought-after commodity in international markets, achieving high prices, also in very demanding European consumer markets (World Bank, 2015). This particular illustration underlines the numerous efforts, investments, and research devoted to strengthening one of Uruguay's longest and most successful industries. For P11, traceability technology was strongly related to the country's present and future competitive advantage in the beef export sector: *"We have been able to play a much broader role in traceability and [product] information, which provides Uruguay's products with some guarantees, and facilitates access to almost all of the world's markets… with traceability Uruguay can quickly fulfil all conditions to access export markets."* Uruguay's leadership in traceability technology has also been incorporated in other industries, including honey, poultry, citrus, or wine (World Bank 2015).

Such leadership is aligned with earlier research (Uhlenbruck et al., 2003), in that knowledge acquisition is a fundamental element of organisational learning, and includes building understanding from observation, experience, environmental scanning, or by "drawing on existing knowledge…" (p. 261). The above findings are also associated with research by Hoskisson et al. (2000). These authors contend "that large diversified business groups often found in emerging economies" (p. 262) are able to acquire resources because, apart from diversification, they possess specialised knowledge, particularly specialised abilities.

However, evidence suggests that building explicit upon existing tacit knowledge is a continuous process or improvement cycle. For example, a meeting organised by one of the participating entities early December 2014 to disseminate information of new USDA regulations, was attended by industry and government representatives, local media and researchers. The adoption and applicability of this new knowledge had very important implications for Uruguayan beef exports, and, accordingly, was taken very seriously by the different stakeholders. Moreover, these learning processes equipped the industry and its representatives (food producers, importers) with vital knowledge to maintain or enhance the 'Uruguay brand' among international consumers. Practically all participants one way or another mentioned Uruguay's beef industry and the national football team as Uruguay's success stories, helping this small country become more known internationally. The many years of building a Uruguay brand had taken significant time and effort. Given the ramifications for other exports or foreign direct investment, it was perceived as vital for the beef industry to maintain such positive image.

Knowledge acquisition, development, and operationalisation were not only suggested as vital at corporation or industry level, but also among those individuals involved in food production. P12 highlighted the significantly transformed rural landscape, and the changing role of rural women, from traditionally playing a more passive and supportive role, to becoming very involved in farming activities, including in farm management. Moreover, in contrast to the past, today many rural women have completed university or similar education, and gained theoretical and practical knowledge to run the farm business. Such knowledge and

attachment to the land could be vital in light of very challenging developments in Uruguay's rural areas (P12*): "Today, very few women remain on the land; only 5% of Uruguay's population is based in rural areas and approximately half (2.6%) are women. Women now have a different profile. Today, the rural woman is a professional, such as a veterinarian, an agronomist… she has studied, is an expert, or is a business manager, owner of the firm where she works."*

As previously suggested, the involvement of foreign investors, particularly from Uruguay's neighbours, as well as the implications for the acquisition of new knowledge, was also a common thread emerging from many comments (e.g., P11, P13, P30, P34). In the case of Argentina, wealthy farm operators or large firms had bought land, introduced new crops, and brought vital knowledge in the form of techniques, strategies or modern equipment that had radically transformed the farming landscape. This development is also supported by a recent industry report (Uruguay XXI, 2015a). Those interviewees knowledgeable of commodities and food production recognised that, without this crucial foreign direct investment, Uruguay would not have enjoyed such significant improvements in productivity, efficiency and overall development. One key illustration was the recently established soybean industry, which has been consistently growing since 2003-2004 by 24% yearly (Uruguay XXI, 2015a). In 2015, soybeans became the exporting commodity bringing most revenues (US$ 1.62 billion), though due to global price decreases, it currently accounts for Uruguay's third most lucrative export commodity after beef and wood pulp/cellulose (Uruguay XXI, 2015a).

Acquiring and further developing knowledge was not only apparent in large-scale or in more established industries. In fact, an additional pattern noticed through interviews with institutions involved in technology development, exports and promotion, in newly developed, or in growing industries, was the progress made in knowledge acquisition and successful operationalisation among Uruguayan firms and entrepreneurs (e.g., P14-P20, P25-P29, P31-P33). Several cottage or alternative industries have been developed in Uruguay in recent decades, including olive oil, honey, and wine production, or even micro-small software firms.

While in existence for nearly 100 years and facing serious decline, partly due to rural abandonment and the lure to find steady work in cities (P28), the honey industry has nevertheless made substantial quality improvements. These improvements were perceived to be the result of more rigorous production standards, with registration requirements for apiaries, and, as suggested earlier, with the development of traceability technologies, for instance, to identify the origin of the honey. In referring to recent quality-related achievements, P28 explained that Germany was one of the main export destinations of Uruguayan honey, and that *"Uruguay is one of the Latin American countries that most earns per kilogram of honey exported, an indirect reflection that our honey has quality."* Arguably, the significance of tacit and explicit knowledge characteristic of Uruguay's cattle industry, and its implications appears to influence other industries.

P7 and P8 identified various opportunities in another emerging industry, water purification equipment developed in Uruguay, with high commercial potential in the African continent, where the participants had noticed significant interest. Similarly, throughout various family business generations, P44-P47 had developed valuable industry knowledge that was reflected in the firms' culture. Indeed, P44's firm, one of Uruguay' pioneering wineries, had transformed the domestic wine landscape, introducing equipment and techniques to produce high-end wines, the first in the country. This new knowledge complemented the firm's century-old winemaking tradition, whereby the first family producers had brought knowledge and a wine culture from Spain, which was further cemented throughout generations. Today, the firms exports its wines to multiple countries, including demanding markets such as the United States, Canada, or to countries in the European Union.

P45's father had established Uruguay's first caviar business based on knowledge acquired through many years of networking with former Soviet Union researchers in the 1960s and 1970s. Today, the firm exports caviar to numerous countries around the globe. This case clearly illustrates that tacit knowledge has been complemented with new knowledge operationalised thourgh new strategies, techniques, and product marketing to maintain the firm's competitive advantage in a very challenging business environment. P45's case also demonstrates the importance of networks in knowledge gathering, and is aligned with earlier research (Requier-Desjardins et al., 2003) indicating that "knowledge diffusion and innovation are enhanced by the existence of a tight network of relationships between actors" (p. 53). This statement also applies in the context of institutions supporting Uruguayan business learn about international markets previously mentioned.

To guarantee future efficient and beneficial ways of acquiring and operationalising knowledge, some institutions have been specifically established to gather and disseminate information that would facilitate export activities among firms whose owners have limited or no knowledge of international markets. These institutions include Uruguay XXI, an organisation primarily established to gather knowledge, and facilitate exposure and the internationalisation of Uruguayan firms, products and services, and National Agency of Investigation and Innovation. Participants representing these entities (P14-P19) illustrated the increasing participation in international fairs, or physical presence (industry/institution delegations) in potential markets to showcase the country's products, or discuss trade opportunities and potential collaboration in areas where Uruguay was still lagging behind (e.g., technology development).

As P14 explained, *"We travel to potential markets, meet with the relevant agencies, institutions or people, and acquire information we consider of interest for those business people considering exports… we then return, create a file with this information, and have it available for business people."* P15 also mentioned that, after the first exploratory trip, the organisation brings interested managers to inspect potential export opportunities: *"This year, we travelled to Paraguay with 25 firms, to Chile with 13, to Colombia with 16 and to Peru with 20."* Clearly, such experiences constituted very valuable opportunities for acquiring new knowledge, reinforcing or complementing tacit knowledge built or developed in previous years, and overall, in disseminating knowledge to benefit entrepreneurs and the economy.

The long-term implications of knowledge acquisition and enhancement were also demonstrated in various comments highlighting the increasing international competition, especially in the beef and dairy industries. Various participants (P1, P11-P15) highlighted the concerns regarding the established trade agreements of Australia and New Zealand with China. While China has clearly increased its involvement in trade and investments in Latin America (Gallagher and Porzecanski, 2008), and is now one of Uruguay's strongest trading partners, buying beef and cellulose (Uruguay XXI 2015b), there was apprehension that the above new developments would affect future expansion of exports.

This finding has associations with an earlier report (Marin et al., 2009) recognising the need for Latin American countries to take advantage of the current surge in demand for natural resources. Marin et al. (2009) also refer to technological developments, in which new knowledge has been incorporated by natural resource industries, potentially providing a source of competitive advantage to countries in the region. However, such promising case is heavily dependent on timing; if not fully exploited at present, it might not be repeated, especially due to the emergence of new and strong competitors elsewhere in the world (Marin et al., 2009).

A final illustration also highlights the concern with developing a culture of knowledge among future generations. While not related to any Uruguayan exporting industry, the Plan Ceibal, which essentially seeks to build technological and language knowledge among children, also illustrated the significance of building tacit knowledge through explicit knowledge. Indeed, P21 explained that the one-laptop-per-child policy, coupled with English classes, where children could communicate live with English teachers via tele-conference, or face-to-face interaction would have long-term positive effects. In particular, these initiatives could help familiarise future generations with an increased technology-rich environment, where English is already the common language of interaction and trade. Another form of socioeconomic development through this form of incremental building of tacit knowledge was the intent to avoid a digital divide and critical knowledge gap among many children whose families lacked the needed resources.

5. Discussion

Figure 2 contextualises knowledge (KBVF) in the context of the study's findings. The rudiments, as well as the various assumptions highlighted by Grant and Baden-Fuller (1995) became apparent. For example, tacit knowledge emerged as a key element for some of Uruguay's most traditional industries, particularly in commodities, with cattle production dating back centuries. During such a long period of time, the industry has built significant expertise and knowledge that have contributed to a strong culture, one of the forms of tacit knowledge (Hedlund and Nonaka, 1993). Such culture has continued to be nurtured in more recent decades, with major innovations, and other developments taking place. On one hand, concern became evident, in that rural areas were becoming depopulated (P12, P28, P42-P43), and mega farms were becoming more common (P11, P13, P25, P34-P38). On the other hand, there was recognition that foreign direct investment significantly contributed to the professionalization of rural industries, and as a tool complementing existing tacit knowledge with new information (explicit knowledge). Thus, whereas tacit knowledge has been built over generations or even centuries, as in the case of the cattle industry, it has also been further nurtured or strengthened by the above new developments (i.e. new technologies, production techniques) strongly associated with explicit knowledge.

Uruguay's achievements in recognised high quality standards in some of its foods, the advent of traceability, which the country has pioneered (World Bank, 2015) constitute key forms of 'problem-solving.' These findings are aligned with research by Nickerson and Zenger (1995). Importantly, other emerging industries, though not as historically relevant as beef, lamb, leather or wool production, are following the steps of these traditional industries, making their mark on Uruguay's economy. The relatively recent establishment of the logging/forestry, soybean, rice, seeds, honey, or olive oil may be benefiting from an existing pool of tacit knowledge in the form of a well-established farming culture, and growing international recognition.

Furthermore, the illustrations of various family firms that have operated for several generations highlight the significance of tacit knowledge built on a strong foundation. New generations of owners have further enhanced such knowledge, continuously scanning the business environment to identify opportunities and threats. These examples also reveal that firm owners are both creating and applying knowledge to gain competitive advantage and succeed in a very competitive globalised environment. Rather than being an intimidating factor, the relative geographic isolation of Uruguay, an aspect highlighted by most participants, appeared to spur further efforts to enhance Uruguay's brand through quality and innovative practices. Again, the aspects of tacit knowledge and problem solving emerged in these cases.

Figure 2 Here

Finally, evidence gathered during the study suggests that there is a concern about building tacit knowledge in other forms. For example, introducing children to laptop technology or to foreign language education at a very early age may contribute to nurturing a culture of global awareness, global trade, or overall, a culture of problem solving action based on knowledge. The examples of investment to guide local entrepreneurs to find and exploit international trade opportunities (P14-P15) further illustrate the proactiveness in building tacit knowledge. Again, this knowledge is constantly reinforced by the acquisition of new information, which may also contribute to more entrepreneurial specialisation, to value adding, and to developing strategies of stronger significance (Grant and Baden-Fuller, 1995). With a very limited population and production volume in all its industries, building tomorrow's entrepreneurs through such basic yet crucial initiatives may have important implications for the country's future socioeconomic development.

6. Conclusions

In adopting the KBTF and gathering the perceptions of 47 key informants representing various entities, including public and private, this study examined the significance of knowledge in the context of an emerging South American economy. Overall, the responses highlighted the key value of knowledge, particularly as a problem-solving tool, in adding value to production, trade, specialisation, and overall to strategic significance. In fact, the existing foundation of knowledge developed throughout centuries in the cattle industry, coupled with the acquisition and incorporation of new ideas and techniques, further contributed to enhancing its potential and competitiveness. Furthermore, foreign direct investment, particularly from neighbouring countries, and loans from international lenders had both significantly contributed to innovation, modernisation, and further industry development, thus helping consolidate existing knowledge while incorporating new one. In addition, several interviews conducted among family firms, for instance, confirmed the importance of knowledge accumulation, and its complementation with constant environmental scanning and acquisition of new, explicit knowledge.

The various associations between the findings and the KBTF underline the value of this theoretical framework to guide understanding of socioeconomic development strategies and initiatives in an emerging economy. Fundamentally, the rudiments proposed by Grant and Baden-Fuller (1995), highlighting the strategic significance of specialised knowledge, and Nickerson and Zenger's (2004) proposition of applying knowledge to solve problems were clearly illustrated in the context of the findings. The proposed refinement of the KBTF (Figure 1), and the conceptualisation of the findings (Figure 2) highlighting several of the above associations further emphasise the potential of the knowledge-based theoretical foundation to examine similar contexts.

6.1 Implications

One key practical implication is the strategic significance for a country, in this case Uruguay, of developing a wealth of tacit knowledge, particularly in an industry or industries where the country has the potential to achieve competitive advantage. Such knowledge can be further reinforced, enhanced, and developed through the continuous gathering of new, explicit knowledge. Based on Nonaka et al.'s (2000) notion of interaction between tacit and explicit knowledge, such interaction could enhance an economy's strategic initiatives.

As the findings underline, the achievements made in a leading industry can also have a positive influence on other industries. One clear example illustrated in the interviews among family firms was the acknowledgement that a first step to enter a consumer market was the

perceived positive image of Uruguayan beef. The interaction of tacit and explicit knowledge and its application constitutes the foundation upon which an industry could build consistency of product quality, brand image, and, as the cattle industry demonstrates, continue an evolution, with long-term benefits for a country or region. As the case of the Ceibal project also demonstrates, building tacit knowledge and its reinforcement with explicit knowledge not only should focus on industries and institutions, but also on nurturing socioeconomic development and intellectual stimulation among future generations. The importance of tacit and explicit knowledge, translated into more innovative and entrepreneurial industries, and coupled with other key aspects, such as a stable government, sound policies to encourage entrepreneurship and FDI, and an educated population, could go a long way. Moreover, the knowledge-based aspects shaping Uruguay's socioeconomic development also provide a practical case, which could be considered by other emerging economies, in either the region, or elsewhere.

One important theoretical implication is represented by the adoption and refinement of the KBTF, and the proposed framework conceptualising the study's findings. Together, these tools constitute valuable theoretical foundations to understand the development, application, potential impacts, and implications of tacit and explicit knowledge. Moreover, the rudiments Grant and Baden-Fuller (1995) emphasised, and the notion of problem-solving (Nickerson and Zenger, 2004), value creation and application (Grant, 1996) could be considered in future research. Such consideration could include by facilitating the design of a framework or blueprint appropriate to the context of the study. The various associations between the findings and the theoretical underpinnings identified and depicted in Figure 2 demonstrate that the initial blueprint could also be further complemented by new discoveries. Thus, the developed conceptualisations could contribute to a more informed research outcome, guiding future investigations.

Finally, the various identified associations between the KBTF, tacit reinforced by explicit knowledge, which has resulted in innovative practices, and in improvements in food production and trade, could help illuminate ways to improve socioeconomic development in emerging economies.

6.2 Limitations and Future Research

The study is not free of limitations. For example, while numerous key informants participated, providing very insightful perspectives, additional participants, both government (e.g., ministries) and private industry (e.g., large Uruguayan companies) could have further enhanced the quality of the collected data. Efforts were made in person, by telephone, and through email correspondence to invite some of these individuals; however, their participation could not be secured. The timing of the study, in which data were gathered during one specific period (December of 2014 to beginning of January of 2015), represents a further limitation. Collecting data at various points of the year, particularly prior or after significant events (e.g., logging, soybean harvests, cattle exports), and collecting data in neighbouring countries could have allowed for making useful comparisons, including by confirming/disconfirming some of the response patterns identified in this study.

These shortcomings could be addressed in future research efforts. The further study of the strategic significance of knowledge development, and its operationalisation in various regional economies could therefore provide very valuable practical and theoretical insights. Such insights could illuminate industry and government entities, including in regards to the need to invest and further develop a strong knowledge foundation as a tool for socioeconomic development. Also, the increasing strategic significance of Latin America, for instance in the production of commodities for other emerging economies (Gallagher and Porzecanski, 2008) highlights the merit of conducting research in this region. Finally, the further adoption of the

KBTF could provide much-needed guidance and understanding, for instance, concerning knowledge creation and its application in emerging economies. As this exploratory research illustrates, such adoption could contribute to the further refinement of the theory, and its usefulness in guiding the understanding of the implications of knowledge in a rapidly changing and increasingly connected global economy.

7. References

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